Characteristics of included studies	Cancer, survivors
Study ID	**Campo 2013**
Study reference	1. Kinney A, Campo RA, O'Connor K, Boucher KM, Pappas LM, LaStayo PC, et al. Randomized trial of tai chi chih in elderly breast cancer survivors on quality of life and physical functioning: Interim outcomes. Supportive Care in Cancer. 2011;1):S104. 2. Kinney A, Campo R, O'Connor K, Boucher K, Pappas L, LaStayo P, et al. Feasibility and acceptability of a randomized trial of tai chi chih in senior female cancer survivors. Psycho-Oncology. 2011;2):235-6. 3. Kinney AY, Campo RA, K LI, Connor KO, Pappas L, Boucher K, et al. Effect of Tai Chi Chih on systolic blood pressure and salivary cortisol in senior female cancer survivors: A randomized trial. Supportive Care in Cancer. 2012;1):S74. 4. Nct. The HEALS Project - Health Education and Active Living for Surviving Seniors. https://clinicaltrialsgov/show/NCT01305044. 2011. 5.Campo RA, Light KC, O'Connor K, Nakamura Y, Lipschitz D, LaStayo PC, et al. Blood pressure, salivary cortisol, and inflammatory cytokine outcomes in senior female cancer survivors enrolled in a tai chi chih randomized controlled trial. Journal of Cancer Survivorship. 2015;9(1):115-25. 6. Campo RA, O'Connor K, Light KC, Nakamura Y, Lipschitz DL, LaStayo PC, et al. Feasibility and acceptability of a Tai Chi Chih randomized controlled trial in senior female cancer survivors. Integrative Cancer Therapies. 2013;12(6):464-74.
Study design	RCT
Author affiliation	Four authors are only affiliated with a tertiary institution in Utah, USA. Six authors are affiliated with the same tertiary institution in Utah, USA and also a cancer instite in Utah, USA. One author is associated with a teriarty institution in California, USA.
Source of funds	The HEALS Project was funded by the National Cancer Institute (R21 CA135250-02; Kinney, PI) and the Huntsman Cancer Foundation. Additional support was provided by the Shared Resources (P30 CA042014) and the Linda B. and Robert B. Wiggins Wellness-Survivorship Center at Huntsman Cancer Institute.
Declared interests of study authors	The authors declare no conflicts of interests.
Setting / provider	Community advertisments, Cancer Clinic, Tissue Registry; Tai Chi group: senior center, Control group: Academic cancer institute
Country(s) / region	Salt Lake City, Utah, USA
Enrolment period	Not reported
Length of treatment/ followup	12 weeks
Description of population	*N=* *Description*
# participants	63 **Solid tumours** (survivors with physical function limitations) (older women 55+ yrs)

Characteristics of included studies	Cancer, survivors					
Study ID	**Campo 2013**					
details	*Inclusion criteria:* Females ≥55 years, treatment of solid tumor cancer, stages I-III (excluding cancers that result in a limited life expectancy), ≥3 months since completing treamtment, with no detectable cancer, residence within 30 miles of HCI and able to travel, spoke and read English fluently, physcians medical release obtained and willing to be randomised to study arm. 83% had breast cancer stages I-III *Exclusion criteria:* Engaged in focused, intense physical activity for 30 minutes or more a day (3 times per week), prior experience with TC, yoga, qigong or medication wtihin the past 6 months, inability to pass the Folstein Mini Mental Status Exam (score ≤23), health conditions that could interfere with the intervention,SF-12 Health Survey physical functioning score >80 or role-physical score >72.					
Description of intervention /	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	32	Tai Chi Chih: 60 minutes sessions, held three times a week, over twelve weeks. TCC, a westernized and manualized form of the ancient TC Chuan, consists of a series of 20 simple, repetitive, non-strenuous movements that involve no physical contact and emphasize a soft, flowing continuity of motion. This form of meditation through movement consists of a standardized protocol that emphasizes slow, fluid, continuous forms that integrate mental concentration, awareness, balance, shifting of body weight, gentle movement, imagery, muscle relaxation and breathing control. TCC was developed for use with elderly persons.				
Comparator #1 (control)	--	--				
Comparator #2 (other)	31	Wellness education program: Health Education classes were 60 minute sessions that occurred three times a week, over twelve weeks. These classes were taught by specialists in the class topic and focused on topics related to aging (e.g., sleep quality, nutrition, pain, etc.). The Health Education classes serve as an attention control group, are led by gerontology specialists, physicians, and other health professionals, and focus on topics that are relevant to elderly cancer survivors.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	The classes were led by an instructor who was certified and licensed in the Tai Chi Chih form.			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies	Cancer, survivors				
Study ID	**Campo 2013**				
1	Primary	Psychosocial wellbeing	Baseline, one week post-intervention (13 wks)	SF-36 mental health component score	Higher score indicates better quality of life
2	Primary	Mental health	Baseline, one week post-intervention (13 wks)	SF-36 - mental health subscale	Higher score indicates better quality of life
3	Primary	General health perceptions	Baseline, one week post-intervention (13 wks)	SF-36 - general health perceptions subscale	Higher score indicates better quality of life
4	Primary	Social functioning	Baseline, one week post-intervention (13 wks)	SF-36 - social functioning subscale	Higher score indicates better quality of life
5	Primary	Role-emotional	Baseline, one week post-intervention (13 wks)	SF-36 - role-emotional subscale	Higher score indicates better quality of life
6	Primary	Physical wellbeing	Baseline, one week post-intervention (13 wks)	SF-36 physical health component score	Higher score indicates better quality of life

Characteristics of included studies	Cancer, survivors				
Study ID	**Campo 2013**				
7	Primary	Physical function	Baseline, one week post-intervention (13 wks)	SF-36-physical function	Higher score indicates better quality of life
8	Primary	Bodily pain	Baseline, one week post-intervention (13 wks)	SF-36 bodily pain subscale	Higher score indicates better quality of life
9	Primary	Role-physical	Baseline, one week post-intervention (13 wks)	SF-36 - role-physical subscale	Higher score indicates better quality of life
10	Primary	Vitality	Baseline, one week post-intervention (13 wks)	SF-36 - Vitality subscale	Higher score indicates better quality of life
11	Secondary	Perceived stress	Baseline, one week post-intervention (13 wks)	Perceived stress scale (10-item)	Higher score indicates more stress
12	Secondary	Cancer specific distress	Baseline, one week post-intervention (13 wks)	Impact of Events Scale	Higher socre indicates more stressful impact
13	Secondary	Sleep quality	Baseline, one week post-intervention (13 wks)	Pittsburgh Sleep Quality Index	Higher score indicates worse sleep uality

Characteristics of included studies	Cancer, survivors					
Study ID	**Campo 2013**					
14	Secondary	Mindfulness	Baseline, one week post-intervention (13 wks)	Five-Facet Mindfulness Questionnaire	Higher scores indicate more mindfulnes	
15	Secondary	Cardiorespiratory fitness	Baseline, one week post-intervention (13 wks)	Blood pressure	Not reported	
16	Secondary	Stress	Baseline, one week post-intervention (13 wks)	Cortisol Area Under the Curve	Five saliva samples (awakening, 30 minutes after awakening, noon, 5pm, & 10pm)	collected on a weekend day at one week after class completion
17	Secondary	Biomarkers, immune response	Baseline, one week post-intervention (13 wks)	Proinflammatory cytokines	Multiplex assay - IL-6, IL-10, IL-12, IL-4, TNF-alpha	
Method of analysis						
Statistics	Statisticicans were blinded to study arm allocation. Comparisons of the sociodemographics of the 2 study arms at baseline were assessed using Pearson $\chi 2$ tests for categorical data and Wilcoxon tests for continuous data. Wilcoxon nonparametric tests were used because the data were appreciably skewed. To assess the feasibility and acceptability of the intervention, retention (ie, proportion of participants who remained enrolled and completed postintervention measures) and attendance rates (ie, for those who did not withdraw, number of classes attended divided by total possible classes) were calculated, and study arms were compared with Fisher's exact and Wilcoxon tests, respectively. Additionally, Wilcoxon tests assessed participants' level of study satisfaction and intention for TCC participants to continue practicing TCC or HEC's intention to start exercise after study completion. For the SF-36v1 subscales and the MCS and PCS scores, analysis of covariances (ANCOVAs) were used to test the differences of study arms at postintervention while controlling for baseline values. Baseline values were used to control error and increase the precision to which the study arm effects could be measured by removing effects that may not have been effectively controlled by randomization.					
Population analysed	Per protocol	Per protocol analyses were conducted on participants with complete data at baseline and postintervention. Participants who withdrew from the study were not included in the analysis. The authors also provide ANCOVA				
Missing data	Yes	19.4% of participants (6/31) withdrew from the intervention arm either before starting the intervention or after starting the intervention due to other commitments or work related issus. Similarly 9.7% of participants (9.7%) in the intervention group withdrew either before or after the intervention. No imputaton methods were carried out. Participants were excluded from analysis. Overall , 14.3% of particpants withdrew after randomisation. Sample size was too small to conduct multiple imputation techniques.				

Characteristics of included studies	Cancer, survivors	
Study ID	**Galantino 2003**	
Study reference	Galantino ML, Capito L, Kane RJ, Ottey N, Switzer S, Packel L. The effects of Tai Chi and walking on fatigue and body mass index in women living with breast cancer: a pilot study. Rehabilitation Oncology. 2003;21(1):17-22.	
Study design	RCT	pseudorandomised
Author affiliation	One author is affiliated with the department of physical therapy at Richard Stockton State College and another author is associated with Cancer Rehabilitation at the University of Pennsylvania. Remaning authors are students at Richard Stockton State College	
Source of funds	Not reported	
Declared interests of study authors	The authors declare no conflicts of interests.	
Setting / provider	Various outpatients cancer centres in Southern New jersey	
Country(s) / region	Southern New Jersey, United States	
Enrolment period	Not reported	
Length of treatment/ followup	6 weeks	
Description of population	*N=*	*Description*
# participants	11	Breast cancer (survivors with fatigue)

Characteristics of included studies	Cancer, survivors					
Study ID	**Galantino 2003**					
details	*Inclusion criteria:* Aged between 40 to 59, stage II-IV breast cancer, had undergone adjuvant therapy in the past year, suffering from self-report fatigue. *Exclusion criteria:* Haemoglobin less than 10g/dl, any musculoskeletal or neurological conditions that may interefere with her ability to participate in an exercise program, stem cell transplant, thyroid condition, inability to speak read and write English and been execising regularaly (3 times per week) in the last year.					
Description of intervention /	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	6	Tai Chi (Yang style): 6 week program at a minimum for 3 times per week. Duration not specified. After first sessions, subjects practiced at home using a Tai Chi fundamentals video. 36 movements, characterised by their large circular movements. Minor arm position changes were made to accommodate.				
Comparator #1 (control)	--	--				
Comparator #2 (other)	5	Walking program: 6 week program for a minimum of three times per week. Duration not specified Individualised, self-paced, home-based walking exercise program, based on "Every step counts" booklet.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	No	Include in subgroup B	Home practice using video			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies	Cancer, survivors					
Study ID	**Galantino 2003**					
1	Not specified	Physical wellbeing	Baseline, end of treatment (6 wks)	Functional Assessment of Cancer Therapy-Breast (FACT-B)	28-item HRQL scale developed specifically for use in cancer clinical trials	details not provided
2	Not specified	Emotional wellbeing	Baseline, end of treatment (6 wks)	Functional Assessment of Cancer Therapy-Breast (FACT-B)	Self-rating questionnaire	details not provided
3	Not specified	Social/family wellbeing	Baseline, end of treatment (6 wks)	Functional Assessment of Cancer Therapy-Breast (FACT-B)	Self-rating questionnaire	details not provided
4	Not specified	Cardiorespiratory fitness	Baseline, end of treatment (6 wks)	heart rate	Pre/post walking HR	
5	Not specified	Cardiorespiratory fitness	Baseline, end of treatment (6 wks)	blood pressure	Pre/post walking BP	
6	Not specified	Cardiorespiratory fitness	Baseline, end of treatment (6 wks)	6-minute walk test (m)	Increase in distance walked indicates improvement in basic mobility	

Characteristics of included studies	Cancer, survivors					
Study ID	**Galantino 2003**					
7	Not specified	Percieved exertion	Baseline, end of treatment (6 wks)	BORG scale	Increase in score indicates increase in physical exertion	
8	Not specified	Anthropometrics	Baseline, end of treatment (6 wks)	% body fat	Equations produced by Heyward and Stolarcyk were used to calculate percent body fat from bone density with ethnic and gender considerations	Jackson and Pollack method was used to calculate bone density.
9	Not specified	Anthropometrics	Baseline, end of treatment (6 wks)	BMI (kg/m2)	Higher BMI indicates worse health	
10	Not specified	Fatigue	Baseline, end of treatment (6 wks)	Brief Fatigue Inventory	measures nine items on 10-point numeric scales for fatigue level and interference with daily life in the past 24 hours	
11	--					
12	--					
13	--					

Characteristics of included studies	Cancer, survivors	
Study ID	**Galantino 2003**	
14	--	
15	--	
16	--	
17	--	
Method of analysis		
Statistics	Analysis methods not described. Descriptive statistics appear to be used for HR, BP, BMI and percent body fat.	
Population analysed	Intent-to-treat	No information is provided on the analyis method used. An intent-to-treat method is assumed
Missing data	No	Authors do not report the details of the number of patients initially randomised. This makes it difficult to assess if there were any withdraws as again the authors do not report on withdrawal numbers. No imputation methods described.

Characteristics of included studies	Cancer, survivors		
Study ID	**Irwin 2014a**		
Study reference	1. Irwin MR, Olmstead R, Carrillo C, Sadeghi N, Nicassio P, Ganz PA, et al. Tai Chi Chih Compared With Cognitive Behavioral Therapy for the Treatment of Insomnia in Survivors of Breast Cancer: A Randomized, Partially Blinded, Noninferiority Trial. Journal of Clinical Oncology. 2017;35(23):2656-65. 2. Irwin MR, Olmstead R, Breen EC, Witarama T, Carrillo C, Sadeghi N, Arevalo JMG, Ma J, Nicassio P, Ganz PA, Bower JE, Cole S. Tai Chi, Cellular Inflammation, and Transcriptome Dynamics in Breast Cancer Survivors With Insomnia: A Randomized Controlled Trial. Journal of the National Cancer Institute Monographs. 2014;50:295–301. 3. Nct. Tai Chi Effects on Chronic Insomnia in Breast Cancer Survivors: immune Mechanisms. https://clinicaltrialsgov/show/NCT00690196. 2008.		
Study design	RCT	pseudorandomised	
Author affiliation	Multiple research centres and departments at UCLA		
Source of funds	R01 CA160245-01, and in part by R01-AG034588, R01-AG026364, R01-CA119159, R01 HL095799, R01 DA032922-01, P30-AG028748 to MRI; UCLA (CTSI UL1TR000124); the Cousins Center for Psychoneuroimmunology; UCLA Claude D. Pepper Older Americans Independence Center (P30-AG028748). The National Institutes of Health had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; or preparation, review, and approval of the manuscript		
Declared interests of study authors	The authors report no conflicts of interest.		
Setting / provider	Recrutiedd through advertisments / community		
Country(s) / region	Los Angeles, United States		
Enrolment period	April 2007 to August 2013		
Length of treatment/ followup	12 weeks		
Description of population	*N=*	*Description*	
# participants	45	Breast cancer (survivors with insomnia)	

Characteristics of included studies	Cancer, survivors					
Study ID	**Irwin 2014a**					
details	*Inclusion criteria:* Participants fulfilled criteria for primary insomnia in Diagnostic and Statistical Manual (DSM-IV-TR) (Fourth Edition, Text Revision). In addition, participants (age range: 30–85 years of age) had been diagnosed with breast cancer, completed treatment with surgery, radiation, and/or chemotherapy at least 6 months before the study, and showed no evidence of cancer recurrence or new primary tumour. *Exclusion criteria:* DSM-IV-TR exclusion criteria of medical and psychiatric disorders were applied. Additionally, tobacco smoking, BMI >35 kg/m2, debilitating condition that would impede full participation in the study					
Description of intervention /	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	45	Tai Chi Chih: 120 minutes weekly for 12 weeks The first 8 weeks emphasized mastery of single forms through multiple repetitions in class and at home; latter weeks focused on class consolidation of daily practice routines with natural breathing integrated into all sessions. Diary assessments were administered to assess frequency and duration of practice between sessions and at follow-up. TCC emphasised control over physical function and arousal-related responsiveness through the performance of repetitious, nonstrenuous, slow-paced movement				
Comparator #1 (control)	--	--				
Comparator #2 (other)	45	Cognitive behavioural therapy-insomnia: 120 minutes weekly for 12 weeks Each session dictated objectives, patient skills, and treatment activities, in which therapists provided direct role-playing and other skill-development exercises designed to increase patients' self-efficacy in managing their insomnia. Included five treatment modules with individual treatment plans for follow-up.				
Comparator #3 (other)	--	--				
Co-interventions	--	Routine nursing care/usual care				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	TCC was administered in groups of 7-10 by a master's level instructor who had undergone certification by the national TCC association. CBT-I was administered in groups of 7-10 subjects by two co-therapists, a licensed clinical psychologist and a Ph.D. level therapis,			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies		Cancer, survivors			
Study ID		**Irwin 2014a**			
1	Primary	Insomnia remission	Baseline, end of treatment (12 wks)	Decrease (>/= 5 points) on the PSQI or marked clinical improvement of symptoms	
2	Secondary	Sleep quality	Baseline, end of treatment (12 wks)	Pittsburg sleep quality index	
3	Secondary	Sleep quality	Baseline, end of treatment (12 wks)	Athens Insomnia Severity Index	
4	Secondary	Sleep continuity	Baseline, end of treatment (12 wks)	Sleep diary	
5	Secondary	Sleep continuity	Baseline, end of treatment (12 wks)	Polysomnography	
6	Secondary	Fatigue	Baseline, end of treatment (12 wks)	Multidimensional Fatigue Symptom Inventory	A 30-item self-report instrument designed to measure general fatigue, physical fatigue, emotional fatigue, mental fatigue, and vigor.

Characteristics of included studies					
Study ID	**Irwin 2014a**				
7	Secondary	Sleepiness	Baseline, end of treatment (12 wks)	Epworth Sleppiness Scale	
8	Secondary	Depression	Baseline, end of treatment (12 wks)	Inventory of Depressive Symptoms - clinician rated	
9	Secondary	Inflammatory biomarkers, systemic	Baseline, end of treatment (12 wks)	C reactive protein	Blood samples
10	Secondary	Inflammatory biomarkers, cellular	Baseline, end of treatment (12 wks)	TLR-4 activated monocyte production of TNF-alpha & IL-6	
11	Secondary	Inflammatory biomarkers, genetic	Baseline, end of treatment (12 wks)	gene expression of >50 markers	
12	--				
13	--				

Characteristics of included studies		Cancer, survivors
Study ID		**Irwin 2014a**
14		--
15		--
16		--
17		--
Method of analysis		
Statistics		Noninferiority of the primary outcome was assessed by using an F statistic from linear mixed models and the appropriate CI side; significant P values indicate noninferiority, in which the observed difference between the two treatment means is significantly less than the noninferiority margin F-statistic (2.5). Intervention effects on secondary outcomes of proportion of insomnia remission and treatment response were tested by using Fisher's exact test. A priori contrasts tested group differences in CRP and TLR-4 activation from baseline to postintervention. All analyses controlled for multiple comparisons. Analyses were carried out with IBM SPSS for Windows, version 22, or R package nlme, TELiS, and TOA software (for gene expression analyses).
Population analysed	Intent-to-treat	Intention-to-treat basis using a mixed model approach, covarying for baseline. All randomly assigned participants were included. For each of the models, the random effect was participant and the fixed effects were group (TCC v CBT-I), time, and group 3 time interaction. We tested whether two baselines differed for any secondary outcome and found no differences. Subsequent analyses covaried for baseline immediately before treatment, that is, baseline 2. The restricted maximum likelihood estimate method estimated model parameters and standard errors with a compound symmetry covariance structure to account for the correlation between measurements. We used type III fixed effects (F and t) and set the statistical significance at $P < .05$.
Missing data	Yes	The mixed model approach generated unbiased estimates under the assumption that data are missing completely at random and the missing completely at random assumption was tested. Data were available on . 95% of retained participants at all time points. Additional comparisons were made by using either t test or Fisher's exact test as appropriate.

Characteristics of included studies	Cancer, survivors
Study ID	**Larkey 2011**
Study reference	1. Larkey LR, D.; Weihs, K.; Lopez, A. M.; Rogers, C.; Jahnke, R. Effects of Qigong/Tai Chi easy on breast cancer survivors' fatigue, weight and quality of life. Psycho-Oncology. 2011;20 (Suppl 1):35. 2. Larkey LK, Roe DJ, Weihs KL, Jahnke R, Lopez AM, Rogers CE, et al. Randomized controlled trial of Qigong/Tai Chi Easy on cancer-related fatigue in breast cancer survivors. Ann Behav Med. 2015;49(2):165-76. 3. Linda Larkey, Jennifer Huberty, Maja Pedersen, Karen Weihs. Qigong / Tai Chi Easy for fatigue in breast cancer survivors: rationale and design of a randomized clinical trial. Contemporary Clinical Trials. 2016
Study design	RCT
Author affiliation	All authors are affiliated with Arizona State University, School of Nutrition and Health Promotion, United States
Source of funds	This study is funded as a grant (1RO1CA182901-01A1) by the National Institute of Health/National Cancer Institute (NCI)
Declared interests of study authors	Dr. Larkey participates in the Institute of Integral Qigong and Tai Chi as one of the institutes Senior Trainers, and trains Tai Chi Easy practice leaders (staff and community members) who build their own client base and also help lead classes for her research, but does this as service in the context of her job as a professor.
Setting / provider	Community centers or hospital/health center group rooms
Country(s) / region	Phoenix
Enrolment period	Not reported
Length of treatment/ followup	6 months
Description of population	*N=* *Description*
# participants	101 Breast cancer (survivors, postmenopausal 40+ yrs)

Characteristics of included studies	Cancer, survivors					
Study ID	**Larkey 2011**					
details	*Inclusion criteria* are: 1) diagnosis of stage 0- III breast cancer; 2) six months to five years past primary treatment; 3) 45-75 years of age; 4) post-menopausal status; and 5) currently experiencing fatigue symptoms (scoring less than 50 on vitality scale of SF-36) *Exclusion criteria are:* 1) inability to stand for 10-minute segments; 2) individuals whose current health status includes fatigue-related factors (hypothyroidism, anemia, uncontrolled diabetes, auto-immune disorders); 3) individuals whose non-cancer related life conditions may contribute to fatigue symptoms, such as currently working night-shift; or use of more than two alcoholic beverages daily; 4) individuals with current, prescription use of oral antihistamines, cyclosporine, and/or corticosteroids; 5) individuals who have substantial experience with a MM practice (i.e., have practiced consistently across three consecutive months in the past year); and 6) individuals who report moderately severe or greater depression.					
Description of intervention /	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	52	Tai Chi - 60 minutes session once per week for 12 weeks practiced at community or hospital centres Practice includes a series of repeated and simple-to-learn movements derived from traditional Qigong practices and single Tai Chi movements. Participants were encouraged to progress at their own pace, and chairs were available to use for modified practice (options taught within the standardized practice) for those too fatigued to complete a full hour of standing movement.				
Comparator #1 (control)	--	--				
Comparator #2 (other)	49	Sham QiJong - 60 minutes session once per week for 12 weeks practiced at community or hospital centres Practice includes movements were selected or created based on similar use of arms and/or legs in comparable range of motion and speed to mimic the QG/TCE exercises, with a similar number of core exercises and “varietal” options.				
Comparator #3 (other)	--	--				
Co-interventions	Home practice	DVDs and practice manuals will be provided to each of the active groups (unique materials for each group - QG/TCE or SQG) for at-home practice (30 minutes daily most days of the week)				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	All QG/TCE practice leaders will complete a structured training curriculum and will be “approved” by the Principal Investigator before engaging in group instruction			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies		Cancer, survivors				
Study ID	**Larkey 2011**					
1	Primary	Fatigue	Baseline, post-intervention (12 weeks) and 6 month follow up	Fatigue Symptom Inventory (0-10)	16-item self reported measure. Scores between 0 and 10	higher score means more fatigue. Score above 3 is clinically meaningful
2	Secondary	Sleep Quality	Baseline, post-intervention (12 weeks) and 6 month follow up	Pittsburgh Sleep Quality Indedx	19-items to assess sleep quality	Score above 5 means porr sleeper
3	Secondary	Depression	Baseline, post-intervention (12 weeks) and 6 month follow up	Beck Depression Inventory	20-items, validated in non-psychiatric patients	
4	Secondary	Quality of life - mental	Baseline, post-intervention (12 weeks) and 6 month follow up	SF-36 - mental component summary		
5	Secondary	Quality of life - physical	Baseline, post-intervention (12 weeks) and 6 month follow up	SF-36 - phyiscal componenet summary		
6	Secondary	Cognitive function	Baseline, post-intervention (12 weeks) and 6 month follow up	Functional Assessment of Cancer Therapy-Cognitive Function (FACT-COG)	includes a total of 33 items, with 2 subscales	

Characteristics of included studies	Cancer, survivors				
Study ID	**Larkey 2011**				
7	Secondary	Cognitive performance	Baseline, post-intervention (12 weeks) and 6 month follow up	Digit Span and Letter-Number Sequencing from the Wechsler Adult Intelligence Scale-Third Edition	
8	Secondary	Anxiety and Depression	Baseline, post-intervention (12 weeks) and 6 month follow up	Profile of Mood States Short Form (POMS-SF)	37 item (adjectives), 5-point Likert scale
9	Secondary	Peripheral neuropathy	Baseline, post-intervention (12 weeks) and 6 month follow up	FACT-COG-Ntx	Detects changes in symptoms over time in BCS
10	Secondary	Physical activity (subjective)	Baseline, post-intervention (12 weeks) and 6 month follow up	Women's Health Initiative Brief Physical Activity Questionnaire (WHI-BPAQ)	
11	Secondary	Physical activity (objective)	Baseline, post-intervention (12 weeks) and 6 month follow up	An accelerometer	The Actigraph GT3X will measure movement frequency and intensity, and sedentary waking time.
12	Not specified	Mind-body practice experience	Post-intervention (12 weeks) and 6 month follow up	Meditative Movement Inventory (MMI)	
13	Not specified	Class content	After each class	Checklists for each practice	

Characteristics of included studies	Cancer, survivors			
Study ID	**Larkey 2011**			
14	Not specified	Social support	Weekly following practice	Marital (Partner) Confiding scale
15	Not specified	Perceived exertion	Weekly following practice	Borg Rating of Perceived Exertion Scale
16	--			
17	--			
Method of analysis				
Statistics	SPSS v.23 software package will be used to conduct the descriptive statistics, scatter plots, and histograms for continuous variables and tabulations and crosstabulations for categorical variables to identify potential data entry errors, outliers, and non-normally distributed variables. To examine effects of the QG/TCE intervention on change in fatigue, ANCOVA models will use baseline measures of the outcome variable as a covariate and the experimental groups as the groups being compared. Separate analyses will be conducted for the 12-week and 36-week assessments.			
Population analysed	Intent-to-treat	Only individuals who attended some portion of the classes are included in the statistical analysis (irrespective of whether they had measurements at all three time points). There were 14 individuals who failed to attend the classes, leaving 87 women (13.9% attrition). Class attendance ranged from 4 to 14 sessions, with a mean of 10.2 classes attended per participant, and no difference in attendance between arms of the study. There were no significant differences between those who were included in the analysis in the study (i.e., those who attended the classes) and those who were not included on any of the baseline characteristics.		
Missing data	Yes	Missing values were not imputed due to the relatively small number of missing measurements across study participants (< 10%) Participant responses were reviewed for missing data immediately after onsite completion of questionnaires, and participants were given an opportunity to complete overlooked questions or indicate a preference not to answer during the data collection session.		

Characteristics of included studies	Cancer, survivors
Study ID	**Mustian 2004a**
Study reference	1.Mustian KM, Katula JA, Gill DL, Roscoe JA, Lang D, Murphy K. Tai Chi Chuan, health-related quality of life and self-esteem: a randomized trial with breast cancer survivors. Supportive Care in Cancer. 2004;12(12):871-6. 2.Mustian KM, Katula JA, Roscoe J, Morrow G. The influence of Tai Chi (TC) and support therapy (ST) on fatigue and quality of life (QOL) in women with breast cancer (BC). Annual meeting proceedings of the american society of clinical oncology. 2004:760. 3.Mustian KM, Katula JA, Zhao H. A pilot study to assess the influence of tai chi chuan on functional capacity among breast cancer survivors. The Journal of Supportive Oncology. 2006;4(3):139-45. 4.Mustian KM, Palesh OG, Flecksteiner SA. Tai Chi Chuan for breast cancer survivors. Medicine & Sport Science. 2008;52:209-17. 5.Peppone LJ, Mustian K, Rosier RN, Piazza KM, Hicks DG, Palesh OG, et al. The effect of tai chi chuan on bone remodeling and cytokines among breast cancer survivors: A feasibility trial. Journal of Clinical Oncology. 2009;1):9610. 6.Peppone LJ, Mustian KM, Janelsins MC, Palesh OG, Rosier RN, Piazza KM, et al. Effects of a structured weight-bearing exercise program on bone metabolism among breast cancer survivors: a feasibility trial. Clinical Breast Cancer. 2010;10(3):224-9. 7.Janelsins MC, Davis PG, Wideman L, Katula JA, Sprod LK, Peppone LJ, et al. Effects of Tai Chi Chuan on insulin and cytokine levels in a randomized controlled pilot study on breast cancer survivors. Clinical Breast Cancer. 2011;11(3):161-70. 8.Sprod LK, Janelsins MC, Palesh OG, Carroll JK, Heckler CE, Peppone LJ, et al. Health-related quality of life and biomarkers in breast cancer survivors participating in tai chi chuan. Journal of Cancer Survivorship. 2012;6(2):146-54.
Study design	RCT
Author affiliation	All authors affilifated with tertiatary institutions in America
Source of funds	Supported by awards from the Susan Stout Exercise Science Research Fund and the Sally Schindel Cone Womens and Gender Studies Research Fund at the University of North Carolina at Greensboro.
Declared interests of study authors	Not reported
Setting / provider	Community mailout and flyers trhough various Cancer Centers,
Country(s) / region	USA, North Carolina
Enrolment period	Not reported
Length of treatment/ followup	12 weeks
Description of population	*N=* *Description*
# participants	31 Breast cancer (survivors)

Characteristics of included studies	Cancer, survivors					
Study ID	**Mustian 2004a**					
details	*Inclusion criteria:* (1) being female, (2) having a histological diagnosis of primary breast cancer stage 0–IIIb, (3) being between 1 week and 30 months after treatment, (4) having no drainage tubes or catheters, (5) not engaging in moderate to vigorous physical activity more than once a week, (6) obtaining a physicians clearance for fitness testing and exercise, (7) having no physical limitations prohibiting exercise, and (8) having no clinical diagnosis of mental disorder, as defined by the use of psychotropic drugs and self-report					
Description of intervention /	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	11	Tai Chi (Yang style short form): 60 minutes three times a week for 12 weeks Participants performed 10 minutes of warm-up stretching and basic Chi Kung (stationary TCC fundamentals). The participants then performed TCC for approximately 40 minutes, and learned a 15-move short form of Yang style TCC. During the last 10 minutes of each session, participants were instructed in regulatory breathing, imagery, and meditation in order to enhance their TCC skills and provide an exercise cool-down				
Comparator #1 (control)	--	--				
Comparator #2 (other)	10	Psychosocial support therapy: 60 minutes three times a week for 12 weeks The PST sessions were theoretically guided following Spiegels Supportive-Expressive Group Therapy model and conducted in an open-ended format that placed strong emphasis on teaching behavioral coping strategies, peer support, and group cohesion				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	The PST sessions were lead by a graduate exercise psychology student, under the direct supervision of a Masters-trained counselor. The TCC group was led by an American College of Sports Medicine certified health and fitness instructor, who was also an			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies		Cancer, survivors			
Study ID	**Mustian 2004a**				
1	Primary	Fatigue	Baseline, mid (6 weeks) and end of treatment (12 weeks)	Functional assessment of chronic illness therapy–fatigue (FACIT–F)	A 40-item measure that assesses self-reported fatigue and its impact upon daily activities and function.
2	Primary	Self esteem	Baseline, mid (6 weeks) and end of treatment (12 weeks)	Rosenberg Self-Esteem Scale (RSE)	10-item survey on which participants respond using a Likert scale ranging from 1 to 5
3	--	Functional capacity, aerobic	Baseline, mid (6 weeks) and end of treatment (12 weeks)	6-minute walk test	
4	--	Functional capacity, muscular	Baseline, mid (6 weeks) and end of treatment (12 weeks)	Handgrip strength	
5	--	Functional capacity, flexibility	Baseline, mid (6 weeks) and end of treatment (12 weeks)	Goniometric measurments (shoulder flexion, extension, abduction, adduction	
6	--	Body composition	Baseline, mid (6 weeks) and end of treatment (12 weeks)	Bioelectrical impedance analysis	

Characteristics of included studies		Cancer, survivors			
Study ID	**Mustian 2004a**				
7	--	Bone health	Baseline, mid (6 weeks) and end of treatment (12 weeks)	serum bone-specific alkaline phosphatase	fasting serum levels
8	--	Growth factors	Baseline, mid (6 weeks) and end of treatment (12 weeks)	serum insulin-like growth factor (IGF)-1 serum IGF binding protein (IGFBP)-1 serum IGFBP-3	
9	--	Cytokines	Baseline, mid (6 weeks) and end of treatment (12 weeks)	IL-2, Il-6, IL-8, IL-1b, IFN-gamma2	
10	--	HRQoL	Baseline, mid (6 weeks) and end of treatment (12 weeks)	SF-36 - global score	
11	--				
12	--				
13	--				

Characteristics of included studies	Cancer, survivors	
Study ID	**Mustian 2004a**	
14	--	
15	--	
16	--	
17	--	
Method of analysis		
Statistics	Descriptive statistics were calculated to determine the nature and variability of participants demographics, as well as reported HRQL and self-esteem. The general analytic plan included calculating simple change scores, correlations and analyzing within- and between-group differences on HRQL and self-esteem using analysis of variance (ANOVA) techniques with appropriate post hoc analyses	
Population analysed	Intent-to-treat	Modified - 10/31 (32%) participants dropped out during the study. Missing data were not included in analysis
Missing data	Yes	The reasons expressed by participants for discontinuing (TCC n=6, PST n=4) included not liking their group assignment, work, family, joining a fitness center, and severe side effects from treatment (e.g., cognitive deficits). All of the patients who dropped out because of not liking the group they were assigned to were assigned to the PST group and desired the TCC group.

Characteristics of included studies	Cancer, survivors
Study ID	**Natma 2015**
Study reference	Natma Thongteratham, Kanaungnit Pongthavornkamol, Karin Olson, Adune Ratanawichitrasin, Dechavudh Nityasuddhi, Doungrut Wattanakitkrilert. Effectiveness of Tai Chi Qi Qong Program for Thai Women with Breast Cancer: A Randomized Control Trial. Pacific Rim Int J Nurs Res 2015; 19(4) 280-294
Study design	RCT Repeated measures
Author affiliation	All authors affiliated with tertiary institutions: Mahidol University, Bangkok, Thailand; Univeristy of Alberta, Canada; and Huachiew Chelermprakiet Univeristy, Samut Prakarn, Thialand.
Source of funds	Supported by a grant from the Thailand Nursing Council (TNC).
Declared interests of study authors	No information provided.
Setting / provider	Breast clinic at University hospital in Bangkok
Country(s) / region	Bangkok, Thailand
Enrolment period	Mid-December 2011 to July 2012
Length of treatment/ followup	12 weeks
Description of population	*N=* *Description*
# participants	30 Women with breast cancer

Characteristics of included studies	Cancer, survivors					
Study ID	**Natma 2015**					
details	*Inclusion criteria:* 1) first diagnosis with stage 0-IIIb breast cancer; 2) completion of treatment at least one year before the study; 3) no physical limitation on low to moderate exercise; 4) no diagnoses of mental disorders; 5) having telephone contact number; and 6) ability to read, write, and speak Thai. *Exclusion criteria:* Not reported					
Description of intervention /	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	15	Tai Chi Qi Qong: 60 minute sessions once a week for 12 weeks Sessions divided into three phases: 1) warm-up for 5 minutes, 2) exercise (18-form TCQQ practicing for 45-50 minutes), and cool-down for 5-10 minutes. The 18-form TCQQ was grouped into 3 sets (6- form/set) aiming to assist participants' memory. The participants practiced the 18-forms at the 4th week of the program. Weekly phone calls were conducted to monitor and motivate participants.				
Comparator #1 (control)	15	Control group: Routine nursing care/usual care				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Conducted by the PI who was certified in TCQQ practice and had previous experience leading sessions			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies					
Study ID	**Natma 2015**				
1	Not specified	Self esteem	Baseline, mid (6 weeks) and end of treatment (12 weeks)	Rosenburg Self-esteen	10-item scale measuring global self-worth covering both positive and negative feeling about self-esteem.
2	Not specified	Fatigue	Baseline, mid (6 weeks) and end of treatment (12 weeks)	Fatigue Symptom Inventory	14-item self-report measure designed to assess severity, frequency, and daily pattern of fatigue
3	Not specified	Stress	Baseline, mid (6 weeks) and end of treatment (12 weeks)	Cortisol	Used as a biomarker of psychological stress and related mental or physical disease
4	Not specified	Quality of life	Baseline, mid (6 weeks) and end of treatment (12 weeks)	The Functional Assessment of Cancer Therapy–Breast (FACT-B) Version 4	Self-report measure designed to assess QOL both general and breast cancer–specific dimensions
5	--				
6	--				

Characteristics of included studies	Cancer, survivors
Study ID	**Natma 2015**
7	--
8	--
9	--
10	--
11	--
12	--
13	--

Characteristics of included studies	Cancer, survivors	
Study ID	**Natma 2015**	
14	--	
15	--	
16	--	
17	--	
Method of analysis		
Statistics	Descriptive statistics were used to describe participant characteristics, disease and treatment information, and all outcome scales. At baseline, differences between two groups were tested by independent samples t-tests and chi-square test. Basic assumptions of repeated-measures analysis of variance (RMANOVA) and repeated-measures analysis of covariance (RM-ANCOVA) were had been previously checked. After controlling for the covariate (baseline score: T1), data on RSE, FSI, cortisol, and QOL were analyzed to examine change over time, differences between grou and time variables	
Population analysed	Intent-to-treat	Assumed - all participants randomised completed the study
Missing data	No	No participants lost following allocation and follow up.

Characteristics of included studies	Cancer, survivors (postsurgical)
Study ID	**Wang 2013b**
Study reference	1. Wang R, Liu J, Chen P, Yu D. Regular tai chi exercise decreases the percentage of type 2 cytokine-producing cells in postsurgical non-small cell lung cancer survivors. Cancer Nursing. 2013;36(4):E27-34. 2. Liu J, Chen P, Wang R, Yuan Y, Wang X, Li C. Effect of Tai Chi on mononuclear cell functions in patients with non-small cell lung cancer. BMC Complement Altern Med. 2015;15:3. 3. Zhang YJ, Wang R, Chen PJ, Yu DH. Effects of Tai Chi Chuan training on cellular immunity in post-surgical non-small cell lung cancer survivors: A randomized pilot trial. Journal of Sport and Health Science. 2013;2(2):104-8.
Study design	RCT
Author affiliation	School of Kinesiology, Shanghai Universty of Sport, China
Source of funds	Grants from the National Science Founcdation or China and the Shanghai Key Lab of Human Performance
Declared interests of study authors	The authors declare no conflicts of interests.
Setting / provider	Single lung cancer centre
Country(s) / region	Shanghai
Enrolment period	Not reported.
Length of treatment/ followup	16 weeks
Description of population	*N=* *Description*
# participants	32 Non-small cell lung cancer (survivors)

Characteristics of included studies	Cancer, survivors (postsurgical)					
Study ID	**Wang 2013b**					
details	*Inclusion criteria:* Primary diagnosis of NSCLC stage I to IIIB, initial surgical resection was lobectomy (post-lobectomy lung cancer patients), two or more years after completion of surgical intervention, no habitual exercise activities, absence of contraindications to supervised aerobic exercise training based on cardiopulmonary exercise testng, pysically capable to participate in a physical activity regimen. *Exclusion criteria:* autoimmune disorders treated with immunosuppressive drugs, malignancies treated with chemotherapy, other diseases treated with corticosteriods and or NSAIDs					
Description of intervention /	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	16	Tai Chi (Yang style - short form): 60 minutes, 3 times per week for 16 weeks. Tai Chi breath exercise with the yang-style 24 standardized movements under the guidance of an expert Tai Chi practitioner with more than 20 years of experience. The first 8 weeks emphasised relaxation methods with music, breathing and the mastery of single forms through multiple repitiions; exercise in the final 8 weeks focused on 24 form Tai Chi yang style.				
Comparator #1 (control)	16	No intervention				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	Usual hospital care					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A				
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies	Cancer, survivors (postsurgical)					
Study ID	**Wang 2013b**					
1	Not specified	Peripheral blood mononuclear cell (PMBC) proliferation	Baseline, end of treatment (16 wks)	PBMC proliferation at cell density of 0.5 x 10^6 and 1.0 x 10^6)	Peripheral venous blood sample optical density (OD) was read at a wavelenth of 570mm	Increase from baseline indicates increasing cell proliferation
2	Not specified	PBMC Cytolytic activity	Baseline, end of treatment (16 wks)	PBMC cytolytic activity at 50:1; 25:1; and 12.5:1 (E:T ratio)	Peripheral venous blood. A549 viability; OD at 450 nm	Decreased from baseline indicates increase of cytotoxicity of PBMCs aginst lung cancer cells
3	Not specified	Change in Immune cells (in CD3+ lymphocytes)	Baseline, end of treatment (16 wks)	NK% NKT% CD11c+ % CD123+ %	Peripheral venous blood. Flow cytometric analysis	
4	Not specified	Change in Immune cells (in CD3+ lymphocytes)	Baseline, end of treatment (16 wks)	T1/T2 T1 T2	Peripheral venous blood. Flow cytometric analysis	
5	Not specified	Change in Immune cells (in CD3+ lymphocytes)	Baseline, end of treatment (16 wks)	TH1 TH2 TH1/TH2	Peripheral venous blood. Flow cytometric analysis	
6	Not specified	Change in Immune cells (in CD3+ lymphocytes)	Baseline, end of treatment (16 wks)	Tc1 Tc2 Tc1/Tc2	Peripheral venous blood. Flow cytometric analysis	

Characteristics of included studies	Cancer, survivors (postsurgical)			
Study ID	**Wang 2013b**			
7	Not specified	Biomarkers, stress	Baseline, end of treatment (16 wks)	Cortisol level Catecholamine level B-Endorphin levels
8	Not specified	Change in Immune cells (lymphocytes)	Baseline, end of treatment (16 wks)	CD55/CD8 CD55/CD4 CD55 and CD4:CD8 ratio
9	Not specified	Change in Immune cells (lymphocytes)	Baseline, end of treatment (16 wks)	CD59/CD8 CD59/CD4 CD59 and CD4:CD8 ratio
10	--			
11	--			
12	--			
13	--			

Characteristics of included studies	Cancer, survivors (postsurgical)	
Study ID	**Wang 2013b**	
14	--	
15	--	
16	--	
17	--	
Method of analysis		
Statistics	SPSS, version 17.0 was used All data were checked for normality using the Shapiro-Wilk W test. If data were not normally distributed, a natural logarithm transformation was applied. Data are presented as mean (SD), and nonYnormally distributed data reported as median T 95% confidence interval. Independent-samples t tests were used to assess differences between the control group and the Tai Chi group before intervention. Paired-samples t tests were used to assess differences over time between variables before and after intervention. When outcome variables showed significant differences in group-by-time interaction, absolute change values were compared between groups using independent t tests. P G .05 was considered statistically significant.	
Population analysed	Intent-to-treat	Data collected from subjects who did not complete all training sessions were included in all analyses
Missing data	Yes	15.6% of paticipants (5/32) were lost to follow-up. This was balanced between treatment groups. Data collected from subjects were included in all analyses. No imputation methods described.

Characteristics of included studies	Cancer, undergoing treatment (immediately postsurgery)
Study ID	**Jiang 2020**
Study reference	Jiang M, Zhao H, Liu J, Zhao X, Jin L, Pan R. Does Tai Chi improve antioxidant and anti-inflammatory abilities via the KEAP1-NRF2 pathway and increase blood oxygen level in lung cancer patients: A randomized controlled trial? European Journal of Integrative Medicine. 2020;37 (no pagination)(101161).
Study design	RCT
Author affiliation	The authors are affiliated with the Department of Cardiac Surgery, the First Hospital of Jilin University, Changchun, China.
Source of funds	The authors reported that funds were provided from Qigong Project in Liaoning Province.
Declared interests of study authors	The authors declare no conflicts of interests.
Setting / provider	University hospital serviced by three major emergency centres
Country(s) / region	Changchun, China
Enrolment period	December 2016 to May 2017
Length of treatment/ followup	3 months
Description of population	*N=* *Description*
# participants	100 Non-small cell lung cancer (immediately post surgery)

Characteristics of included studies	Cancer, undergoing treatment (immediately postsurgery)					
Study ID	**Jiang 2020**					
details	*Inclusion criteria:* Patients had confirmed non-small cell lung cancer and had received surgery, experienced post-operative pain and were over 18 years *Exclusion criteria:* Received chemo or radi-therapy within 6 months prior to lung surgery, had an intraoperative and postoperative transfer, had stable abnormalities, obvious heart and liver and kidney and other serious underlying diseases, pulmonary function tests showed obvious ventilatory disorders, had mental or central nervous system symptoms.					
Description of intervention /	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	50	Tai chi: (Yang style-24 postures): 60 minutes daily for 3 months Learned at home using a DVD in the first week. Following, patients were in a classroom with an instructor at the hospital. Each practice session of the 24-form TC was taught in class for 60 min (10-min warm-up, 40-min practice, and 10-min cool-down) at 7 a.m.				
Comparator #1 (control)	--	--				
Comparator #2 (other)	50	Routine nursing care/usual care that included normal physical exercises that included contractions, breathing and holding certain positions, and performed to maintain strength, flexibility and mobility.				
Comparator #3 (other)	--	--				
Co-interventions	100	Both groups received routine and special care, health guidance, and all the patients were informed of the importance of pulmonary function recovery after one-month surgery.				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Taught by the TC instructors			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies						
Study ID	**Cancer, undergoing treatment (immediately postsurgery)**					
	Jiang 2020					
1	Not specified	Lung function	Baseline (before/1-month after surgery), end of treatment (12 wks+)	Forced expiratory volume in the first second (FEV1)	Jaeger Master Screen spirometry system (Jaeger Corps, Greek Zetas, Swiss)	Higher score indicates improved lung function
2	Not specified	Lung function	Baseline (before/1-month after surgery), end of treatment (12 wks+)	Forced Vital Capacity (FVC)	Jaeger Master Screen spirometry system (Jaeger Corps, Greek Zetas, Swiss)	Higher score indicates improved lung function
3	Not specified	Lung function	Baseline (before/1-month after surgery), end of treatment (12 wks+)	SpO2	SpO2 oximetry	Higher O2 saturation percentage indicates an improved respiratory function
4	Not specified	Postoperative pain	Baseline (before/1-month after surgery), end of treatment (12 wks+)	Visual Analogue Scale (VAS)	Higher score indicates more pain	
5	Not specified	Postoperative pain	Baseline (before/1-month after surgery), end of treatment (12 wks+)	Prince Henry Score	Higher score indicates more pain	
6	Not specified	Biomarker, oxidative stress	Baseline, end of treatment (12 wks)	Serum total oxidant status (TOS)	Venous blood sample: xylenol orange method	

Characteristics of included studies	Cancer, undergoing treatment (immediately postsurgery)					
Study ID	**Jiang 2020**					
7	Not specified	Biomarker, oxidative stress	Baseline, end of treatment (12 wks)	Oxidative stress index (OSI)	Calculated as [(TOS, μmolH2O2 equiv./L)/(TAS, μmol Trolox equiv./L) × 100	
8	Not specified	Biomarker, oxidative stress	Baseline, end of treatment (12 wks)	Sera total antioxidant status (TAS)	ABTS (2,2'- Azino-bis-(3-ethyl benzo thiazoline-6-sulfonic acid), diammonium salt)	colorimetric assay
9	Not specified	Biomarker, Inflammatory cytokine	Baseline, end of treatment (12 wks)	tumor necrosis factor α (TNFα) interleukin (IL)-1 β IL-6 IL-10	Venous blood sample: ELISA kits from Abcam	
10	Not specified	Biomarker, oxidative stress	Baseline, end of treatment (12 wks)	Serum malondialdehyde (MDA) Superoxide dismutase (SOD) Catalase (CAT) Glutathione peroxidase (GSPx)	Venous blood sample: ELISA kits from Abcam	
11	Not specified	Biomarker, gene expression	Baseline, end of treatment (12 wks)	mRNA levels of KEAP1 mRNA levels of NRF2 mRNA levels of β-actin		
12	--					
13	--					

Characteristics of included studies	Cancer, undergoing treatment (immediately postsurgery)	
Study ID	**Jiang 2020**	
14	--	
15	--	
16	--	
17	--	
Method of analysis		
Statistics	SPSS v 21.0 was used. Qualitative data were presented as a percentage, quantitative data were presented as mean +/- SD and ordered categorical variables were presented in a rank mean. The analysis of variance, pain scores and other ordered categorical variables was performed by using the Kmskal- Wallis rank sum test. For the statistical analysis of the same observation index between different groups and at different time points, further comparisons were made with the least significant difference (LSD) test and the Bonferroni method. The two-sided test, the test level a = 0.05. Pearson's correlation coefficient was used to explore the correlation between the relative protein levels of NRF2 and KEAP1, and the serum levels of oxidative biomarkers or inflammatory cytokines.	
Population analysed	Intent-to-treat	100 patients were included and analysed
Missing data	No	No missing data.

Characteristics of included studies	Cancer, undergoing chemotherapy
Study ID	**McCain 2010**
Study reference	1. McCain NL, Robins JW, Walter JM, Elswick RK, Gray DP, Tuck I, et al. Stress management in early breast cancer associated with increased endogenous opioids and reduced pro-inflammatory cytokines. Brain, Behavior, and Immunity. 2010;24:S51. 2. Robins JL, McCain NL, Elswick RK, Jr., Walter JM, Gray DP, Tuck I. Psychoneuroimmunology-Based Stress Management during Adjuvant Chemotherapy for Early Breast Cancer. Evidence-Based Complementary & Alternative Medicine: eCAM. 2013;2013:372908.
Study design	RCT
Author affiliation	Five authors are affiliated with teriarty institutions in Virigina or North Carolina, USA. Two authors are also affiliated with a cancer centre in Virginia, USA.
Source of funds	National Institues of Health's National Cancer Institute
Declared interests of study authors	The authors declare no conflict of interests.
Setting / provider	Not reported
Country(s) / region	United States
Enrolment period	Not reported
Length of treatment/ followup	10 weeks
Description of population	*N=* *Description*
# participants	145 Breast cancer (undergoing adjuvant chemotherapy)

Characteristics of included studies	Cancer, undergoing chemotherapy					
Study ID	**McCain 2010**					
details	*Inclusion criteria:* Women receiving adjuvant chemotherapy for stages I-IIIA breast cancer. *Exclusion criteria:* Not reported.					
Description of intervention /	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	NR	Tai Chi: 90 minutes each week for 10 weeks. Eight movements focused on improving balance, focused breathing, gentle physical posturing and movement as well as the active use of conciousness for relaxation. Training video/DVD provided for home practice.				
Comparator #1 (control)	NR	Usual care				
Comparator #2 (other)	NR	Spirtual growth group: 90 minutes each week for 10 weeks. Personal exploration and group sharing of spirtuality to enhance awareness of the meaning and expression of spirtuality.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C	Not specified			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies		Cancer, undergoing chemotherapy			
Study ID	**McCain 2010**				
1	Not specified	Psychological distress	Baseline, 1 week after treatment (11 wks), followup (18 and 24 wks)	Impact of Events Scale	15 items. Higher scores indicate greater psychological distress
2	Not specified	Quality of life	Baseline, 1 week after treatment (11 wks), followup (18 and 24 wks)	Functional Assessmet of Cancer Therapy-Breast (FACT-B) v4	44 items.
3	Not specified	Depression	Baseline, 1 week after treatment (11 wks), followup (18 and 24 wks)	Center for Epidemiological Studies Depression (CES-D)	20 items.
4	Not specified	Stress, biomarkers	Baseline, 1 week after treatment (11 wks), followup (18 and 24 wks)	urinary markers, stress-related neuroendocrine mediators of endorphins and enkephalins	Urine samples
5	Not specified	Biomarkers, immunological	Baseline (W0) and post intervention (W11, W18, W24)	proinflammatory markers: IL-6, IL-1, TNF-alpha	Cryopreserved plasma samples
6	--				

Characteristics of included studies	Cancer, undergoing chemotherapy
Study ID	**McCain 2010**
7	--
8	--
9	--
10	--
11	--
12	--
13	--

Characteristics of included studies	Cancer, undergoing chemotherapy	
Study ID	**McCain 2010**	
14	--	
15	--	
16	--	
17	--	
Method of analysis		
Statistics	Stastical analyses program not reported. Mixed liner models were used to compared changes in the usual care group with each intervention group for the three times period. To satisfy the model assumptions. The cytokines were log transformed using natural long. No effect for potential confounders were found in the inital modeling (e.g. age, race, menopausal status) and therefore they were removed from the final model.	
Population analysed	Per protocol	Particiants were required to attend 8 out of 10 sessions to be included in the analysis. 40% of withdrawls was due to inability/unwillingness to attend meetings.
Missing data	Yes	24.8% (36/109) participants were lost to follow-up. The authors did not report the proportion of patients who dropped out in each arm. However, the authors did report that there were no differences seen in the demographics for thos who withdrew and those who remained in the study. No details on management of missing data was provided.

Characteristics of included studies	Cancer, undergoing chemotherapy
Study ID	**McQuade 2017**
Study reference	Jennifer McQuade, Sarah Prinsloo, David Z. Chang, Amy Spelman, Qi Wei, Karen Basen-Engquist, Carol Harrison, Zonghao Zhang, Debra Kuban, Andrew Lee, and Lorenzo Cohen. Qigong/tai chi for sleep and fatigue in prostate cancer patients undergoing radiotherapy: A randomized controlled trial. Psychooncology, 2017; 26(11): 1936–1943
Study design	RCT
Author affiliation	All authors affilifated with tertiary institutions in Texas, USA
Source of funds	NCI CA129201 (Cohen, PI); CA016672 and the Center for Energy Balance in Cancer Prevention and Survivorship, Duncan Family Institute. JLM is supported by an ASCO Young Investigator Award and a T32 Institutional Training Grant, T32 CA009666. Partial support for Lorenzo Cohen was provided by the Richard E. Haynes Distinguished Professorship in Clinical Cancer Prevention.
Declared interests of study authors	Not reported
Setting / provider	University of Texas MD Anderson Cancer Center
Country(s) / region	Texas
Enrolment period	February 2009 and January 2012
Length of treatment/ followup	3 months
Description of population	*N=* *Description*
# participants	76 Men with rectal, anal or prostate cancer (undergoing radiotherapy)

Characteristics of included studies	Cancer, undergoing chemotherapy					
Study ID	**McQuade 2017**					
details	*Inclusion criteria:* Men with prostate cancer (Stage I-III) aged >18 years, able to read, write and speak English and scheduled to receive daily radiation to the prostate with or without androgen deprivation therapy (ADT) *Exclusion criteria:* Patients with physical disabilities resulting in an inability to walk unassisted, chronic pain while walking, or with difficulty walking for 20 minutes, Patients who reported practicing qigong or tai chi or taking qigong or tai chi classes within the prior year					
Description of intervention /	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	26	Qigong/Tai Chi (QGTC): 40 minute classes three times per week throughout radiotherapy Classes were mostly conducted one-on-one or with one or two other patients and the program was based on one developed by Dr. Jerry Alan Johnson for cancer patients. Patients were given a DVD and printed instructional materials and encouraged to practice up to daily on their own. The program involved: (1) preparation exercises (6 minutes), (2) main exercises (20 minutes) including classical 8-form Yang Style Tai Chi and (3) ending exercise (9 minuutes)				
Comparator #1 (control)	24	Waitlisted control				
Comparator #2 (other)	26	Light exercise: 40 minute classes three times per week throughout radiotherapy The program was focused on light resistance training and stretching exercises with a goal of maintaining muscle strength and range of motion. Participants were given individualized prescriptions based on baseline abilities detailing specific exercises for each day of the week, with muscle groups varying by day.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	QGTC classes were taught by a trained qigong master and Light Exercise program was led by an exercise physiologist			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies		Cancer, undergoing chemotherapy				
Study ID		**McQuade 2017**				
1	Primary	Sleep	Baseline, mid-intervention (T2), during the last week of radiotherpay (T3) and at 1 (T4) and 3 months (T5)	Pittsburgh Sleep Quality Index (18-items)	Self-rated questionnaire that assesses quality of sleep and sleep disturbances over the past month.	
2	Primary	Fatigue	Baseline, mid-intervention (T2), during the last week of radiotherpay (T3) and at 1 (T4) and 3 months (T5)	Brief Fatigue Inventory (9-items)	Participants rate the severity of their fatigue in the moment, and interference with their life over the previous 24-hrs	Higher scores represent more fatigue
3	Secondary	Quality of Life	Baseline, mid-intervention (T2), during the last week of radiotherpay (T3) and at 1 (T4) and 3 months (T5)	Expanded Prostate Cancer Index Composite (EPIC)	32- item questionnaire that asks participants about urinary, bowel, sexual and hormonal function	Higher scores represent better function and quality of life.
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Characteristics of included studies	Cancer, undergoing chemotherapy
Study ID	**McQuade 2017**
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13	--

Characteristics of included studies		Cancer, undergoing chemotherapy
Study ID		**McQuade 2017**
14		--
15		--
16		--
17		--
Method of analysis		
Statistics		To test for any baseline group differences in demographic, medical, or QOL characteristics we used chi-square tests for categorical factors and ANOVA for continuous measures. The main analyses used a mixed model procedure to analyze all repeated data to examine the treatment main effect and treatment by time interaction effect. We imputed the missing data using multiple imputations (SAS V9.2 MI procedure) with Markov Chain Monte Carlo method and then used the MIANALYZE procedure to generate statistical inferences. All the analyses remained the same or resulted in similar p values. To explore factors associated with sleep and fatigue, we used SAS CORR procedure to test the correlation between sleep and fatigue measures with prostate cancer specific quality of life at each time point
Population analysed	Intent-to-treat	Modified. Nine patients did not provide any follow-up assessments and one patient did not have baseline data or follow-up assessments and therefore were not included in the primary analysis.
Missing data	Yes	In addition, 26/76 (34%) participants were lost to follow up. This was not balanced between groups with 12 drop outs from the Light Exercise group, 10 drop outs from the QGTC gropu and 4 from the control group. **Missing data was imputed using multiple imputations** (SAS V9.2 MI procedure) with Markov Chain Monte Carlo method and then used the MIANALYZE procedure to generate statistical inferences. **All the analyses remained the same or resulted in similar p values.**

Characteristics of included studies	Cancer, undergoing chemotherapy
Study ID	**Zhang 2016**
Study reference	Zhang LL, Wang SZ, Chen HL, Yuan AZ. Tai Chi Exercise for Cancer-Related Fatigue in Patients With Lung Cancer Undergoing Chemotherapy: A Randomized Controlled Trial. Journal of Pain & Symptom Management. 2016;51(3):504-11.
Study design	RCT
Author affiliation	Three authors affiliated with a hospital in China and one author affiliated with a tertiary institution in China
Source of funds	Not reported.
Declared interests of study authors	The authors declare no conflicts of interests.
Setting / provider	Community or home-based
Country(s) / region	
Enrolment period	January 2012 and December 2014
Length of treatment/ followup	12 weeks
Description of population	*N=* *Description*
# participants	96 **Lung cancer** (undergoing treatment)

Characteristics of included studies	Cancer, undergoing chemotherapy					
Study ID	**Zhang 2016**					
details	*Inclusion criteria:* Lung cancer diagnosis, receiving 2-4 courses of cisplatin-based chemotherapy for a 21-day cycle, over 18 years, ECOG status 0 to 3, willing to participate in Tai Chi or low impact exercise *Exclusion criteria:* Patients with contraindications for resistance training, already participating in Tai Chi before chemotherapy, unable to complete fatigue score assessment, participants cannot insist on Tai Chi exercie or low impact exercise Participants had a mean age of 62.8 years and were 7.47% male.					
Description of intervention /	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	48	Tai Chi (yang style 8 form - easy): 60 minutes 'every other day' for 12 weeks The exercise began on the 10th day during the 21 day cycle and continued for one hour every other day between 8am to 10am. 8 form easy Tai Chi, included commencing form hands rise to shoulder level, curving back arms, stepping sideways and moving arms, stepping and pushing etc. Each session included 5 to 10 minutes of warm-up followed by Tai Chi, that focused on movement coordination and breathing.				
Comparator #1 (control)	--	--				
Comparator #2 (other)	48	Low impact exercise: 60 minutes 'every other day' for 12 weeks Performed at home or in the community when patients recovered from their chemotherapy response. The exercise began on the 10th day during the 21 day cycle and continued for one hour every other day between 8am to 10am.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Experienced instructor and at home DVD			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies		Cancer, undergoing chemotherapy			
Study ID	**Zhang 2016**				
1	Primary	Cancer-related fatigue total score	Baseline, mid (6 wks), end of treatment (12 wks)	Multidimensional Fatigue Symptom Inventory-short form (MFSI-SF).	Higher score indicates greater fatigue
2	Secondary	General fatigue	Baseline, mid (6 wks), end of treatment (12 wks)	MFSI-SF - subscale	Higher score indicates greater fatigue
3	Secondary	Physical fatigue	Baseline, mid (6 wks), end of treatment (12 wks)	MFSI-SF - subscale	Higher score indicates greater fatigue
4	Secondary	Emotional fatigue	Baseline, mid (6 wks), end of treatment (12 wks)	MFSI-SF - subscale	Higher score indicates greater fatigue
5	Secondary	Mental fatigue	Baseline, mid (6 wks), end of treatment (12 wks)	MFSI-SF - subscale	Higher score indicates greater fatigue
6	Secondary	Vigor	Baseline, mid (6 wks), end of treatment (12 wks)	MFSI-SF - subscale	Higher score indicates greater fatigue

Characteristics of included studies	Cancer, undergoing chemotherapy
Study ID	**Zhang 2016**
7	--
8	--
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12	--
13	--

Characteristics of included studies	Cancer, undergoing chemotherapy	
Study ID	**Zhang 2016**	
14	--	
15	--	
16	--	
17	--	
Method of analysis		
Statistics	SPSS, version 19.0 was used Between group differences in demographic and baseline variables were tested with a chi-square test for categorical variables. MFSI-SF scores were compared by mixed linear model for repeated measures. P <0.05 was considered significant.	
Population analysed	Intent-to-treat	modified - participants who droped out pre-intervention were not included in analysis.
Missing data	Yes	22.9% of participants (22/96) were lost to follow-up. This was balanced between treatment groups. All patients randomised were included in the final analysis. No imputation methods described

Characteristics of included studies	Cancer, undergoing chemotherapy
Study ID	**Zhou 2018**
Study reference	Zhou W, Wan YH, Chen Q, Qiu YR, Luo XM. Effects of Tai Chi Exercise on Cancer-Related Fatigue in Patients With Nasopharyngeal Carcinoma Undergoing Chemoradiotherapy: A Randomized Controlled Trial. Journal of Pain & Symptom Management. 2018;55(3):737-44.
Study design	RCT
Author affiliation	All authors are affiliated with a hospital in Wuhan, China.
Source of funds	Not reported.
Declared interests of study authors	The authors declare no conflicts of interests.
Setting / provider	Hospital or home-based
Country(s) / region	Wuhan
Enrolment period	January 2014 to August 2015
Length of treatment/ followup	Length of time on chemotherapy - individualised
Description of population	*N=* *Description*
# participants	114 **Nasopharyngeal carcinoma** (undergoing chemotherapy)

Characteristics of included studies	Cancer, undergoing chemotherapy					
Study ID	**Zhou 2018**					
details	*Inclusion criteria:* Patients newly diagnosed with locally avanced NPC (clinical stages III or IVa/b) by clinical assessment, more than 18 years and below 70 years of age, KPS score >= 70,willing to participate in the study *Exclusion criteria:* Simultaneously suffered from other tumor disease, with concomitant diseases contributing to fatigue such as heart disease, diabetes, anemia and severe respiratory before or participated in Tai Chi exercise, with contraindications of chemotherapy or radiotherapy					
Description of intervention /	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	57	Tai Chi (yang style 24 form - simplified): 60 minutes five times a week for length of treatment Under experience of team members and/or instructional video, participants practiced Tai Chi five sessions/week when chemoradiation started, at the place specifically for patients activity activity (during hospitalisation) or at home (during interphase of induction chemotherapy). Each session was set between approximately 9 and 10am, including a sequence of 10 minutes of warm up and review of Tai Chi actions, 30 minutes of Tai Chi, 10 minutes of breathing and meditation techniques and 10 minutes of relaxation.				
Comparator #1 (control)	57	Usual care. No further details provided.				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Experienced team member or at home video			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies		Cancer, undergoing chemotherapy			
Study ID	**Zhou 2018**				
1	Primary	Fatigue (total score)	Before chemoradiotherapy (T0) and after chemoradiotherapy (T1)	Multidimensional Fatigue Symptom Inventory-short form (MFSI-SF).	Higher scre indicates greater fatigue
2	Primary	General fatigue	Before chemoradiotherapy (T0) and after chemoradiotherapy (T1)	MFSI-SF - subscale	Higher scre indicates greater fatigue
3	Primary	Physical fatigue	Before chemoradiotherapy (T0) and after chemoradiotherapy (T1)	MFSI-SF - subscale	Higher scre indicates greater fatigue
4	Primary	Emotional fatigue	Before chemoradiotherapy (T0) and after chemoradiotherapy (T1)	MFSI-SF - subscale	Higher scre indicates greater fatigue
5	Primary	Mental fatigue	Before chemoradiotherapy (T0) and after chemoradiotherapy (T1)	MFSI-SF - subscale	Higher scre indicates greater fatigue
6	Primary	Vigor	Before chemoradiotherapy (T0) and after chemoradiotherapy (T1)	MFSI-SF - subscale	Higher scre indicates greater fatigue

Characteristics of included studies		Cancer, undergoing chemotherapy			
Study ID	**Zhou 2018**				
7	Secondary	General health	Before chemoradiotherapy (T0) and after chemoradiotherapy (T1)	Heart rate variability - normalised low frequency power	Electrogardiogram monitoring for 5 minutes continuously
8	Secondary	General health	Before chemoradiotherapy (T0) and after chemoradiotherapy (T1)	HRV - normalised high frequency power	Electrogardiogram monitoring for 5 minutes continuously
9	Secondary	General health	Before chemoradiotherapy (T0) and after chemoradiotherapy (T1)	HRV- normalised low-frequency power/normalised high frequency power	Electrogardiogram monitoring for 5 minutes continuously
10	--				
11	--				
12	--				
13	--				

Characteristics of included studies	Cancer, undergoing chemotherapy	
Study ID	**Zhou 2018**	
14	--	
15	--	
16	--	
17	--	
Method of analysis		
Statistics	SPSS, version 20.0 Differences in baseline categorical variables between the Tai Chi group and the control group were compared by a chi-square test. Analysis of variance was performed to discriminate the differences in MFSI-SF scores and HRV indices between two groups and within groups at different time points. The relationship between CRF andHRV indices was tested by forward linear regression model and partial correlation analysis. Data of MFSI-SF scores and HRV indices were submitted to ITT and per-protocol analyses. P < 0.05 was considered statistically significant.	
Population analysed	Intent-to-treat	Both intent to treat and per protocol analyses were carried out
Missing data	Yes	27.2% of participants (31/114) were lost to follow-up. This was balanced between treatment groups. No imputation methods described. The proportions of reasons for withdrawals showed no significant difference between the two groups. The dropouts presented similar baseline MFSI-SF scores with those who completed the trial in both two groups (P > 0.05 for all).

Characteristics of included studies	Mood disorders (depression or dysthymia)
Study ID	**Chou 2004**
Study reference	Chou, K. L., et al. (2004). "Effect of Tai Chi on depressive symptoms amongst Chinese older patients with depressive disorders: a randomized clinical trial." Int J Geriatr Psychiatry 19(11): 1105-1107.
Study design	RCT pseudorandomised Randomisation process not described
Author affiliation	Five authors are affiliated with an academic institution in Hong Kong, one is affiliated with a hospital in Hong Kong, and one is affiliated with an American academic institution
Source of funds	Seed Funding from the Centre on Behavioral Health at the University of Hong Kong and a University Research Council's Seed Funding for Basic Research (10202497-13186-30300-302-01) at the University of Hong Kong
Declared interests of study authors	Not reported
Setting / provider	Not reported (likely aged care facility)
Country(s) / region	Hong Kong, China
Enrolment period	Not reported
Length of treatment/ followup	12 weeks
Description of population	*N=* *Description*
# participants	14 Community-dwelling patients (60+ yrs) with depressive disorders who attended a psycho-geriatric outpatient clinic in Hong Kong
details	*Inclusion criteria* : (1) subjects fulfilled the DSM-IV diagnostic criteria for either **unipolar major depression or dysthymia** but the cause of depression was not organic in nature; (2) subjects scored the Chinese version of the Center for Epidemiological Studies Depression Scale (CES-D) at or higher than the cut-off score of 16 points for diagnosable depression; (3) 60 years old and above; (4) no involvement in any regular exercise in the past 6 months; (5) no specific medical contraindication to exercise e.g. unstable cardiac condition or major stroke; (6) preserved physical ability; (7) were cognitively intact (scores >25 on the Mini-Mental State Examination); and (8) were willing to be randomly assigned to either the Tai Chi or control group of this research. *Exclusion criteria:* Not reported

Characteristics of included studies	Mood disorders (depression or dysthymia)					
Study ID	**Chou 2004**					
Description of intervention/comparator (as per TIDIER	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	7	Tai chi (Yang Style) - 45 minute sessions 3 times per week for 3 months. Each session consisted of a 10-minute warm-up, a 25-minute Tai Chi session (18-form of Yang's style), and a 10-minute cool-down and all sessions were led by an experienced Tai Chi practitioner.				
Comparator #1 (control)	7	Control (waitlist) - Subjects in the control group were told that their Tai Chi sessions would be delayed for three months.				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Experienced Tai chi practitioner			
Is there an inactive comparator?	Yes	Comparison=control	waitlist. Based on inclusion criteria they were not involved in regular exercise before the study, but unclear if they were told not to start any new exercise program during the study.			
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Depression	Baseline, end of treatment (12wks)	Center for Epidemiological Studies Depression Scale (CES-D) (20-items)	5 scores: psychological symptoms, somatic symptoms, interpersonal problems, and well-being	Chinese version

Characteristics of included studies	Mood disorders (depression or dysthymia)
Study ID	**Chou 2004**
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Characteristics of included studies	Mood disorders (depression or dysthymia)
Study ID	**Chou 2004**
7	--
8	--
9	--
10	--
11	--

Characteristics of included studies		Mood disorders (depression or dysthymia)
Study ID		**Chou 2004**
	12	--
	13	--
	14	--
	15	--
	16	--
Method of analysis		
Statistics		Mixed univariate analysis of variance (ANOVA) for the CES-D total, and multivariate analysis of variance (MANOVA) for the four subscales
Population analysed	Intent-to-treat	All randomised patients were included in analysis

Characteristics of included studies	Mood disorders (depression or dysthymia)
Study ID	**Chou 2004**
Missing data	No dropouts reported

Characteristics of included studies	Mood disorders (depression or dysthymia)
Study ID	**Lavretsky 2010**
Study reference	1. Lavretsky H, Alstein LL, Olmstead RE, Ercoli LM, Riparetti-Brown M, St. Cyr N, et al. Complementary Use of Tai Chi Chih Augments Escitalopram Treatment of Geriatric Depression: A Randomized Controlled Trial. The American Journal of Geriatric Psychiatry. 2011;19(10):839-50. 2. Lavretsky, H.; Irwin, M. Complementary use of Tai Chi improves resilience, quality of life, and cognitive function in depressed older adults. Biological Psychiatry May 2010;1:58S-59S
Study design	RCT
Author affiliation	All authors affliated with University of California
Source of funds	Supported by grants to Dr. Lavretsky and D r. Irwin via General Clinical Research Centers Program, the UCLA Cousins Center at the Semel Institute for Neurosciences; and the UCLA Older Americans Independence Center Inflammatory Biology Core
Declared interests of study authors	Not reported
Setting / provider	Community
Country(s) / region	USA
Enrolment period	Enrolment betweeen 2007-2009
Length of treatment/ followup	Intervention delivered over 10wks, with 6 wks prior to stabilse on escitalopram. No followup.
Description of population	*N=* *Description*
# participants	112 Community-dwelling adults (60+ yrs) with major depression
details	*Inclusion criteria* : 1) current episode of **major depressive disorder**; 2) a 24-item Hamilton Depression Rating Scale (HDRS) score of 16 or higher at baseline; and 3) Mini-Mental State Exam score of 26 or higher. *Exclusion criteria:* 1) a history of any other psychiatric illness or alcohol or substance abuse/dependence (with the exception of generalized anxiety disorder that is frequently comorbid with geriatric depres sion); 2) severe or acute medical illness; 3) acute suicidal or violent behavior; 4) any other central nervous system diseases or dementia; or 5) were not able to participate in TCC due to mobility problems.

Characteristics of included studies	Mood disorders (depression or dysthymia)						
Study ID	**Lavretsky 2010**						
Description of intervention/comparator (as per TIDIER	*n=*	*Description (include # treatment sessions, session duration, program duration)*					
Intervention	36	Tai Chi Chih - 2hr session once per week for 10 weeks Tai Chi classes carried out an adapted protocol from the Stone Manual that includes 10 minutes of warm up (stretching and breathing) and 5 mins of cooldown exercises.					
Comparator #1 (control)	--	--					
Comparator #2 (other)	37	Attention control (Health education protocol) - 2hr session once per week for 10 weeks Sessions used a manual that presented educational information and described learning objectives and patient activities to promote an integration of the material. The HE sessions followed a didactic format, with lectures on key topics, followed by focused group discussion and postdiscussion self help quizzes to assess patient learning.					
Comparator #3 (other)	--	--					
Co-interventions	73	All randomised subjects were on 10-20mg of escitalopram throughout the duration of the study. The use of concomitant medications was restricted to lorazepam up to 1mg per day.					
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C					
Is there an inactive comparator?	No	Comparison=other					
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*	
1	Primary	Depression	Baseline and all visits	Hamilton Depression Rating Scale (HDRS) (24-item)	Remission = a score of 6 or less Response = score of 10 or less	Non response= less than 30% improvement in HDRS score from baseline	

Characteristics of included studies		Mood disorders (depression or dysthymia)				
Study ID		**Lavretsky 2010**				
	2	Secondary	Anxiety	Baseline, end of treatment (10 wks)	Hamilton Anxiety Rating Scale	0-5 scale
	3	Secondary	Apathy	Baseline, end of treatment (10 wks)	Apathy Evaluation Scale	
	4	Secondary	Medical comorbidity	Baseline, end of treatment (10 wks)	Unified Parkinsons Disease Rating Scale	asseses psychomotor slowing and extrapyramidal symptoms
	5	Secondary	Coping	Baseline, end of treatment (10 wks)	Connor-Davidson Resilience Scale	measures stress coping ability
	6	Secondary	HRQoL	Baseline, end of treatment (10 wks)	SF-36	

Characteristics of included studies		Mood disorders (depression or dysthymia)				
Study ID		**Lavretsky 2010**				
7	Secondary	Cognitive function	Baseline, end of treatment (10 wks)	Mini-mental state exam		
8	Secondary	Cognitive function	Baseline, end of treatment (10 wks)	California Verbal learning test II	Measures verbal memory (executive function)	
9	Secondary	Cognitive function	Baseline, end of treatment (10 wks)	Trail making test A & B	assesses basic and divided attention, motor speed, and executive function	
10	Secondary	Cognitive function	Baseline, end of treatment (10 wks)	Stroop test (group of three tests of 100 items)	Patients have to name 1) the printed word, 2) the color of the block, and 3) the color of the ink in which the word is printed.	Scores are calculated to include the time on each part, number of errors on each part, total number of errors, and total near misses
11	Secondary	Medical comorbidity	Baseline, end of treatment (10 wks)	Cerebrovascular Risk factor Prediction Chart		

Characteristics of included studies		Mood disorders (depression or dysthymia)				
Study ID		**Lavretsky 2010**				
	12	Secondary	Medical comorbidity	Baseline, end of treatment (10 wks)	Cumulative Illness Rating Scale-Geriatric	
	13	Secondary	Disease severity	Baseline, end of treatment (10 wks)	Clinical Global Impression Severity and Improvement Scale	Measures Symptom severity, treatment response and treatment efficacy
	14	Secondary	Inflammatory markers	Baseline, end of treatment (10 wks)	C-reactive protein	
	15	Secondary	Anthropometric	Baseline, end of treatment (10 wks)	Weight	
	16	Secondary	Sleep	Baseline, end of treatment (10 wks)	Pittsburgh Sleep quality Index	
Method of analysis						
Statistics		Randomisation success assessed used Chi2 tess for categor measures and t-tests for continue measures. Descriptive statistics for safety and dropouts. Primary outcome analysed using mixed models using SAS v9.1. Treatment group, time, and the interac tion term between time and treatment group were included in the model. For the secondary measures change scores were analyzed by using t-tests. We examined the relationship between the variables by using Pearson correlation coefficients. The level of significance was set at the α level of $p \leq 0.05$, two tailed.				
Population analysed		Intent-to-treat	No imputation of missing data performed.			

Characteristics of included studies	Mood disorders (depression or dysthymia)
Study ID	**Lavretsky 2010**
Missing data	Of the 112 subjects who entered the trial and started receiving an initial dose of escitalopram as 10 mg/day, those showing little response had an option of increasing the dosage to 20 mg after 4 weeks of treatment. Thirty-nine subjects dropped out during this initial dose-adjustment phase: 4 dropped out due to side-effects, 1 achieved full remission, 25 withdrewconsent, and 7 were lost to follow-up. After about 6 weeks, the remaining 73 subjects, who were able to tolerate the effects of escitalopram and who did not achieve remission within the first few weeks of drug treatment alone, were randomized to the complementary interventions. Only five subjects (7%) dropped out after randomization. Two subjects dropped out from the HE group due to the lack of efficacy of the treatment, and three subjects dropped out in the TCC group due to other health reasons, preventing them from performing TCC exercises (N = 3).

Characteristics of included studies	Mood disorders (depression or dysthymia)
Study ID	**Liu 2018**
Study reference	Liu J, Xie H, Ming M, Wang Z, Zou L, Yeung A, Sai-chuen Hui, Yang S. The Effects of Tai Chi on Heart Rate Variability in Older Chinese Individuals with Depression. Int. J. Environ. Res. Public Health. 2018; 15: 2771
Study design	RCT
Author affiliation	University of Sport Shanghai, University of Michigan, Nanjing University of Science and Technology, South China University of Technology, Univesrity of Chinese Medicine, The Chinese University of Hong Kong, Harvard Medical School
Source of funds	This project was supported by the Natural Science Foundation of Shanghai, China (Grant no.07ZR14103) and the capacity construction project of Shanghai, China (Grant no.18080503200). The trial was registered in Chinese Clinical Trial Registry (http://www.chictr.org/) (Registration no. Chi CTR-TRC-12002244)
Declared interests of study authors	The authors declare no conflict of interest
Setting / provider	Multiple senior citizen centres
Country(s) / region	China
Enrolment period	October 2009 to April 2010
Length of treatment/ followup	24 weeks
Description of population	*N=* *Description*
# participants	60 Older adults (60+ yrs) from Senior citizen centres with depression (GDS score >10)
details	*Inclusion criteria:* (1) age 60 or above; (2) scored 10 or above according to the Geriatric Depression Scale (GDS) administered by a certified psychologist; (3) did not participate in any structured exercise program in the past six months *Exclusion criteria:* (1) had any major disease such as mental disorders other than depression, heart disease, diabetes, hypertension, alcohol/drug addiction, comorbid psychotic disorder, and/or kidney disease; (2) were physically unable to perform tai chi movements; and (3) had previous tai chi experience

Characteristics of included studies	Mood disorders (depression or dysthymia)					
Study ID	**Liu 2018**					
Description of intervention/comparator (as per TIDIER	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	30	Tai chi (both 24-style and 42-style) - 60-min sessions 3 times a week for 24 weeks Each instructor-led TC session involved a 10-min warm-up (muscular stretching for injury prevention), a 40-min TC form training, and a 10-min cool-down (flapping and bending bodies, deep breathing, meditation), and it occurred between 6:30 am to 7:30 am at the senior citizen center. The program involved three phases in which the specific information participants were instructed to concentrate.				
Comparator #1 (control)	30	Control - usual activities				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Classes were taught by a TC master with more than 10 years of teaching experience			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Depression	Baseline, end of treatment (24 wks)	Geriatric depression scale (30-items)	higher score means worse depression	<=10 = normal 11-19 = mild 20+ = severely depressed

Characteristics of included studies		Mood disorders (depression or dysthymia)				
Study ID		**Liu 2018**				
	2	Primary	Cardiovascular health	Baseline, end of treatment (24 wks)	Heart rate variability with an ECG	Time and frequency domains
	3	--				
	4	--				
	5	--				
	6	--				

Characteristics of included studies	Mood disorders (depression or dysthymia)
Study ID	**Liu 2018**
7	--
8	--
9	--
10	--
11	--

Characteristics of included studies	Mood disorders (depression or dysthymia)	
Study ID	**Liu 2018**	
12	--	
13	--	
14	--	
15	--	
16	--	
Method of analysis		
Statistics	To investigate the relationship between depression and HRV parameters, multiple Pearson Product-Moment Correlation Coefficient (PPMCC) were performed based on mean change scores of each outcome. Statistical significance was accepted at the threshold of $p < 0.05$. All values are expressed as means and standard deviations	
Population analysed	Intent-to-treat	All participants randomised where analysed in the results

Characteristics of included studies	Mood disorders (depression or dysthymia)
Study ID	**Liu 2018**
Missing data	It was reported that all randomised patients were assessed at 24 weeks.

Characteristics of included studies	Mood disorders (depression or dysthymia)		
Study ID	**Yeung 2012**		
Study reference	Yeung A, Lepoutre V, Wayne P, Yeh G, Slipp LE, Fava M, Denninger JW, Benson H: Tai chi treatment for depression in Chinese Americans: a pilot study. Am J Phys Med Rehabil 2012;91:863Y870.		
Study design	RCT		
Author affiliation	All authors associated with tertiary institutions and hospitals in Boston Massachusetts		
Source of funds	Supported by CDC grant 5R01DP000339.		
Declared interests of study authors	Financial disclosure statements have been obtained, and no conflicts of interest have been reported by the authors or by any individuals in control of the content of this article.		
Setting / provider	South Cove Community Health Center		
Country(s) / region	United States of America	Boston	
Enrolment period	No information provided		
Length of treatment/ followup	12 weeks		
Description of population	*N=*	*Description*	
# participants	39	Community-dwelling Chinese Americans (18-70 yrs) with major depression	
details	*Inclusion criteria* : (1) self-identification as being of Chinese ethnicity and fluent in Mandarin and/or Cantonese; (2) 18-70 yrs of age; (3) Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, diagnosis of MDD; and (4) baseline score of 12 or higher on the 17-item Hamilton Rating Scale for Depression *Exclusion Criteria:* (1) primary psychiatric diagnosis other than MDD; (2) history of psychosis, mania, or severe cluster B personality disorder; (3) judged by the investigators to have unstable medical conditions; (4) having current active suicidal or self-injurious potential necessitating immediate treatment; and (5) regular practice of tai chi or other forms of mind-body intervention in the past 3 mos		

Characteristics of included studies	Mood disorders (depression or dysthymia)					
Study ID	**Yeung 2012**					
Description of intervention/comparator (as per TIDIER	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	26	Tai Chi (Yang Style) - 60 minutes group classes held twice a week for 12 wks. Classes were conducted in Chinese. Comprised of the first section of the traditional 108 movements Yang-style tai chi and a set of traditional warm-up exercises that involved arm swinging; gentle stretches of the neck, shoulders, spine, arms, and legs; and traditional breathing methods. Participants in the intervention group were encouraged to practice at home at least three times per week and to record how much they practiced.				
Comparator #1 (control)	13	Control (waitlisted)				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Instructor had taught Tai Chi for more than 20 years			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Depression	Baseline, mid (6 wks), end of treatment (12 wks)	Hamilton Depression Scale (17-items)	Neurovegetative and other depressive symptoms experienced over the past 7 days	0-7 = normal; 8-13 = mild; 14-18 = moderate; 19-22 = severe; >=23 = very severe depression

Characteristics of included studies		Mood disorders (depression or dysthymia)					
Study ID		**Yeung 2012**					
	2	Not specified	Disease severity	Baseline, mid (6 wks), end of treatment (12 wks)	Clinical Global Impression - Severity Scale	measures the current condition of the patient	Judged by the clinician on a scale of 1-7 (1 being very much improved and 7 being very much worse)
	3	Not specified	Disease improvement	Baseline, mid (6 wks), end of treatment (12 wks)	Clinical Global Impression - Improvement scale	measures the degree of improvement since the start of treatment	Judged by the clinician on a scale of 1-7 (1 being very much improved and 7 being very much worse)
	4	Not specified	HR QoL	Baseline, mid (6 wks), end of treatment (12 wks)	Quality of life enjoyment and satisfaction questionnaire-short form	Each item is rated from 1 (very poor) to 5 (very good). Results are presented as the total score and as an average of the single overall assessment item	Higher scores indicate better QoL
	5	Not specified	Psychosocial wellbeing	Baseline, mid (6 wks), end of treatment (12 wks)	Mutlidimentional scale of perceived social support (12-items)	Items are rated on a 7- point Likert Scale (1, very strongly disagree; 7, very strongly agree)	Higher scores indicatr greater level of perceived support
	6	--					

Characteristics of included studies	Mood disorders (depression or dysthymia)
Study ID	**Yeung 2012**
7	--
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Characteristics of included studies		Mood disorders (depression or dysthymia)	
Study ID		**Yeung 2012**	
	12	--	
	13	--	
	14	--	
	15	--	
	16	--	
Method of analysis			
Statistics		The intervention and the control groups were compared in their response rates and remission rates using Fischer's exact probability test and in their final CGII scores and changes in CGI-S and HAM- D17 scores compared with baseline using the two-sample Mann- Whitney test. Positive response to treatment was defined as a decrease of 50% or more in a patient's HAM-D17 score, and remission was defined as having a score of 7 or lower on the HAM-D17 at the last assessment.	
Population analysed		Intent-to-treat	Modified - required participants to have at least one postbaseline assessment

Characteristics of included studies	Mood disorders (depression or dysthymia)
Study ID	**Yeung 2012**
Missing data	Did not impute missing data but used data obtained at week 6 if the week 12 assessment was not completed.

Characteristics of included studies	Anxiety or fear-related (including subclinical)		
Study ID	**Caldwell 2015**		
Study reference	1. Caldwell, K. L., et al. (2015). "Feasibility of a Tai Chi Chuan randomized controlled trial in young adults with symptoms of anxiety." Psychosomatic Medicine 77 (3): A139. 2. Caldwell, K. L., et al. (2016). "Effects of tai chi chuan on anxiety and sleep quality in young adults: lessons from a randomized controlled feasibility study." Nature & Science of Sleep 8: 305-314. 3. NCT01624168. Effects of Tai Chi Chuan on Psychobiological Indicators of Anxiety and Sleep Quality in Young Adults.		
Study design	RCT	pseudorandomised	Randomisation process not specified.
Author affiliation	Authors affiliated with tertiary institutions in the United States of America.		
Source of funds	Not specified.		
Declared interests of study authors	Not specified.		
Setting / provider	Tertiary institution		
Country(s) / region	United States of America		
Enrolment period	Jan 2013 to Feb 2014.		
Length of treatment/ followup	10-week intervention and 2 month follow up.		
Description of population	*N=*	*Description*	
# participants	75	Adults (aged 18-40) who had self-reported anxiety based off the Generalized Anxiety Disorder 7 questionnaire (mild to moderate).	
details	*Inclusion criteria:* 18-20 years of age; had self-reported levels of mild to severe anxiety. *Exclusion criteria:* involvement in other mindbody exercises; a self-reported level of anxiety above moderate (via the Patient Health Questionnaire-2); currently receiving psychopherapy or psychiatric treatments; at risk of suicide or homicide; substance dependence; medications which may interefere with the ability to perform physical exercise; inability to stay on a stable dose of prescription medications.		

Characteristics of included studies	Anxiety or fear-related (including subclinical)					
Study ID	**Caldwell 2015**					
Description of intervention/comparator (as per TIDIER	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	28	Tai Chi Chen - 60 minute classes, two times a week for 10 weeks The program consisted of static and dynamic qigong exercises, and a 7- movement introductory form that is adaptable to persons of all ages and physical abilities. An additional 30min daily home practice sessions were requested of participants.				
Comparator #1 (control)	19	Inactive control (Educational advice) - Received a handout on anxiety management.				
Comparator #2 (other)	28	Enhanced Tai Chi Chen - 60 minute classes, two times a week for 10 weeks + DVD for home pratice. Tai chi Chen with qigong exercises (7-movements) plus a DVD of the curriculum. Additional 30min daily practice sessions were requested of participants. The DVD was expected to increase adherance to home practice.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Instructors certified in Evidence Based Taiji program of Yang.			
Is there an inactive comparator?	Yes	Comparison=control	Control group received a handout on anxiety management.			
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Anxiety	Baseline, 4 weeks, 10 weeks, and 2 months post-intervention.	Spielberger state-trait anxiety inventory (40-items)	higher score indicates more anxiety	

Characteristics of included studies		Anxiety or fear-related (including subclinical)				
Study ID		**Caldwell 2015**				
	2	Primary	Sleep	Baseline, 4 weeks, 10 weeks, and 2 months post-intervention.	Pittsburgh Sleep Quality Index (19-items) - total score	A higher score indicates worse sleep quality.
	3	Primary	Sleep quality	Baseline, 4 weeks, 10 weeks, and 2 months post-intervention.	Pittsburgh Sleep Quality Index -single subscore	A higher score indicates worse sleep quality.
	4	Primary	Sleep latency	Baseline, 4 weeks, 10 weeks, and 2 months post-intervention.	Pittsburgh Sleep Quality Index -single subscore	A higher score indicates worse sleep quality.
	5	Primary	Sleep efficiency	Baseline, 4 weeks, 10 weeks, and 2 months post-intervention.	Pittsburgh Sleep Quality Index -single subscore	A higher score indicates worse sleep quality.
	6	Primary	Sleep duration	Baseline, 4 weeks, 10 weeks, and 2 months post-intervention.	Pittsburgh Sleep Quality Index -single subscore	A higher score indicates worse sleep quality.

Characteristics of included studies		Anxiety or fear-related (including subclinical)				
Study ID		**Caldwell 2015**				
7	Primary	Sleep disturbance	Baseline, 4 weeks, 10 weeks, and 2 months post-intervention.	Pittsburgh Sleep Quality Index -single subscore	A higher score indicates worse sleep quality.	
8	Primary	Use of medication	Baseline, 4 weeks, 10 weeks, and 2 months post-intervention.	Pittsburgh Sleep Quality Index -single subscore	A higher score indicates worse sleep quality.	
9	Primary	Daytime dysfunction	Baseline, 4 weeks, 10 weeks, and 2 months post-intervention.	Pittsburgh Sleep Quality Index -single subscore	A higher score indicates worse sleep quality.	
10	--					
11	--					

Characteristics of included studies		Anxiety or fear-related (including subclinical)
Study ID		**Caldwell 2015**
	12	--
	13	--
	14	--
	15	--
	16	--
Method of analysis		
Statistics		Inferential statistics: repeated measures mixed model analysis.
Population analysed	Other (provide details)	Study reports outcomes analysed by both ITT and PP. Initially, te impact of TCC on anxiety was measured as per an ITT analysis. However, this was found to n

Characteristics of included studies	Anxiety or fear-related (including subclinical)	
Study ID	**Caldwell 2015**	
Missing data	Yes	For the per protocol analysis, 22 participants were lost to follow up - Tai Chi arm: 12/28 (43%); Tai Chi + DVD arm: 6/28 (21%); control arm: 4/19 (21%).

Characteristics of included studies	Anxiety or fear-related (including subclinical)	
Study ID	**Song 2014a**	
Study reference	Qing-Hua Song, Guo-Qing Shen, Rong-Mei Xu, Quan-Hai Zhang, Ming Ma, Yan-Hua Guo, Xin-Ping Zhao, Yu-Bing Han. Effect of Tai Chi exercise on the physical and mental health of the elder patients suffered from anxiety disorder. Int J Physiol Pathophysiol Pharmacol 2014;6(1):55-60	
Study design	RCT	Interrupted time series with parallel control
Author affiliation	All authors affiliated with Henan Polytechnic University, Henan Province, China	
Source of funds	Not specified.	
Declared interests of study authors	Not specified.	
Setting / provider	Henan Province Second Charity Hospital and the hospital of	
Country(s) / region	China	
Enrolment period	No information provided	
Length of treatment/ followup	45 days/2 months	
Description of population	*N=*	*Description*
# participants	32	Adults (60-75 yrs) with anxiety disorders
details	*Inclusion criteria:* aged 60-75 years old and meet the diagnostic criteria for anxiety disorder in Chinese Classification and Diagnostic Criteria of Mental Disorders and their Hamilton Anxiety Scale (HAMA) evaluation scores ≥14. *Exclusion criteria:* Patients who suffer from other mental disorders, severe organic diseases and severe somatic diseases	

Characteristics of included studies	Anxiety or fear-related (including subclinical)					
Study ID	**Song 2014a**					
Description of intervention/comparator (as per TIDIER	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	16	Tai Chi (Chen Style) + Drug Therapy - 35 minutes twice a day (morning and evening) for 45 days. Duration not specified. Each exercise is divided into two parts. The first part is preparation for exercise: Chen Style Tai Chi- activity of all joints in the whole body. This part focuses on the stretching exercise and practice for all joints from top to bottom and from hand to foot; the second part is 18 essences of Chen Style Tai Chi.				
Comparator #1 (control)	16	Control (Drug therapy) - 2 times per day, 10 mg/time for 45 days Drug name: Paroxetine (Produced by Tianjin TSKF Pharmaceutical Company Limited, trade name “Seroxat”).				
Comparator #2 (other)	11	Tai Chi (Chen Style) - 35 minutes twice a day (morning and evening) for remaining 2 months. Cured patients in the experimental group continue to do Tai Chi exercise after stopping drug therapy. Test and evaluate whether their disease reoccurs within the 2 months.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C				
Is there an inactive comparator?	Yes	Comparison=control	Group on drug therapy			
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Anxiety	Baseline, post-intervention (at 45 days) and follow up (at 2 months)	Hamilton Anxiety Scale (14-items)	higher score indicates more anxiety.	<7 no anxiety; 7-13 probable; 14-20 anxiety; 21-28 obvious axiety; 29+ severe anxiety

Characteristics of included studies		Anxiety or fear-related (including subclinical)			
Study ID		**Song 2014a**			
	2	Not specified	QoL	Baseline, post-intervention (at 45 days) and follow up (at 2 months)	Generic Quality of Life Inventory-74
	3	--			
	4	--			
	5	--			
	6	--			

Characteristics of included studies	Anxiety or fear-related (including subclinical)
Study ID	**Song 2014a**
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Characteristics of included studies	Anxiety or fear-related (including subclinical)	
Study ID	**Song 2014a**	
12	--	
13	--	
14	--	
15	--	
16	--	
Method of analysis		
Statistics	Data from this study is expressed in (_x±s) and then it is compared by SPSS 11.5 version statistical software package, while the measurement data comparison adopts t test and P<0.05 indicates that the difference has statistics significance.	
Population analysed	Intent-to-treat	Assumed ITT as no participant drop outs recorded

Characteristics of included studies	Anxiety or fear-related (including subclinical)	
Study ID	**Song 2014a**	
Missing data	No	No drop outs recorded

Characteristics of included studies	Anxiety or fear-related (including subclinical)	
Study ID	**Zheng 2018**	
Study reference	Shuai Zheng, Christine Kim, Sara Lal, Peter Meier, David Sibbritt, and Chris Zaslawski. The Effects of Twelve Weeks of Tai Chi Practice on Anxiety in Stressed But Healthy People Compared to Exercise and Wait-List Groups–A Randomized Controlled Trial, Inc. J. Clin. Psychol. 00:1–10, 2017.	
Study design	RCT	Prospective cohort
Author affiliation	All authors affiliated with the University of Technology, Sydney and the Royal Prince Alfred Hostpital, Sydney	
Source of funds	S.Z., PhD student, has been awarded the Sydney Chinese Lions Club Traditional Chinese Medicine Postgraduate Scholarship, funded by the Sydney Chinese Lions Club Inc.	
Declared interests of study authors	The author affirms there are no conflicts of interest and the author has no financial interest related to the material of this manuscript.	
Setting / provider	University of Technology Fitness Centre	
Country(s) / region	Australia	
Enrolment period	Not reported	
Length of treatment/ followup	12 weeks	
Description of population	*N=*	*Description*
# participants	51	Adults aged 18-60yrs, healthy and with symtpoms of stress (STAI score >50)
details	*Inclusion criteria* : (1) between 18 and 60 years of age with no serious medical conditions, screened using the LAQ; (2) must be English literate and able to read and sign the consent form; and (3) score above the threshold of 50 on the STAI *Exclusion criteria:* (1) currently suffering from a major illness; (2) currently taking antidepressant medication; (3) currently training or have trained in Tai Chi in the past 12 months; (4) currently exercising on a regular basis (greater than 5 hours of exercise per week on a regular basis); and (5) currently pregnant.	

Characteristics of included studies	Anxiety or fear-related (including subclinical)					
Study ID	**Zheng 2018**					
Description of intervention/comparator (as per TIDIER	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	17	Tai Chi - 60 minutes sessions, 5 times a week for 12 weeks Each TC session will consist of 10 minutes of warm up, 45 minutes of TC practice and 5 minutes of cool down. Practiced the simplified 24 stance Taji Quan form during the first six weeks and were required to attend at least 2 hours of supervised TC a week for that initial six week period. For the following 6 weeks, the TC group maintained home practice recorded in a log book				
Comparator #1 (control)	16	Waitlisted Control: Maintained normal lifestyle At the completion of the study they will be given the same 6 weeks of TC practice and DVD after the 12 weeks as appreciation for their involvement.				
Comparator #2 (other)	17	Active Control (Exercise) - 5 hours a week for 12 weeks Required to complete at least 2 hours per week of supervised exercise at a fitness center for the total of 12 weeks. Must record in a log book.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Skilled instructor who has been practicing TC for more than 15 years.			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Anxiety	Baseline, post contact intervention (6 weeks), and end of trial (12 wks)	Spielberger state-trait anxiety inventory (20-items)	higher score indicates more anxiety	

Characteristics of included studies		Anxiety or fear-related (including subclinical)				
Study ID		**Zheng 2018**				
	2	Secondary	Perceived Stress	Baseline, post contact intervention (6 weeks), and end of trial (12 wks)	Perceived stress Scale (14-items)	higher score indicates more stress	Participants rank the frequency in which they felt or thought about various statements with response descriptors ranging from “never” to “very often”
	3	Secondary	Quality of Life	Baseline, post contact intervention (6 weeks), and end of trial (12 wks)	Short Form 36 (SF36) Health Survey	Generic health questionnaire for adults which measures eight domains of health	36 main questions which contain several subset questions
	4	Secondary	Heart rate variability	Baseline, post contact intervention (6 weeks), and end of trial (12 wks)	Three electrode electrocardiogram (ECG)	Low frequency activity, high frequency activity, total HRV activity and sympathovagal balance	ECG obtained for 10 minutes at each data collection session with the participant in a seated position with limited contact with the technician
	5	Secondary	Cardiovascular health	Baseline, post contact intervention (6 weeks), and end of trial (12 wks)	Blood Pressure	Systolic and diastolic BPwill be taken a total of six times, three times prior to conducting HRV and three times after	Mean arterial pressure = DP + (SP-DP)/3.
	6	Secondary	Stress	Baseline, post contact intervention (6 weeks), and end of trial (12 wks)	Visual Analog Scale	The participant will be asked to mark on the VAS their current stress levels.	The VAS consists of a 100 mm line with the terms “not stressed at all” and “very stressed” on either ends of the line.

Characteristics of included studies	Anxiety or fear-related (including subclinical)
Study ID	**Zheng 2018**
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11	--

Characteristics of included studies		Anxiety or fear-related (including subclinical)
Study ID		**Zheng 2018**
	12	--
	13	--
	14	--
	15	--
	16	--
Method of analysis		
Statistics		The statistical test involved a two-way analysis of variance with recorded measures, followed by Bonferroni's post hoc test.
Population analysed	Intent-to-treat	Participants who dropped out from the study would have their last known data carried forward.

Characteristics of included studies	Anxiety or fear-related (including subclinical)	
Study ID	**Zheng 2018**	
Missing data	Yes	19 participants were lost during the intervention stage. 6 in Tai Chi, 6 in the Ecercise group and 7 in the waitlist group. Reasons included: No longer wished to participate, unable to adhere to protocol, withdrew due to family commitments and count no longer attend lessons due to work changes.

Characteristics of included studies	Neurocognitive		
Study ID	**Cheng 2012**		
Study reference	Cheng, S. T., et al. (2012). "Leisure activities alleviate depressive symptoms in nursing home residents with very mild or mild dementia." American Journal of Geriatric Psychiatry 20(10): 904-908.		
Study design	RCT	cluster design	Randomisation was by nursing home. Process not specified.
Author affiliation	Four authors affiliated with tertiary institutions in Hong Kong China.		
Source of funds	This study was supported by Competitive Earmarked Research grant no. HKIEd141307 of the Research Grants Council of Hong Kong to Sheung-Tak Cheng. The funding source had no involvement in the project.		
Declared interests of study authors	Not reported.		
Setting / provider	Nine nursing homes in Hong Kong		
Country(s) / region	China		
Enrolment period	Not reported.		
Length of treatment/ followup	6 months		
Description of population	*N=*	*Description*	
# participants	36	Adults (aged, on average, ~80 years) with very mild to mild dementia.	
details	*Inclusion criteria:* moderate depression symptoms (15-item Geriatric Depression Scale [GDS] score ≥6); Mini-Mental State Examination score of 15 or more; suffering from very mild or mild dementia (Clinical Dementia Rating score = 0.5 of 1). *Exclusion criteria:* bedbound; audio/visual impairment; regular participation in tai chi, majong or handicraft in past 3 months; contraindication to activity participation (e.g., moderate to severe parkinsonism, upper-limb paralysis, agitation, negativism).		

Characteristics of included studies	Neurocognitive					
Study ID	**Cheng 2012**					
Description of intervention/comparator (as per TIDIER	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	12	Tai chi (Yang Style) - 60 minutes per session, 3 times a week, for 12 weeks. Program comprised the 12-form Yang style - Seated variation				
Comparator #1 (control)	--	--				
Comparator #2 (other)	12	Handiwork - 60 minutes per session, 3 times a week, for 12 weeks. Program consisted of connecting beads to create interesting shapes. This group was intended to provide control for subject expectancy and the potential effects of social interaction in group activities				
Comparator #3 (other)	12	Majong - 60 minutes per session, 3 times a week, for 12 weeks.				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	All groups were led by appropriate instructors affiliated with the research team to ensure standardisation.			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Depression	Baseline, end of treatment (12 wks), followup (6 mos)	Geriatric Depression Scale	15-item scale.	

Characteristics of included studies		Neurocognitive				
Study ID		**Cheng 2012**				
	2	Not specified	Total and high-density lipoprotein cholesterol	Baseline, end of treatment (12 wks), followup (6 mos)	Calibrated portable device after 12-hour fasting	
	3	Not specified	Triglycerides	Baseline, end of treatment (12 wks), followup (6 mos)	Calibrated portable device after 12-hour fasting	
	4	Not specified	Cardiorespiratory health	Baseline, end of treatment (12 wks), followup (6 mos)	Blood pressure	Calibrated portable device after 12-hour fasting
	5	Not specified	Blood glucose	Baseline, end of treatment (12 wks), followup (6 mos)	Calibrated portable device after 12-hour fasting	
	6	Not specified	Low density lipoprotein cholesterol	Baseline, end of treatment (12 wks), followup (6 mos)	Estimated by the Friedewald formula.	

Characteristics of included studies		Neurocognitive			
Study ID		**Cheng 2012**			
	7	Not specified	Peak expiratory flow	Baseline, end of treatment (12 wks), followup (6 mos)	Standard peak flowmeter
	8	Not specified	Activities of daily living	Baseline, end of treatment (12 wks), followup (6 mos)	Barthel index
	9	Not specified	Daily activities	Daily	Up to three leisure activities lasting 20 minutes or more were recorded on daily logs.
	10	--			
	11	--			

Characteristics of included studies		Neurocognitive
Study ID		**Cheng 2012**
	12	--
	13	--
	14	--
	15	--
	16	--
Method of analysis		
Statistics		Power: 0.80 at α = 0.05 for testing a moderate interaction effect (ηp 2 = 0.06). Inferential statistics: RM ANOVA.
Population analysed		Intent-to-treat — Assumed ITT as no participant drop outs recorded

Characteristics of included studies	Neurocognitive	
Study ID	**Cheng 2012**	
Missing data	No	Missing data / participant attrition not reported. However, all randomised participants are listed in the results table.

Characteristics of included studies	Neurocognitive
Study ID	**Cheng 2014**
Study reference	Cheng, S. T., et al. (2014). "Mental and physical activities delay cognitive decline in older persons with dementia." Am J Geriatr Psychiatry 22(1): 63-74.
Study design	RCT cluster design Nursing homes were randomised into three interventions
Author affiliation	All authors affiliated with tertiary institutions in Hong Kong China.
Source of funds	This study was supported by Competitive Earmarked Research grant no. HKIEd141307 of the Research Grants Council of Hong Kong to Sheung-Tak Cheng. The funding source had no involvement in the project.
Declared interests of study authors	No conflicts of interest
Setting / provider	Aged care facilities (total 9 homes)
Country(s) / region	China
Enrolment period	Not reported.
Length of treatment/ followup	6 months
Description of population	*N=* *Description*
# participants	110 Adults (aged, on average, ~80 years) with **very mild to mild dementia**.
details	*Inclusion criteria:* Mini-Mental State Examination score of 10 -24; suffering from very mild or mild dementia (Clinical Dementia Rating score = 0.5 or more). *Exclusion criteria:* bedbound; audio/visual impairment; regular participation in tai chi, majong or handicraft in past 3 months; contraindication to activity participation (e.g., moderate to severe parkinsonism, upper-limb paralysis, agitation, negativism).

Characteristics of included studies	Neurocognitive					
Study ID	**Cheng 2014**					
Description of intervention/comparator (as per TIDIER	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	38	Tai chi (Yang Style) - 60 minutes per session, 3 times a week, for 12 weeks. Program comprised the 12-form Yang style - Seated variation				
Comparator #1 (control)	--	--				
Comparator #2 (other)	42	Handiwork - 60 minutes per session, 3 times a week, for 12 weeks. Program consisted of connecting beads to create interesting shapes. This group was intended to provide control for subject expectancy and the potential effects of social interaction in group activities				
Comparator #3 (other)	37	Majong - 60 minutes per session, 3 times a week, for 12 weeks.				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	All subgroups were led by an appopriate instructor affiliated with the research team with assistance from student helpers			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Neurocognitive function	Baseline, end of treatment (12 wks), followup (6&9 mos)	MMSE		

Characteristics of included studies		Neurocognitive				
Study ID		**Cheng 2014**				
	2	Secondary	Neurocognitive function	Baseline, end of treatment (12 wks), followup (6&9 mos)	Forward and backward digit sequence	
	3	Secondary	Neurocognitive function	Baseline, end of treatment (12 wks), followup (6&9 mos)	Digit span	
	4	Secondary	Neurocognitive function	Baseline, end of treatment (12 wks), followup (6&9 mos)	15-word immediate and 30-minute delayed recall	tapping episodic memory
	5	Secondary	Neurocognitive function	Baseline, end of treatment (12 wks), followup (6&9 mos)	categorical verbal fluency	sematic memory
	6	Secondary	Depression	Baseline, end of treatment (12 wks), followup (6&9 mos)	Geriatric Depression Scale (15-item)	

Characteristics of included studies		Neurocognitive				
Study ID		**Cheng 2014**				
	7	Secondary	Lipid profile	Baseline, end of treatment (12 wks), followup (6&9 mos)	total cholesterol, HDL-C, triglycerides	
	8	Secondary	Glycaemic control	Baseline, end of treatment (12 wks), followup (6&9 mos)	Fasting glucose	
	9	Secondary	Cardiorespiratory health	Baseline, end of treatment (12 wks), followup (6&9 mos)	Blood pressure	
	10	Secondary	Cardiorespiratory health	Baseline, end of treatment (12 wks), followup (6&9 mos)	Peak flow	
	11	Secondary	Medical Comorbidities	Baseline, end of treatment (12 wks), followup (6&9 mos)	composite score	cholinesterase inhibitor use, diagnosed coronary heart disease, stroke, hypertension, diabetes, and chronic obstructive pulmonary disease

Characteristics of included studies		Neurocognitive			
Study ID		**Cheng 2014**			
	12	Secondary	Comorbidities	Baseline, end of treatment (12 wks), followup (6&9 mos)	Number of new falls
	13	Secondary	Comorbidities	Baseline, end of treatment (12 wks), followup (6&9 mos)	Stroke incidence
	14	--			
	15	--			
	16	--			
Method of analysis					
Statistics		Mixed-effects regression			
Population analysed		Intent-to-treat	Intent to treat defined as those who were assessed at baseline and completed the assessment after the three-month study period		

Characteristics of included studies	Neurocognitive	
Study ID	**Cheng 2014**	
Missing data	Yes	After cluster randomisation, 5 did not receive intervention and were not counted in analyis (either because they passed away or were hospitalised). After the 3 month treatment period, 3 were lost to follow-up during the 6 month follow-up period but were still counted in the analysis.

Characteristics of included studies	Neurocognitive
Study ID	**Fogarty 2016**
Study reference	Jennifer N. Fogarty, Kelly J. Murphy, Bruce McFarlane, Manuel Montero-Odasso. Taoist Tai Chi and Memory Intervention for Individuals with Mild Cognitive Impairment. Journal of Aging and Physical Activity, 2016, 24, 169 -180.
Study design	RCT
Author affiliation	All authors affiliated with tertiary institutions or Health Care facilities. McFarlane is associated with the International Taoist Tai Chi Society only.
Source of funds	This research was supported by funding from the Taoist Tai Chi Society to Dr. Fogarty and by funding from the Morris Goldenberg Research Endowment to Dr. Kelly Murphy. The gait and balance equipment and infrastructure was supported by funding from the Department of Medicine Program of Experimental Medicine from Western University and the Canadian Institute of Health and Aging
Declared interests of study authors	No information provided
Setting / provider	London, Ontario
Country(s) / region	Canada
Enrolment period	March 2010 and August 2012
Length of treatment/ followup	3 months
Description of population	*N=* *Description*
# participants	48 Individuals with amnestic mild cognitive impairment
details	*Inclusion criteria:* Met criteria for amnestic mild cognitive impairment, had functional use of the English language and had adequate hearing and vision to participate in the exercise and memory interventions. *Exclusion criteria:* Participants who had a recent head injury with loss of consciousness greater than 5 min coinciding with new-onset cognitive complaints, or had a recent cerebrovascular accident corresponding in time with new-onset cognitive complaints. Participants were also excluded if they were taking psychotropic medication that may affect cognition, had a diagnosis of dementia, or failed to pass a medical clearance by either a family doctor or referring specialist physician to participate in the TTC program. Other exclusion criteria included sufficient cortical bone erosion that would risk fracture during activities of normal life, current depression, a history of chronic mental illness, or consumption of more than two alcoholic beverages per day.

Characteristics of included studies	Neurocognitive						
Study ID	**Fogarty 2016**						
Description of intervention/comparator (as per TIDIER	*n=*	*Description (include # treatment sessions, session duration, program duration)*					
Intervention	26	Taoist Tai Chi - 90 minute Tai Chi sessions, 2 times a week for 10 weeks TTC - Participants were taught a subset of the 108 movements that are typically taught in the TTC program, depending on the physical and cognitive ability of the particular group					
Comparator #1 (control)	22	Control (no intervention)					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	--	Memory intervention program (MIP) Eight sessions, with six sessions focusing on both education about lifestyle factors that impact memory and teaching of memory strategies and two follow-up sessions: one at one month and one at three months					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	The TTC classes were taught by instructors with extensive experience in this field				
Is there an inactive comparator?	Yes	Comparison=control	Tai Chi delivered as an adjunct to MIP				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*	
1	Not specified	Cognitive Function	Baseline, after 10 weeks, and and 22 weeks.	Hopkins Verbal Learning Test			

Characteristics of included studies		Neurocognitive			
Study ID		**Fogarty 2016**			
	2	Not specified	Cognitive Function	Baseline, after 10 weeks, and and 22 weeks.	Digit Span and Digit Symbol from the Wechsler Adult Intelligence Scale–III
	3	Not specified	Cognitive Function	Baseline, after 10 weeks, and and 22 weeks.	Trail Making Test (TMT) A and B
	4	Not specified	Cognitive Function	Baseline, after 10 weeks, and and 22 weeks.	Rivermead Behavioural Memory Test, 2nd Edition
	5	Not specified	Cognitive Function	Baseline, after 10 weeks, and and 22 weeks.	Test of Everyday Attention (TEA)
	6	Not specified	Knowledge of memory strategies	Baseline, after 10 weeks, and and 22 weeks.	Strategy Toolbox

Characteristics of included studies		Neurocognitive					
Study ID		**Fogarty 2016**					
	7	Not specified	Subjective ratings of memory abilities and frequency of memory slips	Baseline, after 10 weeks, and and 22 weeks.	Memory Assessment Clinics Scale		
	8	Not specified	Quality of life	Baseline, after 10 weeks, and and 22 weeks.	36-Item Short Form Health Survey		
	9	Not specified	Levels of everyday physical activity	Baseline, after 10 weeks, and and 22 weeks.	Rapid Assessment of Physical Activity (RAPA) scale		
	10	Not specified	Premorbid verbal intellectual function	Baseline, after 10 weeks, and and 22 weeks.	North American Adult Reading Test (NAART)		
	11	Not specified	Gait velocity, stride time, and stride time variability	Baseline, after 10 weeks, and and 22 weeks.	GAITRite Portable Walkway System	Three gait trials were measured: usual gait and two dual-task tests of gait while naming animals and while counting backward from 100 by 7s	Used to assess the effects of TCC

Characteristics of included studies		Neurocognitive				
Study ID		**Fogarty 2016**				
	12	Not specified	Balance	Baseline, after 10 weeks, and and 22 weeks.	Clinical Test of Sensory Integration and Balance (CTSIB) on the Digital Balance Platform	Four conditions were used: regular surface with eyes open and eyes closed, and disturbed surface with eyes open and eyes closed
	13	--				
	14	--				
	15	--				
	16	--				
Method of analysis						
Statistics		To determine treatment outcome, repeated-measures multivariate analyses of variance (MANOVAs) were conducted for each measure of cognition, memory strategies, memory ratings, and health and physical activity level at each outcome interval. Gait (velocity, stride time, and variability) and balance variables were examined with analyses of covariance (ANCOVA), using participants' baseline score as the covariate.				
Population analysed		Intent-to-treat	Modified - eight participants were lost to follow up and not included in the final analysis.			

Characteristics of included studies	Neurocognitive	
Study ID	**Fogarty 2016**	
Missing data	Yes	Eight participants dropped out (4 from each arm). Reasons for dropout included not wanting to make the time commitment to see the study through to completion, difficulty with completing the homework assignments or TTC classes, and not perceiving a benefit of the intervention(s).

Characteristics of included studies	Neurocognitive
Study ID	**Lam 2011**
Study reference	1. Lam et al., (2011). Interim follow-up of a randomized controlled trial comparing Chinese style mind body (Tai Chi) and stretching exercises on cognitive function in subjects at risk of progressive cognitive decline. Int J Geriatr Psychiatry 2011; 26: 733–740. DOI: 10.1002/gps.2602. 2. Lam et al., (2012). A 1-Year Randomized Controlled Trial Comparing Mind Body Exercise (Tai Chi) With Stretching and Toning Exercise on Cognitive Function in Older Chinese Adults at Risk of Cognitive Decline. JAMDA 13 (2012) 568.e15e568.e20. 3. Lam et al., (2014). Effectiveness of Tai Chi in maintenance of cognitive and functional abilities in mild cognitive impairment: a randomised controlled trial. Hong Kong Med J 2014;20(Suppl 3):S20-3. 4. Chinese Clinical Trial Registry. The study of Tai Chi exercise for maintaining cognitive function in Mild Cognitive Impairment. ChiCTR-TRC-09000730.
Study design	RCT pseudorandomised Randomisation process and allocation concealment process not specified.
Author affiliation	Eleven authors affiliated with tertiary institutions in Hong Kong China.
Source of funds	This project is supported by the Health and Health Services Research Fund of the Research Council of Food and health Bureau of Hong Kong (HHSRF 05060501).
Declared interests of study authors	The authors declared no conflict of interest.
Setting / provider	Community centers and residential homes for elders in Hong
Country(s) / region	China
Enrolment period	December 2007 - March 2010.
Length of treatment/ followup	12 months
Description of population	*N=* *Description*
# participants	548 Adults (65+ years) with **mild cognitive impairment**
details	*Inclusion criteria:* aged 65+ years; Clinical Dementia Rating of 0.5 OR Neuropsychological criteria for amnestic-mild cognitive impairment with subjective cognitive complaints objective memory impairment with reference to delayed recall of list learning test at greater than or equal to 1.5 SD below education- and age-matched subjects with Clinical Dementia Rating of 0. *Exclusion criteria:* Clinial diagnosis of dementia; prescription with antidementia agent; impaired communication and language abilities; previously undertaken Tai Chi and other mind body exercise for over 6 months.

Characteristics of included studies	Neurocognitive						
Study ID	**Lam 2011**						
Description of intervention/comparator (as per TIDIER	*n=*	*Description (include # treatment sessions, session duration, program duration)*					
Intervention	92	24-form simplified Tai Chi - 30 minutes per day, 3 times a week for 12 months. Broken down into two phases (1) Induction - weekly instuctor led course for 8 to 12 weeks until the participants became familiarized with the exercise intervention and (2) Maintenance phase—participants provided with a video CD with Tai Chi. The frequency of the home practice was no less than 30 minutes per day and no less than 3 days per week for 12-months.					
Comparator #1 (control)	--	--					
Comparator #2 (other)	169	Control group performed exercises which included set of musclestretching and toning exercise developed by physiotherapists - 30 minutes per day, 3 times a week for 12 months. Broken down into two phases (1) Induction - weekly instuctor led course for 8 to 12 weeks until the participants became familiarized with the exercise intervention and (2) Maintenance phase—participants provided with a video CD with Tai Chi. The frequency of the home practice was no less than 30 minutes per day and no less than 3 days per week for 12-months.					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	The authors specify that qualified Tai Chi masters with recent refresher training conducted the sessions. The same therapists conducted the control exercise training.				
Is there an inactive comparator?	No	Comparison=other					
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*	
1	Primary	Cognitive impairment	Baseline, mid (5, 9 mos), end of treatment (12 mos)	Mini-Mental State Examination	Cantonese version of mini-mental state examination.	No further details provided.	

Characteristics of included studies		Neurocognitive				
Study ID		**Lam 2011**				
2	Primary	Cognitive impairment	Baseline, mid (5, 9 mos), end of treatment (12 mos)	Alzheimer's Disease Assessment Scale-Cognitive Subscale		No further details provided.
3	Primary	Disease progression	Baseline, mid (5, 9 mos), end of treatment (12 mos)	Clinical Dementia Rating	The CDR is a semi-structured interview with severity of cognitive impairment rated along six dimensions.	A higher score indicates a greater severity of impairment. CDR 0 = no dementia; CDR 0.5 = very mild dementia; CDR 1-3 = mild to severe dementia
4	Primary	Cognitive function	Baseline, mid (5, 9 mos), end of treatment (12 mos)	CVFT-Verbal fluency	Chinese trail making and category verbal fluency tests (CVFT).	
5	Primary	Cognitive function	Baseline, mid (5, 9 mos), end of treatment (12 mos)	CVFT-delay recall	Chinese trail making and category verbal fluency tests (CVFT).	
6	Primary	Cognitive function	Baseline, mid (5, 9 mos), end of treatment (12 mos)	CVFT-Digit span (forward)	Chinese trail making and category verbal fluency tests (CVFT).	

Characteristics of included studies	Neurocognitive				
Study ID	**Lam 2011**				
7	Primary	Cognitive function	Baseline, mid (5, 9 mos), end of treatment (12 mos)	CVFT-Digit span (backward)	Chinese trail making and category verbal fluency tests (CVFT).
8	Primary	Cognitive function	Baseline, mid (5, 9 mos), end of treatment (12 mos)	CVFT-Visual span (forward)	Chinese trail making and category verbal fluency tests (CVFT).
9	Primary	Cognitive function	Baseline, mid (5, 9 mos), end of treatment (12 mos)	CVFT-Visual span (backward)	Chinese trail making and category verbal fluency tests (CVFT).
10	Primary	Cognitive function	Baseline, mid (5, 9 mos), end of treatment (12 mos)	CVFT-Chinese Trail A (sec)	Chinese trail making and category verbal fluency tests (CVFT).
11	Primary	Cognitive function	Baseline, mid (5, 9 mos), end of treatment (12 mos)	CVFT-Chinese Trail B (sec)	Chinese trail making and category verbal fluency tests (CVFT).

Characteristics of included studies		Neurocognitive				
Study ID		**Lam 2011**				
	12	Primary	Cognitive function on QoL	Baseline, mid (5, 9 mos), end of treatment (12 mos)	Memory Inventory for the Chinese (MIC) (22-items)	Memory Inventory for the Chinese (MIC)	Explores subjective memory complaints and effects on daily activities.
	13	Secondary	Neuropsychiatric symptoms	Baseline, mid (5, 9 mos), end of treatment (12 mos)	Neuropsychiatric Inventory (NPI)		
	14	Secondary	Depression	Baseline, mid (5, 9 mos), end of treatment (12 mos)	Cornell Scale for depression in dementia (CSDD)		
	15	Secondary	Balance	Baseline, mid (5, 9 mos), end of treatment (12 mos)	Berg Balance Scale (BBS) (14-items)	Evaluates the ability of the participants to maintain postures and balance with increasing difficulties.	
	16	--					
Method of analysis							
Statistics		Power statistics: not reported. Inferential statistics: the method for performing inferential statistics was not clear/not specified in the study.					
Population analysed		Per protocol	Stated as 'ITT' in study, however analyses were only performed on participants who completed the study.				

Characteristics of included studies	Neurocognitive	
Study ID	**Lam 2011**	
Missing data	Yes	79/171 (46%) participants allocated to tai chi did not complete the study (1 died, 78 'defaulted'). 49/218 (22%) participants in the control intervention arm did not complete the study (2 died, 47 'defaulted').

Characteristics of included studies	Neurocognitive	
Study ID	**Liu 2018b**	
Study reference	Justina Yat Wa Liu , Rick Yiu Cho Kwan, Claudia KY Lai and Keith D Hill. A simplified 10-step Tai-chi programme to enable people with dementia to improve their motor performance: a feasibility study. Clinical Rehabilitation 2018, Vol. 32(12) 1609– 1623	
Study design	RCT	cluster design
Author affiliation	Authors affiliated with: The Hong Kong Polytechnic University, Kowloon, Hong Kong; and Curtin University, Perth, WA, Australia	
Source of funds	This work was supported by the Internal General Research Fund	
Declared interests of study authors	The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.	
Setting / provider	Community health centres	
Country(s) / region	Hong Kong	
Enrolment period	November 2016 to March 2017	
Length of treatment/ followup	16 weeks	
Description of population	*N=*	*Description*
# participants	26	Community dweeling older people (60+ yrs) with **dementia** and their caregivers
details	*Inclusion criteria:* (1) community-dwelling, (2) aged ⩾60 years; (3) able to walk independently for at least 10 minutes with no walking aid or no more than a single point stick; (4) had been formally diagnosed with dementia of any cause (e.g. Alzheimer's disease, vascular dementia) according to their medical record and had a score of ⩽20 on the Montreal Cognitive Assessment 5-minute scale with the total score adjusted for level of education;14 (5) able to identify a caregiver willing to work with them as an exercise partner in their Tai-chi practice *Exclusion criteria:* (1) had any diseases that might severely affect their balance and coordination; (2) had been hospitalized due to an acute illness; (3) reported that they regularly performed moderately intensive exercise for more than 2 hours per week; (4) had a terminal illness and were in palliative care; or (5) had a severe visual or hearing impairment.	

Characteristics of included studies	Neurocognitive					
Study ID	**Liu 2018b**					
Description of intervention/comparator (as per TIDIER	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	13	Tai-chi (10-step simplified training) - 60 minute session two times a week for 16 weeks Derived from the traditional Yang style. The training protocol was modified by the research team by adding strategies to meet the special learning needs and characteristics of people with dementia. Each week, the dyads attended two 1-hour sessions of centre-based Tai-chi training and were asked to practise at least three 30-minute Tai-chi sessions at home.				
Comparator #1 (control)	13	Control: Continue with their usual lifestyles and levels of physical activity.				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	All of the training sessions were conducted by the same Tai-chi master to ensure intervention consistency.			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Feasability: Recruitment rate	Baseline	Number of dyads who consented to join the study over the number of eligible dyads		

Characteristics of included studies		Neurocognitive					
Study ID		**Liu 2018b**					
	2	Primary	Feasability: Attrition rate	Weekly	The percentage of dyads who withdrew from the study		
	3	Primary	Feasability: Participant adherence	Weekly	Exercise diaries and attendance in the training sessions	Diaries recorded the frequency and duration of their Tai-chi home practice.	
	4	Primary	Feasability: Adverse events	Baseline including falls in preceeding 12 months and weekly in fall diary	Falls diary	Falls were defined as occurring 'when a person unintentionally comes to rest on the ground or lower level	
	5	Primary	Feasability	Baseline	Menorah Park engagement scale	Engagement of the participants with dementia when attending the Tai-chi training sessions on a 3-point Likert-type scale	Engagement was also rated by the Tai-chi instructor on a four item scale
	6	Primary	Feedback	Two weeks post intervention	Focus group interview and survey	20-item questionnaire developed by the research team	

Characteristics of included studies		Neurocognitive				
Study ID		**Liu 2018b**				
7	Secondary	Mobility	Baseline, at mid-point (8 weeks), at completion of program (16 weeks)	Timed-up-and-Go Test (measured in seconds)	Time taken to stand up from a standard chair, walk three metres, turn around, and walk back to the chair and sit down	
8	Secondary	Functional muscle strength, lower limb	Baseline, at mid-point (8 weeks), at completion of program (16 weeks)	Timed-Chair-Stand Test	Stand up fully and sit down five times as quickly as possible	
9	Secondary	Dynamic balance, bilateral stance	Baseline, at mid-point (8 weeks), at completion of program (16 weeks)	Functional Reach Test	The score was the additional reach of the raised hand from the starting position in centimetres.	
10	Secondary	Dynamic balance, single leg stance	Baseline, at mid-point (8 weeks), at completion of program (16 weeks)	Step Test	Place one whole foot onto a 7.5 cm-high block in front of them and then return it fully back down to the floor repeatedly and as fast as possible, for 15 seconds.	Each leg was tested separately, and performance on the side with the least number of steps was the recorded result
11	--					

Characteristics of included studies		Neurocognitive
Study ID		**Liu 2018b**
	12	--
	13	--
	14	--
	15	--
	16	--
Method of analysis		
Statistics		The fixed effects for the interaction (group by time) were used to study the effects of the intervention. The level of significance was set to 0.05. Given the small sample size, a post hoc pair-wise analysis was also performed, regardless of whether the interaction effect was significant, to understand the preliminary within-group effects. Cohen's d and the inter-cluster correlation (ICC) index were calculated to estimate the sample size for future studies
Population analysed	Intent-to-treat	Modified - it was reported that to treat the missing data, the last observation carried forward approach was adopted. However, this was not expressed in the participant flow chart with only 18/26 participants analysed.

Characteristics of included studies	Neurocognitive	
Study ID	**Liu 2018b**	
Missing data	Yes	7 participants were lost to follow-up, 7 to intervention group and 4 to control group. Last observation carried forward was reportedly used for the outcome of mobility.

Characteristics of included studies	Neurocognitive	
Study ID	**Lyu 2018**	
Study reference	Nayan Huang, Wenji Li, Xiangjiang Rong, Mei Champ, Lian Wei, Mo Li, Haiyan Mu, Yueqing Hu, Zongjuan Ma and Jihui Lyu. Effects of a Modified Tai Chi Program on Older People with Mild Dementia: A Randomized Controlled Trial. Journal of Alzheimer's Disease 72 (2019) 947–956	
Study design	RCT	
Author affiliation	All authors affiliated with hospitals or tertiary institutions in Beijing, China. Mei Champ affiliated with Univeristy of the West of England, UK.	
Source of funds	This work was funded by Beijing Clinical Characteristics Project of Beijing Municipal Science and Technology Commission; Beijing Municipal Administration of Hospitals Clinical Medicine Development of Special Funding Support; and National Key R&D Program of China-European Commission Horizon 2020.	
Declared interests of study authors	The authors declare no conflict of interests.	
Setting / provider	Long-term care facilities near Beijing Geriatric Hospital	
Country(s) / region	China	
Enrolment period	March 2015 to September 2018	
Length of treatment/ followup	10 months	
Description of population	*N=*	*Description*
# participants	80	People (60+ yrs) with **mild dementia**
details	*Inclusion criteria:* 1) age ≥ 60 years; 2) diagnosed with dementia based on the diagnostic criteria of the Diagnostic and Statistical Manual of Mental Disorders, 4th edition; and 3) a Clinical Dementia Rating score <2. *Exclusion criteria* : 1) severe visual or auditory impairment; 2) serious medical conditions in major organs (such as heart, lung, kidney, and liver); 3) illnesses affecting mobility; 4) unable to accept assessments or interventions that were required in this study for any reasons.	

Characteristics of included studies	Neurocognitive					
Study ID	**Lyu 2018**					
Description of intervention/comparator (as per TIDIER	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	40	Tai Chi - 20 minute session 3 times a week for 10 months. Program comprises 'Cognition Protecting Tai Chi' (CPT) which has been created for older people with cognitive impairments. The CPT programme contains eight styles of Tai Chi movements including raising both hands, forearm rolling on both sides, brush knee and twist step on both sides, grasp the bird's tail-left side and then right side, cloud hands, single whip, work at shuttles on both sides and raising left and then right hand.				
Comparator #1 (control)	40	Control group - continued receiving routine treatments				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	Routine treatment and personalised daily care				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	The Tai Chi program was carried out under the guidance of the professional therapists where the participants resided			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Cognitive function	Baseline, 5months and 10 months	Mini-Mental State Examination (30-items)		

Characteristics of included studies		Neurocognitive			
Study ID		**Lyu 2018**			
2	Primary	Cognitive function	Baseline, 5months and 10 months	Montreal Cognitive Assessment (MoCA) (30-items)	Includes short-term memory recall, visuospatial abilities, executive function, attention, concnetration, working meory, language, orientation to time and place
3	Secondary	Cognitive function	Baseline, 5months and 10 months	WHO-UCLA-Auditory Verbal Learning test	Assesses immediate and delayed recall
4	Secondary	Cognitive function, executive function	Baseline, 5months and 10 months	Trail making test	Visual attention and task switching
5	Secondary	Psychosocial wellbeing	Baseline, 5months and 10 months	Geriatric Depression Scale (30-item)	
6	Secondary	Neuropsychiatric symptoms	Baseline, 5months and 10 months	Neuropsychiatric Inventory (NPI)	psychatric and behavioural symptoms

Characteristics of included studies		Neurocognitive			
Study ID		**Lyu 2018**			
7	Secondary	Activites of Daily Living	Baseline, 5months and 10 months	Bartel Index	
8	Secondary	Adverse events	Baseline, 5months and 10 months	Incidence of falls	
9	--				
10	--				
11	--				

Characteristics of included studies		Neurocognitive	
Study ID		**Lyu 2018**	
	12	--	
	13	--	
	14	--	
	15	--	
	16	--	
Method of analysis			
Statistics		Demographic characteristics and baseline variables were analyzed using independent t tests for continuous variables and Chi-square tests for categorical variables. The variations of scores of psychometric assessments over time between two groups were examined using repeated measures analysis of variance (ANOVA). Post hoc paired sample t test would be used to compare the scores of each group at different time points, and independent t tests would be used to compare the scores of the two groups at each time point. Two-sided probability values of $p < 0.05$ were considered statistically significant.	
Population analysed		Per protocol	The six participants who withdrew from the study before the first follow up visit were not included in the final analysis

Characteristics of included studies	Neurocognitive	
Study ID	**Lyu 2018**	
Missing data	No	Six participants withdrew from the study during the study period (including three with new onset of medical problems unrelated to dementia, two with changing residence, and one unwilling to continue), of which four were from the Tai Chi group and two were from the control group.

Characteristics of included studies	Neurocognitive
Study ID	**Nyman 2018**
Study reference	Samuel R. Nyman, Christopher Hayward, Wendy Ingram, Peter Thomas, Sarah Thomas, Michael Vassallo, James Raftery, Helen Allen and Yolanda Barrado-Martín. A randomised controlled trial comparing the effectiveness of tai chi alongside usual care with usual care alone on the postural balance of community-dwelling people with dementia: protocol for the TACIT trial. BMC Geriatrics (2018) 18:263
Study design	RCT
Author affiliation	All authors affiliated with tertiary institutions in the UK.
Source of funds	SRN (chief investigator) is funded by a National Institute for Health Research (NIHR) Career Development Fellowship Award. This paper presents independent research funded by the NIHR's Career Development Fellowship Programme.
Declared interests of study authors	The authors declare that they have no competing interests.
Setting / provider	Community
Country(s) / region	United Kingdom
Enrolment period	April 2017 to November 2018
Length of treatment/ followup	6 months
Description of population	*N=* *Description*
# participants	85 People (18+ yrs) with **dementia** and their caregivers
details	*Inclusion criteria:* Aged 18 or above, living at home, have a diagnosis of a dementia (indicated on their medical record held by the NHS or general practitioner [GP]), are physically able to do standing Tai Chi, and willing to attend weekly Tai Chi classes. *Exclusion criteria:* Living in a care home; in receipt of palliative care; have severe dementia, a Lewy body dementia or dementia with Parkinson's disease, or severe sensory impairment; are already currently practising or have been practising within the past 6 months Tai Chi or similar exercise (Qigong, yoga, or Pilates) on average once a week or more; are currently under the care of or have been referred to a falls clinic for assessment, or are currently attending a balance exercise programme (e.g. Otago classes); or lack mental capacity to provide informed consent. A score of 9 or less in the Mini Addenbrooke's Cognitive Examiniation will also be grounds for exclusion from the trial.

Characteristics of included studies	Neurocognitive						
Study ID	**Nyman 2018**						
Description of intervention/comparator (as per TIDIER	*n=*	*Description (include # treatment sessions, session duration, program duration)*					
Intervention	42	Tai Chi - 45 minute classes once per week for 20 weeks and 45 minute informal discussion. 50 hours or more of Tai Chi physical activity over 20 weeks Each class emphasised good body posture, slow and controlled body movements, and correct joint positioning in regard to the knee (to never extend beyond the foot). In addition, participants completed home-based exercises (20 min per day facilitated by the carer). Home practice of Tai Chi supported by the use of behaviour change techniques with the Tai Chi instructor at a home visit in week 3–4 of the intervention (action planning, coping planning, self-monitoring, and alarm clock reminder).					
Comparator #1 (control)	43	Control- Usual care and asked not to take up Tai Chi or similar exercise during project period					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Both instructors are experienced and have qualifications at senior instructor level for public Tai Chi classes.				
Is there an inactive comparator?	Yes	Comparison=control					
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*	
1	Primary	Dynamic balance	Baseline, and 6 month follow up	Timed up and Go - Stopwatch and Balance Sensor (THETAmetrix)	Screening for falls risk		

Characteristics of included studies		Neurocognitive			
Study ID		**Nyman 2018**			
2	Secondary	Balance	Baseline, and 6 month follow up	Berg Balance Scale	14 item scale with a 5-point response for each item
3	Secondary	Postural sway	Baseline, and 6 month follow up	static balance on foam mat using Balance Sensor (mg/s)	
4	Secondary	Fear of falling	Baseline, and 6 month follow up	Falls efficacy sacle - short form (10-items)	Higher scores indicate greater fear
5	Secondary	Cognitive function	Baseline, and 6 month follow up	Mini-Addenbrooke Cognitive Exam	The sum score is used, with values on an interval scale of 0–30 with higher scores indicating greater cognitive function.
6	Secondary	Cognitive function, visuospatial ability	Baseline, and 6 month follow up	Statue task (Reid & Speirs for use in AD) - Time taken (in seconds) to complete	Visual spatial function

Characteristics of included studies		Neurocognitive				
Study ID		**Nyman 2018**				
	7	Secondary	Quality of Life	Baseline, and 6 month follow up	ICEpop CAPability measure for Older people (ICECAP-O0 (5-items)	perception of indpendence
	8	Secondary	Number of falls	Collected Monthly from baseline until end of treatment (6 mos)	Fall calendar + telephone calls	
	9	Secondary	Falls risk	baseline, end of treatment (6 mos)	Number of injurous falls - Telephone calls	
	10	Not specified	Retention	Weekly	Telephone calls	
	11	Not specified	Importance of intervention: Enjoyment and confidence of home practice	Mid-point (3 mos)	5-item questionnaire	Intervention group only

Characteristics of included studies		Neurocognitive
Study ID		**Nyman 2018**
	12	--
	13	--
	14	--
	15	--
	16	--
Method of analysis		
Statistics		The primary and secondary outcomes were compared between the two trial arms using a mixed (multi-level) model approach to take into account clustering within Tai Chi classes, baseline scores, treatment site, and 12-month falls history. Fall incidence and the proportion of participants who fell were analysed similarly using negative binomial and logistic models, respectively.
Population analysed	Intent-to-treat	Also carried out per protocol analsysis using the missing data mechanism is “Missing at Random” (MAR) and excluded participants from the Tai Chi group if they received fewer than 50 h

Characteristics of included studies	Neurocognitive	
Study ID	**Nyman 2018**	
Missing data	Yes	5 dyads from the Tai Chi group were categorised as early discontinuation of intervention. 13 dyads were lost to follow up from both Tai Chi group (n=6) and control group (n=7). 70 (82%) dyads had complete data for the primary outcome variable.

Characteristics of included studies	Neurocognitive	
Study ID	**Sungkarat 2017**	
Study reference	Somporn Sungkarat, Sirinun Boripuntakul, Nipon Chattipakorn, Kanokwan Watcharasaksilp, and Stephen R Lord. Effects of Tai Chi on Cognition and Fall Risk in Older Adults with Mild Cognitive Impairment: A Randomized Controlled Trial. J Am Geriatr Soc 65:721–727, 2017.	
Study design	RCT	
Author affiliation	All authors affiliated with tertiary institutions: Chiang Mai University, Thailand; University of New South Wales, Australia	
Source of funds	This work was funded by The Thailand Research Fund, RSA5680020 (SS) and a Research Chair Grant from the National Science and Technology Development Agency Thailand (NC).	
Declared interests of study authors	Stephen R. Lord declares that a commercial version of the PPA (FallScreen) is commercially available through Neuroscience Research Australia, with any profits shared equally by the inventor (SL), the NeuRA Falls and Balance Research Group, and the NeuRA central fund.	
Setting / provider	Department of Physical Therapy, Chiang Mai University and	
Country(s) / region	Thailand	
Enrolment period	Not specified	
Length of treatment/ followup	17 weeks	
Description of population	*N=*	*Description*
# participants	66	Adults (60+ yrs) with **a-MCI**
details	*Inclusion criteria:* met Petersen's criteria for diagnosing amnestic multiple-domain MCI (a-MCI), had scores of 24 or greater on the Mini-Mental State Examination (MMSE) and less than 26 on the Montreal Cognitive Assessment (MoCA), had adequate memory if cued, and comprehended instructions required for study participation. *Exclusion criteria:* taking medications for cognition, neurological conditions (e.g., Parkinson's disease, stroke, multiple sclerosis), depressive symptoms, acute or chronic conditions that would preclude exercise, regular exercise (≥ 30 min/d, ≥3 d/wk).	

Characteristics of included studies	Neurocognitive						
Study ID	**Sungkarat 2017**						
Description of intervention/comparator (as per TIDIER	*n=*	*Description (include # treatment sessions, session duration, program duration)*					
Intervention	33	Tai Chi - 50 minute session 3 times per week for 3 weeks center-based and then 12 weeks home-based Tai Chi Each 50-minute session included a 10-minute warm-up (range of motion, stretching), 30 minutes of Tai Chi exercise, and a 10-minute cool-down (stretching, breathing exercises). For the 30 minutes of Tai Chi exercise, participants practiced the 10-form Tai Chi. All participants also received a telephone call from the research staff once a week to monitor Tai Chi training frequency, duration, and adverse events and any health and lifestyle changes.					
Comparator #1 (control)	33	Control- received educational material covering information related to cognitive impairment and fall prevention alongside routine lifestyle					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Certified Tai Chi intructor				
Is there an inactive comparator?	Yes	Comparison=control					
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*	
1	Primary	Cognitive function, episodic memory	Baseline, and the end of Week 15	Wechsler Memory Scale - The Logical Memory—delayed recall	Participants were instructed to listen carefully to two short stories and remember their content.	After a 30-minute delay, they were asked torepeat each story as accurately as possible.	

Characteristics of included studies		Neurocognitive			
Study ID		**Sungkarat 2017**			
2	Primary	Cognitive function, visuospatial ability	Baseline, and the end of Week 16	Block Design Test	Participants were asked to arrange blocks according to a presented model as quickly as possible. The number of blocks increased from four to nine.
3	Primary	Cognitive function, executive function	Baseline, and the end of Week 17	Digit Span (forward and backward)	lists of numbers were presented orally to participants who were asked to repeat the numbers immediately in ascending (forward) or reverse (backward) numerical order.
4	Primary	Cognitive function, executive function	Baseline, and the end of Week 18	Trail-Making Test (TMT) Part A.	Participants were instructed to draw a line to connect consecutive numbers in numerical order as quickly and correctly as possible (e.g., 1–2–3).
5	Primary	Cognitive function, executive function	Baseline, and the end of Week 19	Trail-Making Test (TMT) Part B	Participants asked to draw a line to connect consecutive numbers in numerical order and letters in alphabetical order in an alternating sequence (e.g., 1–A–2–B–3) as quickly and correctly as possible
6	Secondary	Falls risk	Baseline, and the end of Week 20	Physiological Profile Assessment (PPA) composite	A series of five sensorimotor assessments: edge contrast sensitivity, lower limb proprioception, knee extension strength, hand reaction time, and postural sway

Characteristics of included studies	Neurocognitive
Study ID	Sungkarat 2017
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Characteristics of included studies	Neurocognitive	
Study ID	**Sungkarat 2017**	
12	--	
13	--	
14	--	
15	--	
16	--	
Method of analysis		
Statistics	Normality of the data was determined using the Shapiro- Wilk test. Demographic variables were analyzed using independent t-tests for continuous variables and chi-square tests for nominal variables. To compare outcome measures between the two groups at the end of Week 15, analysis of covariance was performed with baseline test scores as covariates. Significance was two sided and was set at P < .05.	
Population analysed	Intent-to-treat	Per-protocol and intention-to-treat (ITT) analyses were performed with missing data calculated usingmultiple imputation.

Characteristics of included studies	Neurocognitive	
Study ID	**Sungkarat 2017**	
Missing data	Yes	Seven participants withdrew before the end of the trial, resulting in a dropout rate of 10.6%. This was balanced between treatment groups. Main reasons for lost to follow up included ill health, moved, and busy.

Characteristics of included studies	Rehabilitation after stroke / CVD	
Study ID	**Au-Yeung 2007**	
Study reference	1. Au-Yeung, S., et al. (2007). "Tai Chi improves standing balance in people with chronic stroke." ISPGR 2007. 18th international conference of the international society for posture and gait research: 30. 2. Au-Yeung, S. S., et al. (2009). "Short-form Tai Chi improves standing balance of people with chronic stroke." Neurorehabil Neural Repair 23(5): 515-522.	
Study design	RCT	Computer generated randomisation
Author affiliation	Chinese academic insititution	
Source of funds	S.K. Yee Medical Foundation and an Area of Strategic Development grant from The Hong Kong Polytechnic University	
Declared interests of study authors	Not reported	
Setting / provider	Community center or day care center	
Country(s) / region	Hong Kong, China	
Enrolment period	JUN 2003 - MAY 2006	
Length of treatment/ followup	12 weeks	
Description of population	*N=*	*Description*
# participants	136	Chronic stroke (>6 months prior)
details	*Inclusion criteria:* History of stroke >6 months, manifestation of hemiplegia, ability to walk at least 6 meters with or without assistance. *Exclusion criteria:* severely impaired cognitive functions, prior Tai Chi experience, or involvement in rehabilitation programs at the time of study	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Rehabilitation after stroke / CVD					
Study ID	**Au-Yeung 2007**					
Intervention	74	Tai Chi (Sun style) - 1 x 60min sessions per week + 3hrs per week home practice for 12 weeks Included short-form tai chi adapted from Sun-style tai chi for arthritis. Consisted of 12 forms that required whole -body movements to be performed in a continuous sequence demanding concentration. Subjects practiced 1-3 new tai chi forms in addition to the forms learned in previous weeks, learning all 12 forms in 8 weeks and practiced the whole sequence in the remaining 4 weeks. During home practice they could refer to a video and pictures of the tai chi forms. Caregivers supervised self-practice and subjects recorded the duration of self-practice in a diary and submitted it to the instructor before each group session.				
Comparator #1 (control)	--	--				
Comparator #2 (other)	62	Active control: 1 x 60 minute session per week + 3hrs per week home practice for 12 weeks Consisted of breathing and stretching, active mobilization of muscles and joints of the limbs and trunk in sitting and walking, and memory and reasoning exercises. Additionally, there was 1 educational talk about stroke prevention				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Instructor was a physiotherapist qualified to teach tai chi			
Is there an inactive comparator?	No	Comparison=other	Comparator involves stretching and education			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies	Rehabilitation after stroke / CVD					
Study ID	**Au-Yeung 2007**					
1	Primary	Balance, limit of stability	Baseline, mid (wk 6), end of ttreatment (wk 12), followup (wk 18)	Forward/backward sway	Participants stood on a measured platform. Participants were instructed to lean slowly in each direction.	Each subject performed two trials, and the second one was used for analysis.
2	Primary	Balance, limit of stability	Baseline, mid (wk 6), end of ttreatment (wk 12), followup (wk 18)	Affected/ non-affected side	Participants stood on a measured platform. Participants were instructed to lean slowly in each direction.	Each subject performed two trials, and the second one was used for analysis.
3	Primary	Balance, reaction time	Baseline, mid (wk 6), end of ttreatment (wk 12), followup (wk 18)	Forward/backward sway - reaction time	Reaction time defined as the time (s) between the appearance of the target and the start of movement.	
4	Primary	Balance, reaction time	Baseline, mid (wk 6), end of ttreatment (wk 12), followup (wk 18)	Affected side / non-affected side - reaction time	Reaction time defined as the time (s) between the appearance of the target and the start of movement.	
5	Primary	Balance, postural sway	Baseline, mid (wk 6), end of ttreatment (wk 12), followup (wk 18)	Sensory organisation test - eyes open / eyes closed	Participants stood on a fixed support surface with their eyes open / or eyes closed.	Subjects had one practice trial and then the mean score from 3 x 20-second trials was used.

Characteristics of included studies	Rehabilitation after stroke / CVD					
Study ID	**Au-Yeung 2007**					
6	Primary	Balance, postural sway	Baseline, mid (wk 6), end of ttreatment (wk 12), followup (wk 18)	Sensory organisation test - eyes open / eyes closed	Participants stood on a fixed support surface with their eyes open in a sway-referenced visual surrounds.	Subjects had one practice trial and then the mean score from 3 x 20-second trials was used.
7	Primary	Balance, postural sway	Baseline, mid (wk 6), end of ttreatment (wk 12), followup (wk 18)	Sensory organisation test - eyes open / eyes closed	Participants stood on a sway-referenced support surface with their eyes open.	Subjects had one practice trial and then the mean score from 3 x 20-second trials was used.
8	Primary	Balance, postural sway	Baseline, mid (wk 6), end of ttreatment (wk 12), followup (wk 18)	Sensory organisation test - somatosensory ratio	Score condition 2/condition 1	
9	Primary	Balance, postural sway	Baseline, mid (wk 6), end of ttreatment (wk 12), followup (wk 18)	Sensory organisation test - visual ratio	Score condition 4/condition 1	
10	Primary	Balance, postural sway	Baseline, mid (wk 6), end of ttreatment (wk 12), followup (wk 18)	Sensory organisation test - vestibular ratio	Score condition 5/condition 1	

Characteristics of included studies	Rehabilitation after stroke / CVD					
Study ID	**Au-Yeung 2007**					
11	Secondary	Functional mobility	Baseline, mid (wk 6), end of ttreatment (wk 12), followup (wk 18)	Timed up and go	Faster score means more mobility. Participants were seated in an arm-chair with their backs against the chair.	On an auditory signal, they stood up, walked 3 m as quickly and safely as possible, then turned around, walked back to the chair.
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Characteristics of included studies	Rehabilitation after stroke / CVD
Study ID	**Au-Yeung 2007**
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Method of analysis	

Characteristics of included studies	Rehabilitation after stroke / CVD	
Study ID	**Au-Yeung 2007**	
Statistics	Independent t-test was used to compare the demographic and baseline continuous data between the two groups. Chi-square tests were used for the categorical data. The variable of age was found to differ between groups at baseline and was treated as a covariate.	
Population analysed	Intent-to-treat	Mixed model repeated measures analysis of variance to address missing data in the analysis of within-group and bewteen-group differences
Missing data	15 dropped out of Tai Chi group (20%) and 7 dropped out of control group (11%) during the interventions. These 21 dropouts were statistically significantly older than those who completed the study. 6 refused follow-up at 18 weeks, 3 in each group.	

Characteristics of included studies	Rehabilitation after stroke / CVD		
Study ID	**Chan 2017**		
Study reference	Chan, W. N. and W. W. Tsang (2017). "Effect of Tai Chi Training on Dual-Tasking Performance That Involves Stepping Down among Stroke Survivors: A Pilot Study." Evidence-Based Complementary & Alternative Medicine: eCAM 2017: 9134173.		
Study design	RCT	pseudorandomised	No mention of the randomisation method
Author affiliation	The authors were associated with a university in Hong Kong		
Source of funds	Not reported		
Declared interests of study authors	The authors declared no conflict of interest		
Setting / provider	Community		
Country(s) / region	Hong Kong SAR,China		
Enrolment period	OCT 2014 - DEC 2016		
Length of treatment/ followup	12 weeks		
Description of population	*N=*	*Description*	
# participants	26	Chronic stroke (>6 months prior)	
details	*Inclusion criteria:* >50 years old, able to perform a stepping down manouver without physical assistance, able to follow instructions in Cantonese *Exclusion criteria:* neurological disease other than stroke, severe visual or hearing impairment, Mini Mental State Exam score <18, any major surgery or severe musculoskeletal injury during previous six months		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Rehabilitation after stroke / CVD						
Study ID	**Chan 2017**						
Intervention	9	Tai Chi - (Yang style) - 2x 60min sessions per week for 12 weeks + 30 min per week home practice. Tai Chi intervention: consisted of a 12 form Yang style Tai Chi, with form selected according to the needs of stroke survivors.					
Comparator #1 (control)	9	Control (waitlist)					
Comparator #2 (other)	8	Conventional Exercise - 2x 60min sessions per week for 12 weeks. Conventional exercises focused on upper and lower limb mobilisation, stretching and strengthening. Unlike Tai Chi, there was no focus on memorising the exercises.					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Instructor was a physiotherapist who is also an experienced Tai Chi practitioner.				
Is there an inactive comparator?	Yes	Comparison=control	Inactive control group as well as exercise group				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*		*other*

Characteristics of included studies	Rehabilitation after stroke / CVD					
Study ID	**Chan 2017**					
1	Not specified	Executive function	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	Auditory stroop test	Two words "high" and "low" were said in high and low pitches giving four combinations. Participants were required to respond to the pitch rather than the meaning of the word.	A composite score combined their accuracy and response time.
2	Not specified	Balance	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	Centre of pressure - anteroposterior	Participants stood on a 19cm high block and focused on a point at their eye level. They were instructed to step down from the block onto a pressure plate.	Each subject performed three trials and the average was employed in data analysis.
3	Not specified	Balance	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	Centre of pressure - mediolateral		
4	Not specified	Balance	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	Centre of pressure - average sway velocity		
5	Not specified	Dual task	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	Auditory stroop test + CoP sway	Combined physical and cognitive function in dual task	

Characteristics of included studies	Rehabilitation after stroke / CVD				
Study ID	**Chan 2017**				
6	Not specified	Dual task	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	Dual task: Centre of pressure - anteroposterior	Combined physical and cognitive function in dual task
7	Not specified	Dual task	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	Dual task: Centre of pressure - mediolateral	Combined physical and cognitive function in dual task
8	Not specified	Dual task	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	Dual task: Centre of pressure - average sway velocity	Combined physical and cognitive function in dual task
9	--				
10	--				

Characteristics of included studies	Rehabilitation after stroke / CVD
Study ID	**Chan 2017**
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Characteristics of included studies	Rehabilitation after stroke / CVD
Study ID	**Chan 2017**
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Method of analysis	

Characteristics of included studies	Rehabilitation after stroke / CVD	
Study ID	**Chan 2017**	
Statistics	Baseline characteristics compared using ANOVA for continuous and Chi-squared for categorical variables. Two-way mixed ANOVAs were conducted to determine the significance of any group effect, time effect and interaction effect for each measure. For any significant between-subjects difference, a one-way ANOVA was performed follow by a post-hoc analysis in each assessment period. To highlight any significant within-subject changes, repeated-measures ANOVA with further contrast analysis was conducted in each group.	
Population analysed	Intent-to-treat	Intention to treat with last observation carried forward is specified
Missing data	Yes	

Characteristics of included studies	Rehabilitation after stroke / CVD	
Study ID	**Chan 2018**	
Study reference	Chan, W. N. and W. W. Tsang (2018). "The effect of Tai Chi training on the dual-tasking performance of stroke survivors: a randomized controlled trial." Clinical Rehabilitation 32(8): 1076-1085. NCT03252236	
Study design	RCT	Subjects drew a card which indicated their intervention group
Author affiliation	The authors were associated with a university in Hong Kong	
Source of funds	The authors received no financial support for this research.	
Declared interests of study authors	The authors declared no conflict of interest	
Setting / provider	Community	
Country(s) / region	China	Hong Kong SAR
Enrolment period	October 2014 - December 2016	
Length of treatment/ followup	12 weeks + 1 month follow up	
Description of population	*N=*	*Description*
# participants	47	Chronic stroke (>6 months prior)
details	*Inclusion criteria:* >50 years old, able to walk 5m indoors without any physical support, able to follow instructions in Cantonese *Exclusion criteria:* neurological disease other than stroke, severe visual or hearing impairment, Mini Mental State Exam score <18, any major surgery or severe musculoskeletal injury during previous six months	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Rehabilitation after stroke / CVD						
Study ID	**Chan 2018**						
Intervention	15	Tai Chi (Yang Style) - 60 minute sessions twice a week for 12 weeks + 30 min per week home practice. The intervention consisted of a 12 form Yang style Tai Chi, with form selected according to the needs of stroke survivors.					
Comparator #1 (control)	15	Control - waitlist					
Comparator #2 (other)	17	Conventional exercises - 2x 60min sessions per week for 12 weeks. The exercises focused on upper and lower limb mobilisation, stretching and strengthening. Unlike in Tai Chi, there was no focus on memorising the exercises.					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Instructor was a physiotherapist who is also an experienced Tai Chi practitioner.				
Is there an inactive comparator?	Yes	Comparison=control	Inactive control group as well as exercise group				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*	

Characteristics of included studies	Rehabilitation after stroke / CVD					
Study ID	**Chan 2018**					
1	Secondary	Executive function	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	Auditory stroop test	Two words "high" and "low" were said in high and low pitches giving four combinations. Participants were required to respond to the pitch rather than the meaning of the word.	A composite score combined their accuracy and response time.
2	Secondary	Functional mobility	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	5m walk test- completion time	Turning while walking task - Subjects were asked to walk a straight line for 5m, make a 180 degree turn towards their affected side and return to the starting position.	The task was repeated 3 times and the average was used for gait anaylsis.
3	Secondary	Functional mobility	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	5m walk test - turning duration	Turning while walking task -	
4	Secondary	Functional mobility	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	5m walk test - number of steps to turn	Turning while walking task -	
5	Primary	Dual task	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	Dual task: Auditory stroop test	Combined physical and cognitive function in dual task	The auditory stroop test was conducted similtaneously. They were asked to press any button on a switch at any time, to minimise confounding during the dual-tasking outcome assessment.

Characteristics of included studies	Rehabilitation after stroke / CVD				
Study ID	**Chan 2018**				
6	Primary	Dual task	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	Dual task: Turning while walking task - completion time	Combined physical and cognitive function in dual task
7	Primary	Dual task	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	Dual task: Turning while walking task - turning duration	Combined physical and cognitive function in dual task
8	Primary	Dual task	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	Dual task: Turning while walking task - number of steps to turn	Combined physical and cognitive function in dual task
9	Primary	Dual task	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	Dual task: Stepping back	Combined physical and cognitive function in dual task
10	Primary	Dual task	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	Dual task: stepping down	Combined physical and cognitive function in dual task

Characteristics of included studies	Rehabilitation after stroke / CVD				
Study ID	**Chan 2018**				
11	Primary	Cardiovascular measures	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	Change in arterial compliance	Change in arterial blood volume due to a change in arterial blood pressure. Large and small arterial compliance measured non-invasively.
12	Secondary	Gait analysis	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	Stepping back	Not defined
13	Secondary	Gait analysis	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	Stepping down	Not defined
14	Secondary	Cardiovascular measures	Baseline, 12 weeks (post intervention), 16 weeks (follow-up)	Heart rate variability	Not defined
15	--				
16	--				

Characteristics of included studies	Rehabilitation after stroke / CVD
Study ID	**Chan 2018**
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19	--
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22	--
23	--
Method of analysis	

Characteristics of included studies	Rehabilitation after stroke / CVD	
Study ID	**Chan 2018**	
Statistics	Baseline characteristics compared using ANOVA for continuous and Chi-squared for categorical variables. Two-way mixed ANOVAs were conducted to determine the significance of any group effect, time effect and interaction effect for each measure. For any significant between-subjects difference, a one-way ANOVA was performed follow by a post-hoc analysis in each assessment period. To highlight any significant within-subject changes, repeated-measures ANOVA with further contrast analysis was conducted in each group.	
Population analysed	Intent-to-treat	Intention to treat with last observation carried forward is specified
Missing data	Yes	

Characteristics of included studies	Rehabilitation after stroke / CVD		
Study ID	**Hart 2004**		
Study reference	Hart, J., et al. (2004). "Tai Chi Chuan practice in community-dwelling persons after stroke." International Journal of Rehabilitation Research 27(4): 303-304.		
Study design	RCT	pseudorandomised	No mention of the randomisation method
Author affiliation	The authors were associated with a hospital and a Tai Chi centre in Israel		
Source of funds	Not reported		
Declared interests of study authors	Not reported		
Setting / provider	Not reported		
Country(s) / region	Tel Aviv, Israel		
Enrolment period	1999 - 2002		
Length of treatment/ followup	12 weeks		
Description of population	*N=*	*Description*	
# participants	18	Chronic stroke (>6 months prior)	
details	*Inclusion criteria:* 45-65 years old, single stroke only, treated in their hospital 1999-2002, independence in gait and activities of daily living, intact visual acuity, residence within 1 hr drive, willingess to participate *Exclusion criteria:* receptive aphasia (inability to understand instructions), impaired joints (likely to affect movement)		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Rehabilitation after stroke / CVD						
Study ID	**Hart 2004**						
Intervention	9	Tai Chi - 2x 60min sessions per week for 12 weeks Tai Chi delivered by a qualified instructor but not defined.					
Comparator #1 (control)	--	--					
Comparator #2 (other)	9	Active control (Exercises for balance improvement) - 2x 60min sessions per week for 12 weeks					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Certified TCC instructor from the Israel Centre for Tai Chi Chuan.				
Is there an inactive comparator?	No	Comparison=other					
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*		*other*

Characteristics of included studies	Rehabilitation after stroke / CVD					
Study ID	**Hart 2004**					
1	Not specified	Balance	Baseline, 12 weeks (post-intervention)	Romberg Test of Balance		
2	Not specified	Balance	Baseline, 12 weeks (post-intervention)	Standing on unaffected leg		
3	Not specified	Functional mobility	Baseline, 12 weeks (post-intervention)	Emory Fractional Ambulation Profile	Measures walk time in 5 environmental circumstance	
4	Not specified	Balance	Baseline, 12 weeks (post-intervention)	Berg Balance Scale	14 item in the scale, with a maximum score of 56.	0 = no performance to 4 = normal
5	Not specified	Functional mobility	Baseline, 12 weeks (post-intervention)	Timed up and go	Participants were seated in an arm-chair with their backs against the chair. On an auditory signal, they stood up, walked 3 m as quickly and safely as possible, then turned around, walked back to the chair.	Time to completion. Higher socre means worse functional mobility

Characteristics of included studies	Rehabilitation after stroke / CVD				
Study ID	**Hart 2004**				
6	Not specified	HRQoL	Baseline, 12 weeks (post-intervention)	Duke Health Profile	Self-reported health status across four domains: symptom status, physical, social and emotional function
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Characteristics of included studies	Rehabilitation after stroke / CVD
Study ID	**Hart 2004**
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Characteristics of included studies	Rehabilitation after stroke / CVD
Study ID	**Hart 2004**
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23	--
Method of analysis	

Characteristics of included studies	Rehabilitation after stroke / CVD	
Study ID	**Hart 2004**	
Statistics	Method not reported. Outcomes were compared to baseline measurements within groups but not between group analysis is presented.	
Population analysed	Intent-to-treat	Not reported, assume intention to treat
Missing data	Yes	

Characteristics of included studies	Rehabilitation after stroke / CVD	
Study ID	**Huang 2019**	
Study reference	1. Huang, S., et al. (2019). "Body weight support-Tai Chi footwork for balance of stroke survivors with fear of falling: A pilot randomized controlled trial." Complementary Therapies in Clinical Practice 37: 140-147. 2. ChiCTR1900020758	
Study design	RCT	Randomisation sequence generated by external statistician using Excel, delivered to participants in sealed
Author affiliation	The authors were associated with two univeristies and one hospital in Shanghai, China.	
Source of funds	This study was supported by grants through the Budget Project of Shanghai University of TCM (18TS088), Key Weak Discipline Construction Project of Health Planning Commission of Pudong New Area (PWZbr2017-04), Talents Training Program of Seventh People's Hospital of Shanghai University of TCM (QMX2018-02), and the Fundamental Research Funds for the Central Universities.	
Declared interests of study authors	The authors declared no conflict of interest.	
Setting / provider	Delivered in hospital	
Country(s) / region	China	
Enrolment period	March 2016 - September 2017	
Length of treatment/ followup	12 weeks	
Description of population	*N=*	*Description*
# participants	28	Stroke recovery
details	*Inclusion criteria:* clinically diagnosed cerebral haemorrhage or infarction, fear of falling, 30-75 years old, able to follow instructions, Mini Mental State score of 24 or more, able to stand unaided and walk without assistive device *Exclusion criteria:* prior experience with Tai Chi, current involvement in other clinical trial or instructor-directed exercise program, vision disorder, severe hypertension or cardiopulmonary disease, lower extremity joint or muscle injuries	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Rehabilitation after stroke / CVD					
Study ID	**Huang 2019**					
Intervention	14	Tai Chi - 3 x 40min sessions per week for 12 weeks+AV18. The intervention consisted of Body Weight Support - Tai Chi (BWS-TC). Each patient was asked to wear a harness and a specific percentage of their body weight was supported by an overhead suspension system. An initial BWS was set at 40% and decreased during the progression of the trial. Based on the 24-form simplified TC, whereby 7 step form were chosen which comprise most TC movements. Each session incorporated 5-min warm-up sequence at the beginning, a 5-min cooldown sequence at the end, and 30 min of BWS-TC footwork training in between with rest periods if required.				
Comparator #1 (control)	14	Control - no intervention				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	Conventional rehabilitation program including personalized Bobath therapy, proprioceptive neuromuscular facilitation, sitting and standing balance training, and walking.				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Two martial art coaches who had National Second-level Athlete Certifications			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies	Rehabilitation after stroke / CVD				
Study ID	**Huang 2019**				
1	Primary	Dynamic Balance	Baseline, and at 12 weeks (post-intervention)	Limits of Stabilit (LOS) test using computerized dynamic posturography	The farthest distance in eight different directions a subject can lean from an upright position within their base of support without taking any steps
2	Secondary	Participant's capability to assimilate numerous senses with regards to balance	Baseline, and at 12 weeks (post-intervention)	Modified Clinical Test of Sensory Integration of Balance (m-CTSIB)	Four conditions used: (1) eyes open and (2) eyes closed on a FIRM surface and (3) eyes open and (4) eyes closed on a FOAM surface
3	Secondary	Fall Risk	Baseline, and at 12 weeks (post-intervention)	Fall Risk Index (FRI)	Each evaluation lasted 20 s with a 10-s rest during the evaluation. The average value of three evaluations was obtained.
4	Secondary	Motor Function	Baseline, and at 12 weeks (post-intervention)	Fgul-Meyer Assessment (FMA) of the lower limbs	Each element was scored using a 3-point rating scale, with higher scores indicating less motor damage.
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Characteristics of included studies	Rehabilitation after stroke / CVD
Study ID	**Huang 2019**
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Characteristics of included studies	Rehabilitation after stroke / CVD
Study ID	**Huang 2019**
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Characteristics of included studies	Rehabilitation after stroke / CVD
Study ID	**Huang 2019**
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Method of analysis	

Characteristics of included studies	Rehabilitation after stroke / CVD	
Study ID	**Huang 2019**	
Statistics	To assess between-group differences in demographic and baseline variables; oneway analysis of variance (ANOVA) and Chi-square tests were used for continuous variables and categorical variables, respectively. A two-way ANOVA repeated measures with group as a group (BWS-TC vs. control) factor and time (pre/post-intervention) factor was used to calculate the effects of the interventions on all outcome measures. Bonferroni correction was conducted where the time x intervention interaction effect was statistically significant. An alpha level of 0.05 was considered as statistical significance.	
Population analysed	Intent-to-treat	The primary and secondary analyses were done on an intention-to-treat basis.
Missing data	Yes	

Characteristics of included studies	Rehabilitation after stroke / CVD		
Study ID	**Kim 2015**		
Study reference	Kim, H., et al. (2015). "Effects of therapeutic Tai Chi on balance, gait, and quality of life in chronic stroke patients." International Journal of Rehabilitation Research 38(2): 156-161.		
Study design	RCT	pseudorandomised	No mention of the randomisation method
Author affiliation	The authors were associated with a university in South Korea		
Source of funds	Not reported		
Declared interests of study authors	The authors declared no conflict of interest		
Setting / provider	Hospital		
Country(s) / region	South Korea		
Enrolment period	Not reported		
Length of treatment/ followup	6 weeks		
Description of population	*N=*	*Description*	
# participants	24	Hospitalised stroke patients	
details	*Inclusion criteria:* ability to walk 10 metres independently, Brunnstrom recovery stage >=4, Modified Ashworth Scale-plantar flexor muscle of the lower extremity < 3 with altered muscle tone, Mini Mental State Exam score >=24, no visual abnormalities *Exclusion criteria:* morbidity associated with orthopedic disorders, neurological disease that affected walking		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Rehabilitation after stroke / CVD					
Study ID	**Kim 2015**					
Intervention	11	Tai Chi - 2x 60min sessions per week for 6 weeks. The Tai Chi intervention consisted of 10 movements, with participants taking a break every 10 mins to allow for fatigue and pain.				
Comparator #1 (control)	11	Control (not specified), assume no intervention				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	24	General physical therapy: twice per day, 10 times/week for 6 weeks				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Tai Chi led by an experienced researcher and research assistant.			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies	Rehabilitation after stroke / CVD					
Study ID	**Kim 2015**					
1	Not specified	Static balance, center of pressure	Baseline, end of treatment (6 wks)	Sway length - eyes open	Participants were asked to look forward, the measurement was performed three times for 15s each.	Standing on a panel which measures the body's centre of pressure.
2	Not specified	Static balance, center of pressure	Baseline, end of treatment (6 wks)	Sway veloicty - eyes open	Participants were asked to look forward, the measurement was performed three times for 15s each.	Standing on a panel which measures the body's centre of pressure.
3	Not specified	Static balance, center of pressure	Baseline, end of treatment (6 wks)	Sway length - eyes closed	Participants were asked to close their eyes for 2-3s before measurement, the measurement was performed three times for 15s each.	Standing on a panel which measures the body's centre of pressure.
4	Not specified	Static balance, center of pressure	Baseline, end of treatment (6 wks)	Sway veloicty - eyes closed	Participants were asked to close their eyes for 2-3s before measurement, the measurement was performed three times for 15s each.	Standing on a panel which measures the body's centre of pressure.
5	Not specified	Dynamic balance	Baseline, 6 weeks (post intervention)	Functional reach	Participants were asked to stand with feet at shoulder width then in a 90 degree forward bending posture they were wasked to maintain balance with a stick placed horizontally and stretch their arm as far as possible.	On a fixed plate

Characteristics of included studies	Rehabilitation after stroke / CVD				
Study ID	**Kim 2015**				
6	Not specified	Gait	Baseline, 6 weeks (post intervention)	Dynamic gait index	
7	Not specified	Functional mobility	Baseline, 6 weeks (post intervention)	10 metre walk test	A 14 metre walking path was created, 2 mteres at the start and end were excluded. The measurement was repeated 3 times and averaged for analysis.
8	Not specified	Functional mobility	Baseline, 6 weeks (post intervention)	Timed up and go	Participants were seated in an arm-chair with their backs against the chair. On an auditory signal, they stood up, walked 3 m as quickly and safely as possible, then turned around, walked back to the chair. The score was the time to completion
9	Not specified	Activities of daily living	Baseline, 6 weeks (post intervention)	SF-36 - physical functioning	
10	Not specified	Activities of daily living	Baseline, 6 weeks (post intervention)	SF-36 - role limitation-physical	

Characteristics of included studies	Rehabilitation after stroke / CVD			
Study ID	**Kim 2015**			
11	Not specified	Quality of life	Baseline, 6 weeks (post intervention)	SF-36 - body pain
12	Not specified	Quality of life	Baseline, 6 weeks (post intervention)	SF-36 - general health
13	Not specified	Quality of life	Baseline, 6 weeks (post intervention)	SF-36 - vitality
14	Not specified	Quality of life	Baseline, 6 weeks (post intervention)	SF-36 - social functioning
15	Not specified	Quality of life	Baseline, 6 weeks (post intervention)	SF-36 - role limitation-emotional
16	Not specified	Quality of life	Baseline, 6 weeks (post intervention)	SF-36 - mental health

Characteristics of included studies	Rehabilitation after stroke / CVD
Study ID	**Kim 2015**
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Method of analysis	

Characteristics of included studies	Rehabilitation after stroke / CVD	
Study ID	**Kim 2015**	
Statistics	Frequency analysis was carried out for general characteristics, and a paired t-test was used to examine before/after differences. An independent t-est was used to examine between-group differences.	
Population analysed	Intent-to-treat	Not reported, it is interpreted that an intention to treat method was used.
Missing data	Yes	

Characteristics of included studies	Rehabilitation after stroke / CVD
Study ID	**Taylor-Piliae 2013**
Study reference	1. Taylor-Piliae, R. E., et al. (2013). "Stroke survivors in a 12-week yang-style Tai Chi intervention have fewer falls." Stroke. Conference 44(2 MeetingAbstract). 2. Taylor-Piliae, R. E., et al. (2013). "Tai chi and SilverSneakers (R) interventions improve aerobic endurance in older stroke survivors." Stroke; a journal of cerebral circulation 44. 3. Taylor-Piliae, R. E., et al. (2014). "Effects of Tai Chi on physical function and quality of life in chronic stroke." Circulation. Conference: American Heart Association's Epidemiology and Prevention/Nutrition, Physical Activity, and Metabolism 129(SUPPL. 1). 4. Taylor-Piliae, R. E., et al. (2014). "Effect of Tai Chi on physical function, fall rates and quality of life among older stroke survivors." Archives of Physical Medicine & Rehabilitation 95(5): 816-824.
Study design	RCT Simple randomisation with allocation concealment
Author affiliation	The authors were associated with a university in Arizona, USA
Source of funds	Not reported
Declared interests of study authors	Not reported
Setting / provider	Community
Country(s) / region	Arizona, USA
Enrolment period	January 2009 - January 2012
Length of treatment/ followup	None
Description of population	*N=* *Description*
# participants	145 Chronic stroke (>3 months prior)
details	*Inclusion criteria:* aged >50 years old, at least three months post stroke, living in the greater Tuscon area, all sex and racial/ethnic groups *Exclusion criteria:* no disability, a severe disability, or serious medical condition that would interfere with study participation
Description of intervention/comparator	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Rehabilitation after stroke / CVD					
Study ID	**Taylor-Piliae 2013**					
Intervention	53	Tai Chi (Yang Style) - 3x 60min sessions per week for 12 weeks. The intervention consisted of the Yang style 24-posture short-form Tai Chi taught by a practitioner with over 30 years teaching experience.				
Comparator #1 (control)	44	Control (usual care): written materials and resources for participating in community-based physical activity suitable for older adults which they could contact on their own. An additional weekly phone call to check on health status and provide individual attention.				
Comparator #2 (other)	48	Silver Sneakers Active Control - 3x 60min sessions per week for 12 weeks. The SilverSneakers intervention is a national fitness program for older adults that offers different types of group-based exercise classes. Muscular strength and range of movement classes were taught by a certified instructor.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Both interventions were taught by a certified instructor			
Is there an inactive comparator?	Uncertain	Seek guidance from NTWC	The usual care group could participate in community-based exercise programs and received weekly phone calls.			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies	Rehabilitation after stroke / CVD					
Study ID	**Taylor-Piliae 2013**					
1	Not specified	Activites of daily living/disability	Baseline, end of treatment (12 wks)	Short physical performance battery - total	Composite score of 3 subdomains	
2	Not specified	Balance	Baseline, end of treatment (12 wks)	Short physical performance battery - balance	Timed balance tests with increasing difficulty: side-by-side stand, semitandem stand, tandem stand.	
3	Not specified	Functional mobility	Baseline, end of treatment (12 wks)	Short physical performance battery - strength	Chair stand test: time to perform 5 rises froma chair to upright position without use of arms.	
4	Not specified	Functional mobility	Baseline, end of treatment (12 wks)	Short physical performance battery - gait	Time required to walk 4 metres at normal pace	
5	Not specified	Cardiorespiratory fitness	Baseline, 12 weeks (post-intervention)	2 minute step test	Participants must raise their knees one at a time to a height halfway between the middle of the patella and the iliac crest as many times as possible within 2 minutes.	If participants experienced hemiparesis, only the non-affected side was required to reach the prescribed height.

Characteristics of included studies	Rehabilitation after stroke / CVD				
Study ID	**Taylor-Piliae 2013**				
6	Not specified	Activites of daily living/disability	Baseline, 12 weeks (post-intervention)	SF-36 physical component score	Composite score of the 4 physical subdomains of the SF-36
7	Not specified	Psychosocial wellbeing	Baseline, 12 weeks (post-intervention)	SF-36 mental composite score	Composite score of the 4 mental subdomains of the SF-36
8	Not specified	Depession	Baseline, 12 weeks (post-intervention)	Center for Epidemiologic Studies Depression Scale	20-item self-report measure, higher scores represent more depressive symptoms.
9	Not specified	Sleep quality	Baseline, 12 weeks (post-intervention)	Pittsburgh Sleep Quality Index	19 self-rated questions and 5 questions intended to be completed by bed partner (if applicable)
10	Not specified	Falls	Throughout	Patient reported falls	Interviewed participants during the 12 week intervention on the number of falls and near-fall events that had experienced.

Characteristics of included studies	Rehabilitation after stroke / CVD
Study ID	**Taylor-Piliae 2013**
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Characteristics of included studies	Rehabilitation after stroke / CVD
Study ID	**Taylor-Piliae 2013**
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Method of analysis	

Characteristics of included studies	Rehabilitation after stroke / CVD	
Study ID	**Taylor-Piliae 2013**	
Statistics	Analyses of variance were used to determine if there were significant main and interaction effects. Significant interactions were probed using post-hoc paired t-tests. Bonferroni correction was used to control for type I error. A Chi-squared test with Yate continuity correction was used to examine significant differences in falls events. Sensitivity analyses were performed, exlucding individuals with missing data on the last observation.	
Population analysed	Intent-to-treat	Intention to treat is specified, with last observation carried forward.
Missing data	Yes	

Characteristics of included studies	Rehabilitation after stroke / CVD
Study ID	**Tao 2015**
Study reference	1. Tao, J., et al. (2015). "Evaluation of Tai Chi Yunshou exercises on community-based stroke patients with balance dysfunction: a study protocol of a cluster randomized controlled trial." BMC Complementary & Alternative Medicine 15: 31. 2. Xie, G., et al. (2018). "Effects of Tai Chi Yunshou exercise on community-based stroke patients: a cluster randomized controlled trial." European Reviews of Aging & Physical Activity 15: 17. ChiCRT-TRC-13003641
Study design	RCT cluster design Randomisation by PLAN algorithm in SAS, allocation concealment by randomisation manager who was n
Author affiliation	The authors were associated with traditional Chinese medicine universities, hospitals and research centres.
Source of funds	This study is funded by the Special Scientific Research Fund of Public Welfare Profession of China (Grant No. 201307004), Ministry of Science and Technology and Ministry of Finance of the People's Republic of China. It is supported by National-Local Joint Engineering Research Center of Rehabilitation Medicine Technology and National Traditional Chinese Medicine Rehabilitation Research Center of State Administration of Traditional Chinese Medicine of the People's Republic of China.
Declared interests of study authors	The authors declared no conflict of interest
Setting / provider	Community health centres
Country(s) / region	China
Enrolment period	Not reported
Length of treatment/ followup	12 weeks
Description of population	*N=* *Description*
# participants	250 Chronic stroke (>3 months prior)
details	*Inclusion criteria:* aged 45-75 years, diagnosed with stroke and confirmed by CT or MRI, first onset of stroke >3 months prior, balance dysfunctions caused by stroke rathe than other encephalopathies, ability to walk more than 6 metres independently, Mini Mental State Exam score >24 *Exclusion criteria:* existing disease affecting training, impaired vestibular function, severe visual or hearing impairments that affect training, sensory aphasia, prior Tai Chi Chuan experiences in last 6 months, serious complications afetr stroke, serious medical conditions such as severe heart disease, cancer or gastrointestinal haemorrhage, participation in other clinical trials that could affect the results of this study
Description of intervention/comparator	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Rehabilitation after stroke / CVD						
Study ID	**Tao 2015**						
Intervention	125	Tai Chi - 5x 60min sessions per week for 12 weeks. The intervention originated from the 24 short-form Tai Chi Chuan.					
Comparator #1 (control)	--	--					
Comparator #2 (other)	125	Balance rehabilitation program - 5x 60min sessions per week for 12 weeks. The program includes static balance training, dynamic balance training, bobath training, walking training, etc. according to the patient's functional level.					
Comparator #3 (other)	--	--					
Co-interventions	--	Routine medical therapy, health education					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Tai Chi taught by five qualifie coaches who have enganged in the physical education for over five years				
Is there an inactive comparator?	No	Comparison=other	Balance training				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*	

Characteristics of included studies	Rehabilitation after stroke / CVD					
Study ID	**Tao 2015**					
1	Primary	Balance	Baseline, mid (4 & 8 wks), end of treatment (12 wks), followup (18 & 24 wks)	Berg Balance Scale (14-items)	Maximum score of 56. From 0 (no performance at all) to 4 (normal performance). Evaluates sitting and standing balance.	Difference of 5.8 points was required to conclude with 90% certainty that stroke patients had a real change in balance
2	Secondary	Motor function	Baseline, mid (4 & 8 wks), end of treatment (12 wks), followup (18 & 24 wks)	Simplified Fugl-Meyer motor function assessment (50-items)	Reflects upper limb motor function (33-items) and lower limb motor function (17-items).	Each item is scored on a 3-point scale, with higher scores indicating better function.
3	Secondary	Activities of Daily Living	Baseline, mid (4 & 8 wks), end of treatment (12 wks), followup (18 & 24 wks)	Modified Barthel Index (10-items)	Evaluated on a 5-point scale, with higher composite scores indicative of better ADL	
4	Secondary	Activities of Daily Living	Baseline, mid (4 & 8 wks), end of treatment (12 wks), followup (18 & 24 wks)	SF-36 physical composite score	Composite score of the 4 physical subdomains of the SF-36	
5	Secondary	Psychosocial wellbeing	Baseline, mid (4 & 8 wks) end of treatment (12 wks), followup (18 & 24 wks)	SF-36 mental composite score	Composite score of the 4 mental subdomains of the SF-36	

Characteristics of included studies	Rehabilitation after stroke / CVD					
Study ID	**Tao 2015**					
6	Secondary	Depession	Baseline, mid (4 & 8 wks) end of treatment (12 wks), followup (18 & 24 wks)	Beck Depression Inventory	21 groups of statements that describe mental conditions.	Higher score indicative of more severe depression.
7	Secondary	Falls, fear of falling	Baseline, mid (4 & 8 wks) end of treatment (12 wks), followup (18 & 24 wks)	Modified falls efficacy scale	Assesses the degree of perceived efficacy at avoiding falls during each of ten relatively non-hazzardous activities of daily living.	
8	Secondary	Balance	Baseline, mid (4 & 8 wks) end of treatment (12 wks), followup (18 & 24 wks)	Single leg stance test - right leg	Individuals keep their eyes open, both hands on hips. A stopwatch is used to record duration of the standing.	Three test trials conducted and the best time is used for analysis.
9	Secondary	Balance	Baseline, mid (4 & 8 wks) end of treatment (12 wks), followup (18 & 24 wks)	Single leg stance test - left leg	Individuals keep their eyes open, both hands on hips. A stopwatch is used to record duration of the standing.	Three test trials conducted and the best time is used for analysis.
10	Secondary	Functional mobility	Baseline, mid (4 & 8 wks) end of treatment (12 wks), followup (18 & 24 wks)	Timed up and go	On an auditory signal, they stood up, walked 3 m as quickly and safely as possible, then turned around, walked back to the chair. The score was the time to completion. Average of 3 attempts was used.	Participants were seated in an arm-chair with their backs against the chair.

Characteristics of included studies	Rehabilitation after stroke / CVD				
Study ID	**Tao 2015**				
11	Secondary	General health	Baseline, mid (4 & 8 wks) end of treatment (12 wks), followup (18 & 24 wks)	Blood glucose	Laboratory blood test
12	Secondary	General health	Baseline, mid (4 & 8 wks) end of treatment (12 wks), followup (18 & 24 wks)	Blood lipids	Laboratory blood test
13	Secondary	Cardiorespiratory fitness	Baseline, mid (4 & 8 wks) end of treatment (12 wks), followup (18 & 24 wks)	Step test	
14	Secondary	Cardiorespiratory fitness	Baseline, mid (4 & 8 wks) end of treatment (12 wks), followup (18 & 24 wks)	Vital capacity	
15	Secondary	Cardiorespiratory fitness	Baseline, mid (4 & 8 wks) end of treatment (12 wks), followup (18 & 24 wks)	Blood pressure	
16	Secondary	Cardiorespiratory fitness	Baseline, mid (4 & 8 wks) end of treatment (12 wks), followup (18 & 24 wks)	Heart rate	

Characteristics of included studies	Rehabilitation after stroke / CVD			
Study ID	**Tao 2015**			
17	Secondary	Strength	Baseline, mid (4 & 8 wks) end of treatment (12 wks), followup (18 & 24 wks)	Lumbar proprioception function
18	Secondary	Strength	Baseline, mid (4 & 8 wks) end of treatment (12 wks), followup (18 & 24 wks)	Lower-limb proprioception function
19	Secondary	Gait	Baseline, mid (4 & 8 wks) end of treatment (12 wks), followup (18 & 24 wks)	Three-dimensional gait analysis by Gait Analysis Process
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23	--			
Method of analysis				

Characteristics of included studies	Rehabilitation after stroke / CVD	
Study ID	**Tao 2015**	
Statistics	Continuous variables are described using means (SD) or median and IQR. T-tests of Mann Whitney tests were used for continuous variables and Pearson's Chi squared or Fisher's exact test used for categorical variables. Repeated-measures analysis of variance was used to measure between group differences. Variables which differed at baseline were included as covariates.	
Population analysed	Intent-to-treat	Intention to treat is specified.
Missing data	Yes	

Characteristics of included studies	Rehabilitation after stroke / CVD		
Study ID	**Wang 2010**		
Study reference	Wang W, Sawada M, Noriyama Y, Arita K, Ota T, Sadamatsu M, et al. Tai Chi exercise versus rehabilitation for the elderly with cerebral vascular disorder: a single-blinded randomized controlled trial. Psychogeriatrics. 2010;10(3):160-6.		
Study design	RCT	pseudorandomised	No mention of randomisation method.
Author affiliation	Medical university and hospital in Japan		
Source of funds	No information provided.		
Declared interests of study authors	No information provided.		
Setting / provider	Community, outpatient clinic		
Country(s) / region	Japan		
Enrolment period	No information provided.		
Length of treatment/ followup	No reported, assume no follow-up		
Description of population	*N=*	*Description*	
# participants	34	Cerebral vascular disorder (elderly)	
details	*Inclusion criteria:* Diagnosed intracerebral haemorrhage, subarachnoid haemorrhage or cerebral infarction *Exclusion criteria:* Prior experience with Tai Chi, Qigong, yoga or accupuncture, Mini-Mental State Exam score <20, participation in other clinical trial within last 30 days		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Rehabilitation after stroke / CVD					
Study ID	**Wang 2010**					
Intervention	17	Tai Chi (Yang Style) - 1x 50min session per week for 12 weeks. Each Tai Chi session included a 10 minute warm up, 30 minutes of Tai Chi practice, 10 minutes of cool-down.				
Comparator #1 (control)	--	--				
Comparator #2 (other)	17	Rehabilitation - 1x 80min session per week or 12 weeks. Rehabilitation consisted of non-resistance training such as walking or standing, resistance training using exercise machines and Thera-Band tubing.				
Comparator #3 (other)	--	--				
Co-interventions	--	Usual care, routine medications and visits to primary care physicians				
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C				
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies	Rehabilitation after stroke / CVD					
Study ID	**Wang 2010**					
1	Not specified	Cognitive funtion	Baseline, post-intervention	Auditory odd-ball task	P300 amplitude (Fz, Cz, Pz, C3, C4) Infrequent and frequent stimuli (tone bursts at 2000 Hz and 1000 Hz) were given in random order through headphones.	Each stimulus was given at intervals of 1.5s and an intensity of 80 dB, lasting 50 ms.
2	Not specified	Cognitive funtion	Baseline, post-intervention	Auditory odd-ball task	P300 latency (Fz, Cz, Pz, C3, C4)	The subjects were instructed to pay attention to the target stimuli with their eyes open and to press the button as quickly as possible when each target stimulus was delivered.
3	Not specified	General health perceptions	Baseline, post-intervention	General Health Questionnaire - total	Self-report measure	Lower scores indicate better mental health.
4	Not specified	Psychosocial welling	Baseline, post-intervention	General Health Questionnaire - somatic symptoms		
5	Not specified	Psychosocial wellbeing	Baseline, post-intervention	General Health Questionnaire - anxiety/insomnia		

Characteristics of included studies	Rehabilitation after stroke / CVD				
Study ID	**Wang 2010**				
6	Not specified	Psychosocial wellbeing	Baseline, post-intervention	General Health Questionnaire - social dysfunction	
7	Not specified	Psychosocial wellbeing	Baseline, post-intervention	General Health Questionnaire - severe depression	
8	Not specified	Sleep	Baseline, post-intervention	Pittsburgh Sleep Quality Index - total score	19 self-rated questions and 5 questions intended to be completed by bed partner (if applicable)
9	Not specified	Sleep quality	Baseline, post-intervention	Pittsburgh Sleep Quality Index - sleep quality	Ranges from 0 (no difficulty) to 3 (severe difficulty)
10	Not specified	Sleep latency	Baseline, post-intervention	Pittsburgh Sleep Quality Index - sleep latency	Ranges from 0 (no difficulty) to 3 (severe difficulty)

Characteristics of included studies	Rehabilitation after stroke / CVD				
Study ID	**Wang 2010**				
11	Not specified	Sleep efficiency	Baseline, post-intervention	Pittsburgh Sleep Quality Index - habitual sleep efficiency	Ranges from 0 (no difficulty) to 3 (severe difficulty)
12	Not specified	Sleep duration	Baseline, post-intervention	Pittsburgh Sleep Quality Index - sleep duration	Ranges from 0 (no difficulty) to 3 (severe difficulty)
13	Not specified	Sleep disturbance	Baseline, post-intervention	Pittsburgh Sleep Quality Index - sleep disturbance	Ranges from 0 (no difficulty) to 3 (severe difficulty)
14	Not specified	Use of medication	Baseline, post-intervention	Pittsburgh Sleep Quality Index - use of sleep medication	Ranges from 0 (no difficulty) to 3 (severe difficulty)
15	Not specified	Daytime dysfunction	Baseline, post-intervention	Pittsburgh Sleep Quality Index - daytime dysfunction	Ranges from 0 (no difficulty) to 3 (severe difficulty)
16	--				

Characteristics of included studies	Rehabilitation after stroke / CVD
Study ID	**Wang 2010**
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19	--
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22	--
23	--
Method of analysis	

Characteristics of included studies	Rehabilitation after stroke / CVD	
Study ID	**Wang 2010**	
Statistics	Repeated measures analysis of variance, with groups and time as factors. Group differences were compared with t-tests.	
Population analysed	Intent-to-treat	Modified intention to treat, with participants with missing outcome data excluded.
Missing data	Yes	

Characteristics of included studies	Parkinson's disease
Study ID	**Amano 2013**
Study reference	Amano, S., et al. (2013). "The effect of Tai Chi exercise on gait initiation and gait performance in persons with Parkinson's disease." Parkinsonism Relat Disord 19(11): 955-960.
Study design	RCT pseudorandomised No mention of the randomisation method
Author affiliation	All 8 authors are affiliated with American academic intitutions (6 institutions represented in total), 2 of the authors are also affiliated with an American Veterans' Affairs research center
Source of funds	National Institutes of Health grant (grant nos. 5R03HD054594 & 5R01AT000612)
Declared interests of study authors	Not available
Setting / provider	Project 1: university-affiliated specialty geriatric care facility in a metropolitan area; Project 2: university-affiliated wellness facility in a suburban area
Country(s) / region	Project 1: Emory University in Atlanta, GA, USA; Project 2: University of Florida in Gainesville, FL, USA
Enrolment period	Study dates not reported
Length of treatment/ followup	Not reported, assume no follow-up
Description of population	*N=* *Description*
# participants	Project 1: 21 Project 2: 24 People with diagnosed idiopathic Parkinson's disease
details	*Exclusion criteria* : history or evidence of neurological deficit other than PD, dementia, inability to walk independently, previous training in any forms of Tai Chi or current participation in any structured exercise program >20 min per week, inability to understand the protocol
Description of intervention/comparator	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Parkinson's disease						
Study ID	**Amano 2013**						
Intervention	Project 1: 12; Project 2: 15	Tai Chi (Yang style) - 2x 60min sessions per week (project 1) and 3x 60min sessions per week (project 2) for 16 weeks Included modified 8-form Yang-style Tai Chi classes. Exercise groups were kept to 5 or fewer participants at a time.					
Comparator #1 (control)	9	Project 2: no intervention (non-contact control group).					
Comparator #2 (other)	9	Project 1: Qi Gong meditation - 60 minutes, frequency not specified Defined as "meditation in stillness" which emphasized prolonged, intense, contemplative, or deep meditation. Intended to serve as active placebo/contact control.					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Instructions led by qualified TC masters				
Is there an inactive comparator?	Yes	Comparison=control	Project 2				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*	

Characteristics of included studies	Parkinson's disease					
Study ID	**Amano 2013**					
1	Primary	Gait	Baseline, end of treatment (16 wks)	Magnitude of posterior centre-of-pressure displacement	Participants visited the laboratory and ground reaction forces were measured using a force platform.	The Peak Motus analysis system was used to analyse the data.
2	Primary	Gait	Baseline, end of treatment (16 wks)	Magnitude of lateral centre-of-pressure displacement	Participants visited the laboratory and ground reaction forces were measured using a force platform.	The Peak Motus analysis system was used to analyse the data.
3	Primary	Gait	Baseline, end of treatment (16 wks)	Mean centre-of-pressure velocity in posterior direction	Participants visited the laboratory and ground reaction forces were measured using a force platform.	The Peak Motus analysis system was used to analyse the data.
4	Primary	Gait	Baseline, end of treatment (16 wks)	Mean centre-of-pressure velocity in lateral direction	Participants visited the laboratory and ground reaction forces were measured using a force platform.	The Peak Motus analysis system was used to analyse the data.
5	Not specified	Gait	Baseline, end of treatment (16 wks)	Cadence (steps/min)	Participants visited the laboratory and ground reaction forces were measured using a force platform.	The Peak Motus analysis system was used to analyse the data.

Characteristics of included studies	Parkinson's disease					
Study ID	**Amano 2013**					
6	Not specified	Gait	Baseline, end of treatment (16 wks)	Gait velocity (m/s)	Participants visited the laboratory and ground reaction forces were measured using a force platform.	The Peak Motus analysis system was used to analyse the data.
7	Not specified	Gait	Baseline, end of treatment (16 wks)	Step length (m)	Participants visited the laboratory and ground reaction forces were measured using a force platform.	The Peak Motus analysis system was used to analyse the data.
8	Not specified	Gait	Baseline, end of treatment (16 wks)	Step duration (s)	Participants visited the laboratory and ground reaction forces were measured using a force platform.	The Peak Motus analysis system was used to analyse the data.
9	Not specified	Gait	Baseline, end of treatment (16 wks)	Swing time (% of gait cycle)	Participants visited the laboratory and ground reaction forces were measured using a force platform.	The Peak Motus analysis system was used to analyse the data.
10	Not specified	Gait	Baseline, end of treatment (16 wks)	Double limb support time (% of gait cycle)	Participants visited the laboratory and ground reaction forces were measured using a force platform.	The Peak Motus analysis system was used to analyse the data.

Characteristics of included studies	Parkinson's disease					
Study ID	**Amano 2013**					
11	Not specified	Gait	Baseline, end of treatment (16 wks)	Gait asymmetry	Participants visited the laboratory and ground reaction forces were measured using a force platform.	The Peak Motus analysis system was used to analyse the data.
12	Not specified	Disease severity	Baseline, end of treatment (16 wks)	Unified Parkinson's Disease Rating Score III		
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14	--					
15	--					
16	--					

Characteristics of included studies	Parkinson's disease
Study ID	**Amano 2013**
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Method of analysis	

Characteristics of included studies	Parkinson's disease
Study ID	**Amano 2013**
Statistics	One-way between-groups analysis of covariance (ANCOVA). In case the assumptions for ANCOVA were violated, absolute change scores (difference between post-intervention and pre-intervention value) were alternatively calculated and compared between groups by Mann-Whitney's U test. Pearson's correlation coefficient (r) was used to determine effect size for this case.
Population analysed	Other (provide Not specified; intention to treat is assumed
Missing data	No missing data or loss to follow-up reported

Characteristics of included studies	Parkinson's disease		
Study ID	**Choi 2013**		
Study reference	1. Choi, H. J., et al. (2013). "Therapeutic effects of tai chi in patients with Parkinson's disease." Isrn Neurology Print 2013: 548240. 2. Choi, H. J. (2016). "Effects of therapeutic Tai chi on functional fitness and activities of daily living in patients with Parkinson disease." Journal of Exercise Rehabilitation 12(5): 499-503.		
Study design	RCT	pseudorandomised	No mention of randomisation method
Author affiliation	The authors are associated with 3 universities in Korea and one university in the USA		
Source of funds	No information		
Declared interests of study authors	One author declared no conflict of interest, no information was reported on the other authors.		
Setting / provider	Community, participants present to a clinic		
Country(s) / region	Seoul,Korea		
Enrolment period	No information		
Length of treatment/ followup	Not reported		
Description of population	*N=*	*Description*	
# participants	22	Diagnosed idiopathic Parkinson's Disease	
details	*Inclusion criteria:* Hoehn-Yahr stage 1 or 2, stable drug regimen *Exclusion criteria* : severe cognitive impairment, concomitant severe neurologic, cardiopulmonary or orthopedic disorders, specific contraindications to exercise or had recently participated in any physiotherapy or rehabilitation program		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Parkinson's disease					
Study ID	**Choi 2013**					
Intervention	11	Tai Chi - 2x 60min sessions per week + 1 session home practice for 12 weeks. Each Tai Chi session started with a 10 minute warm up, 30 minutes of Tai Chi, 10 minutes of meditation and 10 minutes of cool-down.				
Comparator #1 (control)	11	Control - no intervention				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C				
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies	Parkinson's disease					
Study ID	**Choi 2013**					
1	Not specified	Disease severity (motor)	Baseline, end of treatment (12 wks)	Unified Parkinson's Disease Rating Score - Part II (motor aspects of activities of daily living)	Participant self-report	
2	Not specified	Disease severity (cognitive)	Baseline, end of treatment (12 wks)	Unified Parkinson's Disease Rating Score - Mentation, behaviour, mood	Participant self-report	
3	Not specified	Motor function	Baseline, end of treatment (12 wks)	Unified Parkinson's Disease Rating Score - Part III (Motor Exam)	Investigator report	
4	Not specified	Balance	Baseline, end of treatment (12 wks)	One-leg standing	Participants stood with hands on hips with eyes opened.	The test score was the total time standing on one leg.
5	Not specified	Functional mobility	Baseline, end of treatment (12 wks)	Reaction time	Participant stands flat footed on the floor with a monitor screen in front.	When a light comes on, they jump up as fast as possible in response to a single light stimulus.

Characteristics of included studies	Parkinson's disease					
Study ID	**Choi 2013**					
6	Not specified	Functional mobility	Baseline, end of treatment (12 wks)	Timed up and go	Participants were seated in an arm-chair with their backs against the chair. On an auditory signal, they stood up, walked 3 m as quickly and safely as possible, then turned around, walked back to the chair.	The score was the time to completion
7	Not specified	Functional mobility	Baseline, end of treatment (12 wks)	Tandem gait	The participant walks in a straight line while touching the heel of one foot to the toe of the other with each step.	
8	Not specified	Functional mobility	Baseline, end of treatment (12 wks)	Six-minute walk test	The 6-min walk test was applied as a test of cardiorespiratory endurance for daily physical activities.	
9	Not specified	Physical function	Baseline, end of treatment (12 wks)	Arm-curl (Upper body strength)	The number of bicep curls that a patient could complete in 30 sec holding a hand weight	2.26 kg for women and 3.62 kg for men
10	Not specified	Physical function	Baseline, end of treatment (12 wks)	Stand-up and sit-down from a chair	Standing-up and sitting-down from a chair was used to assess lower body strength.	

Characteristics of included studies		Parkinson's disease				
Study ID		**Choi 2013**				
11	Not specified	Balance	Baseline, end of treatment (12 wks)	Functional reach	The arm closest to the wall is raised to shoulder height, and the position of the knuckle of the middle finger is measured.	
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Characteristics of included studies	Parkinson's disease
Study ID	**Choi 2013**
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Method of analysis	

Characteristics of included studies	Parkinson's disease	
Study ID	**Choi 2013**	
Statistics	Descriptive results were expressed as means and standard deviations. An analysis of variance (ANOVA) for repeated measures with one between factor (treatment group; TTC versus control) and one within factor (time; pre- and postintervention) was used to evaluate the effects of the intervention. Significance levels were set a priori at $P \leq 0.05$	
Population analysed	Intent-to-treat	Modified - all participants except those with no outcome data were analysed.
Missing data	Two participants were lost to follow up in the control group, both dropouts were due to personal reasons	

Characteristics of included studies	Parkinson's disease		
Study ID	**Gao 2009**		
Study reference	1. Gao, Q., et al. (2009). "Effects of Tai Chi on balance and fall prevention in Parkinson's disease: a randomized controlled trial." Clinical Rehabilitation 23(2): 748-753. 2. Gao, Q., et al. (2014). "Effects of Tai Chi on balance and fall prevention in Parkinson's disease: a randomized controlled trial." Clinical Rehabilitation 28(8): 748-753.		
Study design	RCT	Random number table	
Author affiliation	The authors were affiliated with universities in Sichuan and Hong Kong, China		
Source of funds	This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.		
Declared interests of study authors	The authors declared no conflict of interest.		
Setting / provider	Patients recruited by screening admissions at a hospital, assume intervention is delivered in the community setting.		
Country(s) / region	Sichuan,China		
Enrolment period	Not reported		
Length of treatment/ followup	12 weeks intervention + 6 month follow up		
Description of population	*N=*	*Description*	
# participants	80	Diagnosed idiopathic Parkinson's Disease	
details	*Inclusion criteria:* >40 years old, able to walk independently, fell at least once during past 12 months *Exclusion criteria:* (1) had Minimental state examination26 score < 24; (2) had a serious medical problem such as heart failure and severe hypertension (equal to or greater than a systolic 180 or diastolic of 110) and (3) could not endure moderate exercise for 60 minutes due to any reasons.		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Parkinson's disease						
Study ID	**Gao 2009**						
Intervention	40	Tai Chi - 3x 60min sessions per week for 12 weeks. The Tai Chi intervention consisted of a 24-form Yang style Tai Chi.					
Comparator #1 (control)	40	Control - no intervention					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	Usual care	details not provided					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	The Tai Chi classes were given by an experienced Tai Chi instructor				
Is there an inactive comparator?	Yes	Comparison=control					
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*		*other*

Characteristics of included studies	Parkinson's disease					
Study ID	**Gao 2009**					
1	Not specified	Motor function	Baseline, end of treatment (12 wks)	Unified Parkinson's Disease Rating Score III		
2	Not specified	Balance	Baseline, end of treatment (12 wks)	Berg Balance Scale (14-items)	Evaluates balance in sitting and standing positions and rates various kinds of physical performances	maximum score of 56 Scale range 0 = no performance at all to 4 = normal performance
3	Not specified	Functional mobility	Baseline, end of treatment (12 wks)	Timed Up and Go	Participants were seated in an arm-chair with their backs against the chair. On an auditory signal, they stood up, walked 3 m as quickly and safely as possible, then turned around, walked back to the chair. The score was the time to completion	Patient performed 5 trials and the average of all 5 values was used. The score was the time to completion
4	Not specified	Falls	6 month follow up	Self-report	Patients were instructed to record their falls in a note book, and phoned once per month to get details about falls, including number and injury.	A patient who had fallen at least once was defined as a faller.
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Characteristics of included studies	Parkinson's disease
Study ID	**Gao 2009**
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Characteristics of included studies	Parkinson's disease
Study ID	**Gao 2009**
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Characteristics of included studies	Parkinson's disease
Study ID	**Gao 2009**
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Method of analysis	

Characteristics of included studies	Parkinson's disease
Study ID	**Gao 2009**
Statistics	Chi-squared test to analyse the categorial variables and independent t-test to analyse the continuous variables at baseline. Independent t-test on change between baseline and post-intervention between groups. Number of fallers analysed by Chi-squared test, independent t-test to analyse average number of falls.
Population analysed	Per protocol Participants who dropped out due to lack of interest or transportation issues were excluded from the final analysis.
Missing data	Four participants withdrew during the intervention period. Reasons were provided. Not imputation for missing data was included

Characteristics of included studies	Parkinson's disease	
Study ID	**Hackney 2008**	
Study reference	Hackney, M. E. and G. M. Earhart (2008). "Tai Chi improves balance and mobility in people with Parkinson disease." Gait & Posture 28(3): 456-460.	
Study design	RCT	Coin toss
Author affiliation	The authors were associated with a single univeristy in the USA	
Source of funds	A grant from the American Parkinson Disease Association funded this work.	
Declared interests of study authors	Not reported	
Setting / provider	Community	
Country(s) / region	Missouri,USA	
Enrolment period	Not reported	
Length of treatment/ followup	13 weeks	
Description of population	*N=*	*Description*
# participants	33	Diagnosed idiopathic Parkinson's Disease
details	*Inclusion criteria:* >40 years old, able to stand for 30 minutes, walk independently for 3 meters with or without an assistive device, Hoehn & Yahr scores from 1.5-3, stable medication regimens *Exclusion criteria:* serious medical problem, history or evidence of neurological deficit (e.g. stroke or neuromuscular disease)	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Parkinson's disease						
Study ID	**Hackney 2008**						
Intervention	17	Tai Chi (Yang style SF) - 2x 60min sessions per week for 13 weeks (minimum 20 sessions total The intervention consisted of the first and second circles of the Yang Short style of Tai Chi.					
Comparator #1 (control)	16	Control - no intervention					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	Usual care	details not provided					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Tai Chi lessons were provided from an experienced instructor.				
Is there an inactive comparator?	Yes	Comparison=control					
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*		*other*

Characteristics of included studies	Parkinson's disease					
Study ID	**Hackney 2008**					
1	Not specified	Motor function	Baseline, end of treatment (13 wks)	Unified Parkinson's Disease Rating Score III		
2	Not specified	Balance	Baseline, end of treatment (13 wks)	Berg Balance Scale	Evaluates balance in sitting and standing positions and rates various kinds of physical performances	maximum score of 56 Scale range 0 = no performance at all to 4 = normal performance
3	Not specified	Functional mobility	Baseline, end of treatment (13 wks)	Timed Up and Go	Participants were seated in an arm-chair with their backs against the chair. On an auditory signal, they stood up, walked 3 m as quickly and safely as possible, then turned around, walked back to the chair.	Patient performed 5 trials and the average of all 5 values was used. The score was the time to completion
4	Not specified	Balance	Baseline, end of treatment (13 wks)	Tandem stance (sec)		
5	Not specified	Balance	Baseline, end of treatment (13 wks)	One leg stance (sec)		

Characteristics of included studies	Parkinson's disease					
Study ID	**Hackney 2008**					
						Results from 3 trials were averaged
6	Not specified	Gait	Baseline, end of treatment (13 wks)	Backward functional ambulation profile	Participants walked along an instrumented walkway and data was analysed by a blinded assessor.	
7	Not specified	Gait	Baseline, end of treatment (13 wks)	Backward stride length	Participants walked along an instrumented walkway and data was analysed by a blinded assessor.	Results from 3 trials were averaged
8	Not specified	Gait	Baseline, end of treatment (13 wks)	Backward velocity	Participants walked along an instrumented walkway and data was analysed by a blinded assessor.	Results from 3 trials were averaged
9	Not specified	Gait	Baseline, end of treatment (13 wks)	Forward funcitonal ambulation profile	Participants walked along an instrumented walkway and data was analysed by a blinded assessor.	Results from 3 trials were averaged
10	Not specified	Gait	Baseline, end of treatment (13 wks)	Forward stride length	Participants walked along an instrumented walkway and data was analysed by a blinded assessor.	Results from 3 trials were averaged

Characteristics of included studies	Parkinson's disease					
Study ID	**Hackney 2008**					
11	Not specified	Gait	Baseline, end of treatment (13 wks)	Forward velocity	Participants walked along an instrumented walkway and data was analysed by a blinded assessor.	Results from 3 trials were averaged
12	Not specified	Functional mobility	Baseline, end of treatment (13 wks)	Six minute walk test		
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Characteristics of included studies	Parkinson's disease
Study ID	**Hackney 2008**
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Method of analysis	

Characteristics of included studies	Parkinson's disease
Study ID	**Hackney 2008**
Statistics	Absolute change in socres before and after intervention between the two groups was compared using a t-test or Mann Whitney Rank Sum test when not normally distributed. Bonferroni correction was applied to account for the use of multiple tests.
Population analysed	Per protocol Only data from participants who completed the intervention was analysed.
Missing data	Four participants in TC did not complete the study: one withdrew at week 4 upon being hospitalized for unrelated issues, one withdrew after week 5 citing that the exercise was not sufficiently intense, and two who had transportation issues attended sporadically over the course of the entire study but did not complete the required 20 lessons in 13 weeks. Three controls were unable to complete post-testing during the required time interval due to an ankle injury, a hospitalization, and a death in the family. Thus, in each group there were 13 participants who completed the study. Only data from these 26 individuals were analyzed

Characteristics of included studies	Parkinson's disease		
Study ID	**Hackney 2009**		
Study reference	Hackney, M. E. and G. M. Earhart (2009). "Health-related quality of life and alternative forms of exercise in Parkinson disease." Parkinsonism & Related Disorders 15(9): 644-648.		
Study design	RCT	Drawn from a hat	
Author affiliation	The authors were associated with a single university in the USA		
Source of funds	This work was supported by a grant from the American Parkinson Disease Association and NIH grant K01 HD 048437.		
Declared interests of study authors	Not reported		
Setting / provider	Community		
Country(s) / region	Missouri,USA		
Enrolment period	Not reported		
Length of treatment/ followup	13 weeks		
Description of population	*N=*	*Description*	
# participants	75	Diagnosed idiopathic Parkinson's Disease	
details	*Inclusion criteria:* >40 years old, able to stand for 30 minutes, walk independently for 3 meters with or without an assistive device, Hoehn & Yahr scores from 1.5-3, stable medication regimens *Exclusion criteria:* history or evidence of neurological deficit (e.g. stroke or neuromuscular disease)		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Parkinson's disease						
Study ID	**Hackney 2009**						
Intervention	17	Tai Chi (Yang style SF) - 2x 60min sessions per week for 13 weeks (minimum 20 sessions total). The intervention consisted of the first and second circles including 37 postures of the Yang Short style of Tai Chi.					
Comparator #1 (control)	20	Control - no intervention					
Comparator #2 (other)	19	Argentine Tango - 60 minute lessons, twice per week for 13 weeks (total of 20 sessions)					
Comparator #3 (other)	19	Waltz/Foxtrot - 60 minute lessons, twice per week for 13 weeks (total of 20 sessions)					
Co-interventions	Usual care	details not provided					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A					
Is there an inactive comparator?	Yes	Comparison=control					
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*	

Characteristics of included studies	Parkinson's disease					
Study ID	**Hackney 2009**					
1	Not specified	Functional mobility	Baseline, end of treatment (13 wks)	Parkinson Disease Quesionnaire-39 - mobility	Profile of PD impact	Subjective health status
2	Not specified	Acitivites of daily living	Baseline, end of treatment (13 wks)	Parkinson Disease Quesionnaire-39 - activities of daily living	Profile of PD impact	Subjective health status
3	Not specified	Emotional wellbeing	Baseline, end of treatment (13 wks)	Parkinson Disease Quesionnaire-39 - emotional wellbeing	Profile of PD impact	Subjective health status
4	Not specified	Stigma	Baseline, end of treatment (13 wks)	Parkinson Disease Quesionnaire-39 - stigma	Profile of PD impact	Subjective health status
5	Not specified	Social support	Baseline, end of treatment (13 wks)	Parkinson Disease Quesionnaire-39 - social support	Profile of PD impact	Subjective health status

Characteristics of included studies	Parkinson's disease					
Study ID	**Hackney 2009**					
6	Not specified	Cognitive impairment	Baseline, end of treatment (13 wks)	Parkinson Disease Quesionnaire-39 - cognitive impairment	Profile of PD impact	Subjective health status
7	Not specified	Verbal communication	Baseline, end of treatment (13 wks)	Parkinson Disease Quesionnaire-39 - communication	Profile of PD impact	Subjective health status
8	Not specified	Bodily discomfort	Baseline, end of treatment (13 wks)	Parkinson Disease Quesionnaire-39 - bodily discomfort	Profile of PD impact	Subjective health status
9	Not specified	Health related quality of life	Baseline, end of treatment (13 wks)	Parkinson Disease Quesionnaire-39 - summary index	Global impact of PD on health status	Subjective health status
10	--					

Characteristics of included studies	Parkinson's disease
Study ID	**Hackney 2009**
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Characteristics of included studies	Parkinson's disease
Study ID	**Hackney 2009**
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Method of analysis	

Characteristics of included studies	Parkinson's disease
Study ID	**Hackney 2009**
Statistics	One-way ANOVAs tested for baseline differences between the three intervention groups and No Intervention and between Longer and Shorter Duration groups. To analyze the PDQ-39 domains and PDQ-39 SI, and test for differences between intervention and No Intervention groups and time, two-way repeated measure ANOVAs with Holm–Sidak post-hoc tests to correct for multiple comparisons were used.
Population analysed	Per protocol Participants were exlucded from the study for not completing 20 sessions of the assigned intervetion, and for changes in their medication during the study,
Missing data	Four participants in Tango did not complete the study and one additional participants were excluded due to changes in medical treatment. Two participants in Waltz/Foxtrot and four participants in Tai Chi also did not complete the study. Three individuals in the No Intervention group were unable to complete post-testing during the required time interval. As such, only data from 61/75 participants was analysed.

Characteristics of included studies	Parkinson's disease		
Study ID	**Khuzema 2020**		
Study reference	Khuzema, A., et al. (2020). "Effect of home-based Tai Chi, Yoga or conventional balance exercise on functional balance and mobility among persons with idiopathic Parkinson's disease: An experimental study." Hong Kong Physiotherapy Journal 40(1): 39-49.		
Study design	RCT	pseudorandomised	Alternate allocation
Author affiliation	The authors were asscoiated with a medical centre in India		
Source of funds	This research did not receive any specific grants from any commercial, public, or non-profit funding agencies.		
Declared interests of study authors	The authors declared no conflict of interest		
Setting / provider	Home practice		
Country(s) / region	India		
Enrolment period	Not reported		
Length of treatment/ followup	8 weeks		
Description of population	*N=*	*Description*	
# participants	27	Parksinson's Disease	
details	*Inclusion criteria:* aged 60-85, Hoehn-Yahr score 2.5-3, able to understand and follow instructions, not undergoing any other treatment beside medical therapy *Exclusion criteria:* severe co-morbidity influencing mobility or life-threatening disease, not interested in participating, visual and vestibular disorders affecting balance, history of osteoporosis, fracture, ankle instability or falls, no caregiver provision or support.		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Parkinson's disease						
Study ID	**Khuzema 2020**						
Intervention	9	Tai Chi - 5x 30-40min sessions per week home practice for 8 weeks Participants were taught the exercises during a session at the medical centre and then encouraged to practise at home. The Tai Chi intervention consisted of 6 exercises.					
Comparator #1 (control)	--	--					
Comparator #2 (other)	9	Conventional Balance - 5x 40-45min sessions per week home practice for 8 weeks. Participants were taught the exercises during a session at the medical centre and then encouraged to practise at home. The conventional balance exercise intervention consisted of 6 exercises.					
Comparator #3 (other)	9	Yoga - 5x 30-40min sessions per week home practice for 8 weeks Participants were taught the exercises during a session at the medical centre and then encouraged to practise at home. The Yoga intervention consisted of 6 exercises.					
Co-interventions	--	--					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Each group was led by a physiotherapist certified in Tai Chi, Yoga or general balance				
Is there an inactive comparator?	No	Comparison=other					
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*	

Characteristics of included studies	Parkinson's disease					
Study ID	**Khuzema 2020**					
1	Not specified	Balance	Baseline, end of treatment (8 wks)	Berg Balance Scale	Evaluates balance in sitting and standing positions and rates various kinds of physical performances	maximum score of 56 Scale range 0 = no performance at all to 4 = normal performance
2	Not specified	Functional mobility	Baseline, end of treatment (8 wks)	Timed 10 metre walk test	Participants walked along a 10 metre path and the time was measured for the intermediate 6 metres.	
3	Not specified	Functional mobility	Baseline, end of treatment (8 wks)	Timed Up and Go	Participants were seated in an arm-chair with their backs against the chair. On an auditory signal, they stood up, walked 3 m as quickly and safely as possible, then turned around, walked back to the chair.	The score was the time to completion
4	--					
5	--					

Characteristics of included studies	Parkinson's disease
Study ID	**Khuzema 2020**
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Characteristics of included studies	Parkinson's disease
Study ID	**Khuzema 2020**
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Characteristics of included studies	Parkinson's disease
Study ID	**Khuzema 2020**
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Method of analysis	

Characteristics of included studies	Parkinson's disease	
Study ID	**Khuzema 2020**	
Statistics	Mixed model (3 x 2) ANOVA examined the effect of treatment on balance and mobility. Alpha level of significance was set at 0.05.	
Population analysed	Intent-to-treat	Not reported but it is interpretted that an intention to treat method was used.
Missing data	No missing data, all participants randomised received allocated intervention and were included in the analysis.	

Characteristics of included studies	Parkinson's disease		
Study ID	**Li 2012**		
Study reference	1. Li, F., et al. (2012). "Tai chi and postural stability in patients with Parkinson's disease." New England Journal of Medicine 366(6): 511-519. 2. Li, F. and K. Fitzgerald (2012). "Postural stability in Parkinson's disease patients after Tai Chi training: A randomized controlled trial." Parkinsonism and Related Disorders 2): S155. 3. Li, F., et al. (2013). "Tai chi and limits of stability in patients with parkinson's disease." Neurology. Conference: 65th American Academy of Neurology Annual Meeting. San Diego, CA United States. Conference Publication: 80(1 MeetingAbstracts). 4. Li, F., et al. (2014). "A randomized controlled trial of patient-reported outcomes with tai chi exercise in Parkinson's disease." Movement Disorders 29(4): 539-545. Harmer, P. and F. Li (2013). "Self-report benefits of Tai Chi training by patients with Parkinson's disease." Movement Disorders 1): S117. NCT00611481		
Study design	RCT	Permuted block randomisation	
Author affiliation	The authors were associated with various research institutes, medical groups, and universities in Oregon, USA.		
Source of funds	Supported by a grant (NS047130) from the National Institute of Neurological Disorders and Stroke.		
Declared interests of study authors	The authors declared no conflict of interest.		
Setting / provider	Not reported, it is interpretted that this was a single-centre community setting		
Country(s) / region	Oregon,USA		
Enrolment period	May 2008 to November 2010		
Length of treatment/ followup	24 weeks		
Description of population	*N=*	*Description*	
# participants	195	Diagnosed Parkinson's Disease	
details	*Inclusion criteria:* Hoehn-Yahr score of 1-4, aged 40-85, at least one score of 2 or more for limb tremor, rigidity, postural stability, or bradykineasia items in the UPDRS III, stable medication use, able to stand and walk with or without assistive device, medical clearance for participation, willingness to be assigned to any of the interventions *Exclusion criteria:* current participation in other behavioural, pharmacological or exercise studies, a mini-mental state exam score <24 (indicating some degree of cognitive impairment), debilitating conditions or vision impairment that would impede participation, unavailability during the study period		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Parkinson's disease						
Study ID	**Li 2012**						
Intervention	65	Tai Chi - 2x 60min sessions per week for 24 week. The Tai Chi intervention consisted of 6 movements integrated into an eight-form routine. The first 10 weeks emphasised the mastery of single forms through repetition, later weeks focused on repetitions to enhance balance.					
Comparator #1 (control)	--	--					
Comparator #2 (other)	65	Stretching - 2x 60min sessions per week for 24 weeks. The stretching control group was a low-intensity program designed to provide the social interaction of the two intervention groups without the exercise training. Activities involved a number of seated and standing stretches.					
Comparator #3 (other)	65	Resistance Training - 2x 60min sessions per week for 24 weeks. The resistance training group focused on strengthening the muscles important for posture balance and gait, with weights for resistance being introduced after 10 weeks.					
Co-interventions	--	--					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Tai performed by trained and certified instructors. Resistance training and Stretching classes were carried out local instructers with 10 years experience				
Is there an inactive comparator?	No	Comparison=other					
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*	

Characteristics of included studies	Parkinson's disease					
Study ID	**Li 2012**					
1	Primary	Balance, Limits of stability,	Baseline, mid (3 mos), end of treatment (6 mos), follow up (9 mos)	Maximum excursion (%)	Analysis of ability to voluntarily move centre of gravity to limits of stability in 8 directions.	Calculated as % of theoretical maximum given height
2	Primary	Balance, Limits of stability,	Baseline, mid (3 mos), end of treatment (6 mos), follow up (9 mos)	Directional control (%)	A measure of movement accuracy by comparing the amount of movement in the intended direction (toward the target) to the amount of extraneous movement.	Higher values indicate a straighter path towards intended target
3	Secondary	Muscle strength	Baseline, mid (3 mos), end of treatment (6 mos), follow up (9 mos)	Bilateral knee extensors/flexors	Summary of peak torque values of five cycles were calculated from the average measurements of both limbs	
4	Secondary	Balance	Baseline, mid (3 mos), end of treatment (6 mos), follow up (9 mos)	Functional reach	Maximal distance a participant could reach forward while maintaining a fixed base of support	
5	Secondary	Gait	Baseline, mid (3 mos), end of treatment (6 mos), follow up (9 mos)	Stride length	Participants walked at normal pace for 4 trials, results averaged to reach a measure	

Characteristics of included studies	Parkinson's disease					
Study ID	**Li 2012**					
6	Secondary	Gait	Baseline, mid (3 mos), end of treatment (6 mos), follow up (9 mos)	Velocity	Participants walked at normal pace for 4 trials, results averaged to reach a measure	
7	Secondary	Functional mobility	Baseline, mid (3 mos), end of treatment (6 mos), follow up (9 mos)	Timed up and go	On an auditory signal, they stood up, walked 3 m as quickly and safely as possible, then turned around, walked back to the chair. The score was the time to completion	Participants were seated in an arm-chair with their backs against the chair.
8	Secondary	Motor function	Baseline, mid (3 mos), end of treatment (6 mos), follow up (9 mos)	Unified Parkinson's Disease Rating Scale III		
9	Secondary	Falls	Monthly collection	Self-report	Participants recorded their falls in daily "falls calendars"	
10	Secondary	Health realted quality of life	Baseline, mid (3 mos), end of treatment (6 mos), follow up (9 mos)	Parkinson's Disease Questionnaire-8	includes mobility, activities of daily living, emotional wellbeing, stigma, social support, cognitions, communication and bodily discomfort.	8 items on a 5-point Likert scale

Characteristics of included studies	Parkinson's disease					
Study ID	**Li 2012**					
11	Secondary	Vitality	Baseline, mid (3 mos), end of treatment (6 mos), follow up (9 mos)	Vitality Plus Scale	10 items assessing health-related benefits of exercise participation.	Score ranged from 10-50 with higher scores representing more positive perceived benefits.
12	Secondary	Gait	Baseline, end of treatment (6 mos)	50-foot speed walk test	Participants were timed walking 25 feet and back to the starting line.	
13	Secondary	Muscle strength	Baseline, mid (3 mos), end of treatment (6 mos), follow up (9 mos)	Ankle plantar flexors		
14	Secondary	Muscle strength	Baseline, mid (3 mos), end of treatment (6 mos), follow up (9 mos)	Ankle dorsiflexors		
15	Secondary	Medication use	Collected monthly	Medication Change Questionnaire	Records patients' ingested prescription medication over a period of 7 days	
16	Secondary	Health realted quality of life	Not specified	SF-12		

Characteristics of included studies	Parkinson's disease					
Study ID	**Li 2012**					
17	Secondary	Fear of falling	Not specified	Survey of Activities and Fear of Falling in the Elderly (11 items)	participants are asked whether they currently do the activity and how worried they are about falling.	
18	Secondary	Activites of daily living	Not specified	Physical Activity Scale for the Elderly	Measures phsyical activity in the areas of leisure, household, and occupational activity during previous 7 days.	
19	Secondary	Balance	Not specified	Sensory Organisation Test	Measures ability to individually use the visual, vestibular, and somatosensory inputs to control upright stance; and supres each of the systems when they provide inaccurate information.	The participant stands on a moving platform that follows their centre of gravity in a forward and backward direction, each participant performs three trials and the composite score is calculated.
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Method of analysis						

Characteristics of included studies	Parkinson's disease	
Study ID	**Li 2012**	
Statistics	Group comparisons on baseline demographic descriptors and primary and secondary outcome measures will be performed using analysis of variance for continuous variables and the chi-square (or Fisher's Exact) test for categorical variables. To evaluate the effects of Tai Chi on the a priori specified outcomes, a repeated-measures, mixed-effects model will be used, which will include all assigned participants consistent with the principle of intention-to-treat.	
Population analysed	Intent-to-treat	Authots specify that an intention-to-treat analysis method will be used. Participants who drop out are followed up to measure outcome data were possible.
Missing data	A total of 176 participants completed their assigned interventions, and 185 provided complete data on the outcome measures at follow-up.	

Characteristics of included studies	Parkinson's disease		
Study ID	**Nocera 2013**		
Study reference	Nocera, J. R., et al. (2013). "Tai Chi exercise to improve non-motor symptoms of Parkinson's disease." Journal of Yoga & Physical Therapy 2013 Aug;3(3):137.		
Study design	RCT	pseudorandomised	No mention of randomisation method
Author affiliation	The authors were associated with a number of academic institutions and Veteran's Affairs in the USA.		
Source of funds	This work was supported by National Institute Health NIH 5R03HD054594-02 and the Department of Veterans Affairs RR&D E6860M.		
Declared interests of study authors	Not reported		
Setting / provider	Exercise laboratory at the Oregon Research Institute or a local community facility		
Country(s) / region	USA		
Enrolment period	Not reported		
Length of treatment/ followup	16 weeks		
Description of population	*N=*	*Description*	
# participants	23	Diagnosed idiopathic Parkinson's Disease	
details	*Inclusion criteria:* Hoehn-Yahr score 1-3, aged 60-80, stable medication usage, motor symptoms did not change appreciably during the waking medication cycle, willing to be assigned intervention or control *Exclusion criteria:* any history or evidence of neurological disorder other than PD, dementia (mini mental state exam less than 26), moderate or signficant depression (Beck Depression Inventory >=17), inability to walk independently, medication affecting alertness or attention, previous training in Tai Chi, current participation in any exercise program, inability to understand the protocol		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Parkinson's disease						
Study ID	**Nocera 2013**						
Intervention	17	Tai Chi (Yang Style short form) - 3x 60min sessions per week for 16 weeks. All forms were adapted from the Yang style short form. Additionally standing meditation and visualisation techniques were used.					
Comparator #1 (control)	6	Control - no intervention					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Led by a single Tai Chi master with over 20 years of experience in Tai Chi instruction to older adults				
Is there an inactive comparator?	Yes	Comparison=control					
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*		*other*

Characteristics of included studies	Parkinson's disease				
Study ID	**Nocera 2013**				
1	Not specified	Executive function	Baseline, end of treatment (16 wks)	Digit Span Backward Subset from Wechsler Memory Scale	Requires selective attention and working memory
2	Not specified	Executive function	Baseline, end of treatment (16 wks)	Letter Verbal Fluency	Verbal fluency test that requires processing speed, selecting attention, inhibitory function, and the ability to rapidly shift mental set
3	Not specified	Executive function	Baseline, end of treatment (16 wks)	Category Verbal Fluency	Verbal fluency test associated with processing speed and semantic knowledge integrity
4	Not specified	Executive function	Baseline, end of treatment (16 wks)	Stroop Colour Word Test	Requires selective attention and cognitive control
5	Not specified	Executive function	Baseline, end of treatment (16 wks)	Trail A	Connect-the-dots task which requires visual attention and task switching

Characteristics of included studies	Parkinson's disease				
Study ID	**Nocera 2013**				
6	Not specified	Executive function	Baseline, end of treatment (16 wks)	Trail B	Connect-the-dots task which requires visual attention and task switching
7	Not specified	Falls efficacy	Baseline, end of treatment (16 wks)	Tinetti's Falls Efficacy Scale	Index utilised to measure confidence in activities of daily living.
8	Not specified	Functional mobility	Baseline, end of treatment (16 wks)	Parkinson Disease Quesionnaire-39 - mobility	Profile of PD impact
9	Not specified	Acitivites of daily living	Baseline, end of treatment (16 wks)	Parkinson Disease Quesionnaire-39 - activities of daily living	Profile of PD impact
10	Not specified	Emotional wellbeing	Baseline, end of treatment (16 wks)	Parkinson Disease Quesionnaire-39 - emotional wellbeing	Profile of PD impact

Characteristics of included studies	Parkinson's disease				
Study ID	**Nocera 2013**				
11	Not specified	Stigma	Baseline, end of treatment (16 wks)	Parkinson Disease Quesionnaire-39 - stigma	Profile of PD impact
12	Not specified	Social support	Baseline, end of treatment (16 wks)	Parkinson Disease Quesionnaire-39 - social support	Profile of PD impact
13	Not specified	Cognitive function	Baseline, end of treatment (16 wks)	Parkinson Disease Quesionnaire-39 - cognitive impairment	Profile of PD impact
14	Not specified	Verbal communication	Baseline, end of treatment (16 wks)	Parkinson Disease Quesionnaire-39 - communication	Profile of PD impact
15	Not specified	Bodily discomfort	Baseline, end of treatment (16 wks)	Parkinson Disease Quesionnaire-39 - bodily discomfort	Profile of PD impact
16	Not specified	Health related quality of life	Baseline, end of treatment (16 wks)	Parkinson Disease Quesionnaire-39 - summary index	Global impact of PD on health status

Characteristics of included studies	Parkinson's disease
Study ID	**Nocera 2013**
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Method of analysis	

Characteristics of included studies	Parkinson's disease	
Study ID	**Nocera 2013**	
Statistics	Independent t-test to compare change in scores between groups, Cohen's *d* to calculate effect size for variables that satisfied the normality assumption, Pearson's correlation coefficicnet was used to calculate effect size when normality was violated.	
Population analysed	Intent-to-treat	Modified intent to treat, excluding participants with missing outcome data.
Missing data	23 initiated the study and 21 completed both pre and post assessments. Two participants withdrew from the Tai Chi group as a resultof transportation/scheduling conflicts.	

Characteristics of included studies	Parkinson's disease		
Study ID	**Poier 2019**		
Study reference	1. Poier, D., et al. (2019). "A Randomized Controlled Trial to Investigate the Impact of Tango Argentino versus Tai Chi on Quality of Life in Patients with Parkinson Disease: A Short Report." Complementary Medical Research 26(6): 398-403. 2. DRKS00011139		
Study design	RCT	Computer generated block randomisation	
Author affiliation	The authors were affiliated with a single university in Germany		
Source of funds	This study was funded by Stiftung Helixor who provided financial support to pay the tango and Tai Chi instructor and to rent the course facilities.		
Declared interests of study authors	The authors declared no conflict of interest.		
Setting / provider	Community		
Country(s) / region	Germany		
Enrolment period	October 2015 to June 2016		
Length of treatment/ followup	10 weeks		
Description of population	*N=*	*Description*	
# participants	29	Diagnosed Parkinson's Disease + a partner	
details	*Inclusion criteria:* aged 50-90 years *Exclusion criteria:* significant cognitive impairment, unable to move without wheelchair/walker		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Parkinson's disease						
Study ID	**Poier 2019**						
Intervention	15	Tai Chi - 1x 60min sessions per week for 10 weeks. The Tai Chi intervention emphasized mastering signle forms through repetition.					
Comparator #1 (control)	--	--					
Comparator #2 (other)	14	Tango - 1x 60min sessions per week for 10 weeks. The Tango intervention was based on Neurotango which combined neuromotoric exercises with adapted Tango movements.					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Both interventions were led under the guidance of a professional teacher.				
Is there an inactive comparator?	No	Comparison=other					
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*	

Characteristics of included studies	Parkinson's disease				
Study ID	**Poier 2019**				
1	Primary	Functional mobility	Baseline, mid, end of treatment (10 wks)	Parkinson Disease Quesionnaire-39 - mobility	Profile of PD impact
2	Primary	Motor function	Baseline, mid, end of treatment (10 wks)	Parkinson Disease Quesionnaire-39 - activities of daily living	Profile of PD impact
3	Primary	Emotional wellbeing	Baseline, mid, end of treatment (10 wks)	Parkinson Disease Quesionnaire-39 - emotional wellbeing	Profile of PD impact
4	Primary	Stigma	Baseline, mid, end of treatment (10 wks)	Parkinson Disease Quesionnaire-39 - stigma	Profile of PD impact
5	Primary	Social support	Baseline, mid, end of treatment (10 wks)	Parkinson Disease Quesionnaire-39 - social support	Profile of PD impact

Characteristics of included studies	Parkinson's disease				
Study ID	**Poier 2019**				
6	Primary	Cognitive impairment	Baseline, mid, end of treatment (10 wks)	Parkinson Disease Quesionnaire-39 - cognitive impairment	Profile of PD impact
7	Primary	Verbal communication	Baseline, mid, end of treatment (10 wks)	Parkinson Disease Quesionnaire-39 - communication	Profile of PD impact
8	Primary	Bodily discomfort	Baseline, mid, end of treatment (10 wks)	Parkinson Disease Quesionnaire-39 - bodily discomfort	Profile of PD impact
9	Primary	Health related quality of life	Baseline, mid, end of treatment (10 wks)	Parkinson Disease Quesionnaire-39 - summary index	Global impact of PD on health status
10	Secondary	Life satisfaction	Baseline, mid, end of treatment (10 wks)	Brief Multidimensional Life Satisfaction Scale (10-items)	Assesses a person's satisfaction in different areas of their life

Characteristics of included studies	Parkinson's disease				
Study ID	**Poier 2019**				
11	Secondary	Inner engagement and inner correspondence	Baseline, mid, end of treatment (10 wks)	Inner Correspondence and feelings of Peaceful Relief (13-items)	Assesses active engagement during the exercises and subsequent feelings of inner correspondence with practices
12	Secondary	Perceived impairment in everyday life	Baseline, mid, end of treatment (10 wks)	Visual Analogue Scale	
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16	--				

Characteristics of included studies	Parkinson's disease
Study ID	**Poier 2019**
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Method of analysis	

Characteristics of included studies	Parkinson's disease	
Study ID	**Poier 2019**	
Statistics	Outcome parameters were analyzed according to the intraindividual development in the course of time as well as the group-bytime interaction performed with SPSS 22.0 (intention-to-treat data: ANOVA with repeated measures). To handle missing data, the multiple imputation MI method was used. After Bonferroni correction for repeated measures (using three-time measurements), the significance level was set at α = 0.017 or when using only two-time measurements, at α = 0.025.	
Population analysed	Intent-to-treat	Intention to treat is specified
Missing data	No missing data is reported	

Characteristics of included studies	Parkinson's disease		
Study ID	**Vergara-Diaz 2017**		
Study reference	1. Vergara-Diaz, G., et al. (2017). "Dual Task Assessment of the Impact of Tai Chi on Postural Control in Parkinson's Disease...American Congress of Rehabilitation Medicine Annual Conference 23 - 28 October 2017, Atlanta, GA." Archives of Physical Medicine & Rehabilitation 98(10): e55-e55. 2. Wayne, P., et al. (2017). "Tai Chi for reducing dual task gait variability, a potential mediator of fall risk, in individuals with Parkinson's disease: A pilot randomized controlled trial." BMC Complementary and Alternative Medicine. Conference: World Congress Integrative Medicine and Health 17(Supplement 1). 3. Vergara-Diaz, G., et al. (2018). "Tai Chi for Reducing Dual-task Gait Variability, a Potential Mediator of Fall Risk in Parkinson's Disease: A Pilot Randomized Controlled Trial." Global Advances in Health & Medicine 7: 2164956118775385 4. NCT02418780		
Study design	RCT	Permuted block randomisation with randomly varying block sizes	
Author affiliation	The authors are affiliated with a number of universities and medical centres across the USA and Israel.		
Source of funds	This study was supported by grants from the Osher Center for Integrative Medicine and the Davis Phinney Foundation for Parkinson's. PMW was supported by a NCCIH-funded K24 (AT009282) and GV-D has been supported by a fellowship from Alfonso Martin Escudero Foundation (Spain) and a grant from Real Colegio Complutense at Harvard. JGVM was supported by a fellowship from the Brazilian National Council of Research and Development (CNPQ, Brazil) (201499/2012-6).		
Declared interests of study authors	One author declared they were the sole owner of a Tai Chi centre, their interests were reviewed and managed in accordance to conflict of interest policies. The other authors declare no conflict of interest.		
Setting / provider	Community		
Country(s) / region	Boston, USA		
Enrolment period	March 2014 to August 2015		
Length of treatment/ followup	6 months		
Description of population	*N=*	*Description*	
# participants	32	Diagnosed idiopathic Parkinson's Disease	
details	*Inclusion criteria:* modified Hoehn-Yahr score 1-2.5, 40-75 years old, <10 years since diagnosis, willing to undergo baseline and follow-up testing while off PD medication for 12 hours *Exclusion criteria:* diagnosis of atypical parkinsonism, history of major neurological or psychiatric disease, orthopedic impairment, or other disease that could contribute to gait disturbance, any severe chronic condition or acute medical event for which participation in exercise is contraindicated, history of deep brain stimulation or other brain surgery, significant TC exercise history (>6 months training in past 2 years)		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Parkinson's disease						
Study ID	**Vergara-Diaz 2017**						
Intervention	16	Tai Chi - 2x 60min sessions per week + 1 session per week home practice for 6 months. Parkinson's disease specific Tai Chi program adapted from protocols used in prior studies.					
Comparator #1 (control)	16	Control - no intervention					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	Usual care	Details not provided					
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C					
Is there an inactive comparator?	Yes	Comparison=control					
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*	

Characteristics of included studies	Parkinson's disease					
Study ID	**Vergara-Diaz 2017**					
1	Primary	Dual task (gait, cognitive)	Baseline, mid (3 mos), end of treatment (6 mos)	Stride Time Variability while performing cognitive dual task - count (CV %)	Steady state gait was assessed during 90s of continuous walking, serial subtractions (counting backwards by 3s) added as cognitive task	Variability was calculated as the coefficient of variation for stride time.
2	Primary	Dual task (gait, cognitive)	Baseline, mid (3 mos), end of treatment (6 mos)	Stride Time Variability while performing cognitive dual task - star movement task (CV %)	Steady state gait was assessed during 90s of continuous walking, star task (visualise a star moving according to instructions and reporting final location) added as cognitive task	Variability was calculated as the coefficient of variation for stride time.
3	Primary	Gait	Baseline, mid (3 mos), end of treatment (6 mos)	Stride Time Variability (CV %)	Variability was calculated as the coefficient of variation for stride time.	Variability was calculated as the coefficient of variation for stride time.
4	Primary	Dual task (gait speed, cognitive)	Baseline, mid (3 mos), end of treatment (6 mos)	Gait speed (m/s)	Gait speed was calculated as the time between initial heel strike of one foot and the subsequent heel strike of the same foot.	
5	Primary	Dual task (gait speed, cognitive)	Baseline, mid (3 mos), end of treatment (6 mos)	Gait speed - dual task count (m/s)	Steady state gait was assessed during 90s of continuous walking, serial subtractions added as cognitive task.	

Characteristics of included studies	Parkinson's disease					
Study ID	**Vergara-Diaz 2017**					
6	Primary	Dual task (gait speed, cognitive)	Baseline, mid (3 mos), end of treatment (6 mos)	Gait speed - dual task star (m/s)	Steady state gait was assessed during 90s of continuous walking, star task added as cognitive task.	Gait speed was calculated as the time between initial heel strike of one foot and the subsequent heel strike of the same foot.
7	Primary	Dual task (gait, cognitive)	Baseline, mid (3 mos), end of treatment (6 mos)	Absolute and % dual task - star/count cost - Stride variability	Steady state gait was assessed during 90s of continuous walking, star task added as cognitive task.	Variability was calculated as the coefficient of variation for stride time.
8	Primary	Dual task (gait speed, cognitive)	Baseline, mid (3 mos), end of treatment (6 mos)	Absolute & % dual task - star/count cost - Gait speed	Steady state gait was assessed during 90s of continuous walking, serial subtractions (counting backwards by 3s) added as cognitive task.	Gait speed was calculated as the time between initial heel strike of one foot and the subsequent heel strike of the same foot.
9	Secondary	Motor function	Baseline, mid (3 mos), end of treatment (6 mos)	Unified Parkinson's Disease Rating Score - motor score	27 items of the UPDRS motor subscale	
10	Secondary	Health related quality of life	Baseline, mid (3 mos), end of treatment (6 mos)	Parkinson's Disease Questionnaire-39	39-item, self-reported quality of life questionnaire	

Characteristics of included studies	Parkinson's disease					
Study ID	**Vergara-Diaz 2017**					
11	Secondary	Executive function	Baseline, mid (3 mos), end of treatment (6 mos)	Trail making test A	Number sequence only assesses visual search.	
12	Secondary	Executive function	Baseline, mid (3 mos), end of treatment (6 mos)	Trail making test B	Alternating numbers and letters evaluates executive control.	
13	Secondary	Executive function	Baseline, mid (3 mos), end of treatment (6 mos)	Trail making test B:A ratio		
14	Secondary	Balance	Baseline, mid (3 mos), end of treatment (6 mos)	Activity-specific balance confidence scale	Self-report measure of balance confidence in performing various activities without losing balance or experiencing a sense of unsteadiness.	Higher score indicates greater self-confidence in physical functioning.
15	Secondary	Physical function	Baseline, mid (3 mos), end of treatment (6 mos)	Timed up and go	Participants were seated in an arm-chair with their backs against the chair. On an auditory signal, they stood up, walked 3 m as quickly and safely as possible, then turned around, walked back to the chair.	The score was the time to completion. Average of 3 attempts was used.
16	Secondary	Physical activity	Baseline, mid (3 mos), end of treatment (6 mos)	Physical Activity Status Scale		

Characteristics of included studies	Parkinson's disease			
Study ID	**Vergara-Diaz 2017**			
17	Secondary	Physical function	Baseline, mid (3 mos), end of treatment (6 mos)	Self-Efficacy for Exercise Scale
18	Secondary	Mood	Baseline, mid (3 mos), end of treatment (6 mos)	Profile of Mood State
19	Secondary	Physical function	Baseline, mid (3 mos), end of treatment (6 mos)	Single leg stance time
20	Secondary	Physical function	Baseline, mid (3 mos), end of treatment (6 mos)	Balance/postural control
21	Secondary	Executive function	Baseline, mid (3 mos), end of treatment (6 mos)	Digit span test
22	Secondary	Executive function	Baseline, mid (3 mos), end of treatment (6 mos)	Controlled oral word association test
23	Secondary	Executive function	Baseline, mid (3 mos), end of treatment (6 mos)	Stroop Colour-Word Test
Method of analysis				

Characteristics of included studies	Parkinson's disease	
Study ID	**Vergara-Diaz 2017**	
Statistics	Repeated measures ANOVA with shared baseline, fixed effects of visit and treatment x post-baseline visit interaction, and unstructred covariance among repeated participant-specific observations. Wald statistic from a linear contrast over treatment x visit interaction.	
Population analysed	Intent-to-treat	Not specified but intention to treat is interpreted.
Missing data	One participants in the control group and three participants from the Tai Chi group discontinued from the intervention. In addition, one particiant in the control group did not report 3 month data and one participant in the Tai Chi did not report 6 month data.	

Characteristics of included studies	Parkinson's disease	
Study ID	**Zhang 2015**	
Study reference	1. Zhang, T. Y., et al. (2015). "Effects of Tai Chi and Multimodal Exercise Training on Movement and Balance Function in Mild to Moderate Idiopathic Parkinson Disease." American Journal of Physical Medicine & Rehabilitation 94(10 Suppl 1): 921-929. 2. Hu, Y., et al. (2020). "Exercise Reverses Dysregulation of T-Cell-Related Function in Blood Leukocytes of Patients With Parkinson's Disease." Frontiers in Neurology 10 (no pagination)(1389). 3. ChiCTR-TRC-14004707	
Study design	RCT	Random number generator with allocation concealment via sealed envelopes
Author affiliation	The authors are associated with a university medical school in Shanghai, China	
Source of funds	Supported by the National Major Scientific and Technological Special Project for "Significant New Drugs Development" (2014ZX09102043-003), the National Natural Science Foundation of China (81371403), the Shanghai Education Development Foundation and Shanghai Municipal Education Commission "Shuguang Program" (14SG21), and the Shanghai Science and Technology Commission (13JC1401102).	
Declared interests of study authors	The authors declared no conflict of interest.	
Setting / provider	Not reported, assume community	
Country(s) / region	Shanghai,China	
Enrolment period	June 2014 to July 2014	
Length of treatment/ followup	12 weeks	
Description of population	*N=*	*Description*
# participants	40	Diagnosed idiopathic Parkinson's Disease
details	*Inclusion criteria:* Hoehn-Yahr scale 1-4, able to complete the 10m walking test and timed up and go with or without assistive device, stable medication use, total score >=2 on Unified Parkinson's Disease Rating Scale motor subsection, willing to be assigned to either intervention *Exclusion criteria:* participating in other behavioural or pharmacologic study, significant cognitive impairment (mini mental state exam score <24), other neurologic/musculskeletal/cardiopulmonary/metabolic conditions that would impede full participation in the study	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Parkinson's disease						
Study ID	**Zhang 2015**						
Intervention	20	Tai Chi (Yang Style) - 2x 60min sessions per week for 12 weeks. The Tai Chi intervention consisted of a 24-form yang style Tai Chi taught progressively over the 12 weeks.					
Comparator #1 (control)	--	--					
Comparator #2 (other)	20	Multimodal Exercise - 2x 60min sessions per week for 12 weeks. The multimodel exercise training comprised four independent sessions: core muscle training, crossing obstacle training, standing on ankle joint correcting board, and cycle ergometer. Gradual progressions in difficulty occurred in the cycle and crossing obstacle training.					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C					
Is there an inactive comparator?	No	Comparison=other					
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*	

Characteristics of included studies	Parkinson's disease					
Study ID	**Zhang 2015**					
1	Primary	Balance	Baseline, end of treatment (12 wks)	Berg Balance Scale (14-items)	Evaluates balance in sitting and standing positions and rates various kinds of physical performances from 0 (no performance at all) to 4 (normal performance)	A maximum score of 56. Listed as secondary outcome in the clinical trial registry, but in the publication it was primary.
2	Secondary	Motor function	Baseline, end of treatment (12 wks)	Unified Parkinson's Disease Rating Score III		
3	Secondary	Gait	Baseline, end of treatment (12 wks)	Stride length	10 metre walk, calculated by dividing 1000cm by the number of steps taken for the 10m walk. Average across 2 trials	
4	Secondary	Gait	Baseline, end of treatment (12 wks)	Gait velocity	10 metre walk. Average across 2 trials	
5	Secondary	Physical function	Baseline, end of treatment (12 wks)	Timed up and go	Participants were seated in an arm-chair with their backs against the chair. On an auditory signal, they stood up, walked 3 m as quickly and safely as possible, then turned around, walked back to the chair.	The score was the time to completion

Characteristics of included studies	Parkinson's disease					
Study ID	**Zhang 2015**					
6	Secondary	Biochemical markers	Baseline, end of treatment (12 wks)	RNA sequencing and transcriptome analysis		
7	Primary	Balance, limits of stability	Baseline, end of treatment (12 wks)	Limits of stability, Maximum excursion	Analysis of ability to voluntarily move centre of gravity to limits of stability in 8 directions.	Calculated as % of theoretical maximum given height
8	Primary	Balance, limits of stability	Baseline, end of treatment (12 wks)	Limits of stability, Direction control	A measure of movement accuracy by comparing the amount of movement in the intended direction (toward the target) to the amount of extraneous movement.	
9	Secondary	Balance confidence	Baseline, end of treatment (12 wks)	Tinetti POMA	A test to assess gait, balance, perception of balance and stability during activities of daily living, and fear of falling.	
10	Secondary	Balance confidence	Baseline, end of treatment (12 wks)	Activity-specific balance confidence scale	Higher score indicates greater self-confidence in physical functioning. Self-report measure of balance confidence in performing various activities without losing balance or experiencing a sense of unsteadiness.	

Characteristics of included studies	Parkinson's disease				
Study ID	**Zhang 2015**				
11	Secondary	Sleep	Baseline, end of treatment (12 wks)	Pittsburgh Sleep Quality Index	19 self-rated questions and 5 questions intended to be completed by bed partner (if applicable)
12	Secondary	Constipation	Baseline, end of treatment (12 wks)	Constipation severity instrument	Tool to measure the frequency, intensity, and difficulty of defecation.
13	--				
14	--				
15	--				
16	--				

Characteristics of included studies	Parkinson's disease
Study ID	**Zhang 2015**
17	--
18	--
19	--
20	--
21	--
22	--
23	--
Method of analysis	

Characteristics of included studies	Parkinson's disease	
Study ID	**Zhang 2015**	
Statistics	Group differences in demographic and baseline variables were tested with a Chi-squared and Mann-Whitney U test for categorical variables, independent sample t-test was used for continuous variables. Outcome measurements were compared with repeated-measures analyses of variance with two groups as between-subjects factor and two time points as within-subjects factor. Paired t-test to examine within-group changes from baseline to post intervention.	
Population analysed	Intent-to-treat	Intention to treat with last observation carried forward for missing outcomes.
Missing data	Four of the 40 participants did not complete their assigned interventions (3 in the tai chi group and 1 in the multimodal exercise training) and did not complete the final assessment	

Characteristics of included studies	Multiple sclerosis		
Study ID	**Azimzadeh 2013**		
Study reference	1. Azimzadeh E, Hosseini MA, Tabrizi KN. Effect of Tai Chi Chuan on quality of life in women with multiple sclerosis. Hayat. 2013;19(2):1-13. 2. Azimzadeh E, Hosseini MA, Nourozi K, Davidson PM. Effect of Tai Chi Chuan on balance in women with multiple sclerosis. Complement Ther Clin Pract. 2015;21(1):57-60. 3. IRCT2013021312466N1		
Study design	RCT	pseudorandomised	No mention of the randomisation method
Author affiliation	The authors were associated with universities in Iran and the USA.		
Source of funds	No information provided		
Declared interests of study authors	The authors declared no conflict of interest.		
Setting / provider	Not reported, assume community		
Country(s) / region	Iran		
Enrolment period	2012		
Length of treatment/ followup	12 weeks		
Description of population	*N=*	*Description*	
# participants	36	Multiple sclerosis (women)	
details	*Inclusion criteria:* 20 to 60 years old, diagnosed with MS by a physician specialist, Expanded Disability Status Scale (EDSS) scores equal to or less than 5/5 based on medical records, no other acute or chronic debilitating conditions, absence of any stage of pregnancy *Exclusion criteria:* experiencing acute and severe recurrences of disease, involvement in any other exercises, refusing Tai Chi		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Multiple sclerosis						
Study ID	**Azimzadeh 2013**						
Intervention	18	Tai Chi (Yang Style) - 2x 45-60min sessions per week for 12 weeks. The intevention consisted of a 6-form Yang style Tai Chi. The movements were chosen because they were easier and faster to learn than other longer forms. Each training session consisted of a warm up, Tai Chi practice and cool down. Participants were encouraged to practice at home.					
Comparator #1 (control)	18	Control - no intervention					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	Usual care	Psychological classes and physical therapy.					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Tai Chi taught by a trained researcher and an official Tai Chi instructor.				
Is there an inactive comparator?	Yes	Comparison=control					
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*	

Characteristics of included studies	Multiple sclerosis					
Study ID	**Azimzadeh 2013**					
1	Primary	Balance	Baseline, end of treatment (12 wks)	Berg Balance Scale	Evaluates balance in sitting and standing positions and rates various kinds of physical performances	There are 14 items in the scale, with a maximum score of 56. Scoring: 0 (no performance at all) to 4 (normal performance).
2	Secondary	Health related quality of life	Baseline, end of treatment (12 wks)	Multiple Sclerosis Quality of Life (MSQOL-54)		
3	--					
4	--					
5	--					

Characteristics of included studies	Multiple sclerosis
Study ID	**Azimzadeh 2013**
6	--
7	--
8	--
9	--
10	--

Characteristics of included studies	Multiple sclerosis
Study ID	**Azimzadeh 2013**
11	--
12	--
13	--
14	--
15	--
16	--

Characteristics of included studies	Multiple sclerosis
Study ID	**Azimzadeh 2013**
17	--
18	--
19	--
20	--
21	--
22	--
23	--
Method of analysis	

Characteristics of included studies	Multiple sclerosis	
Study ID	**Azimzadeh 2013**	
Statistics	Not described, likely a t-test	
Population analysed	Per protocol	Exlcuded participants in the Tai Chi group who did not complete the intervention.
Missing data	Not reported	

Characteristics of included studies	Tension type headache		
Study ID	**Abbott 2007**		
Study reference	Abbott, R. B., et al. (2007). "A randomized controlled trial of tai chi for tension headaches." Evid Based Complement Alternat Med 4(1): 107-113.		
Study design	RCT	pseudorandomised	No decsription of randomisation methods was provided.
Author affiliation	All 5 authors are affiliated with an American academic institution; 1 author is also affiliated with a US-based non-profit policy think tank		
Source of funds	Gerald Oppenheimer Family Foundation; the Annenberg Foundation; the David Chu Bequest; the Sirpuhe & John Conte Foundation; the Stephen Philibosian Foundation; the Stanley Dashew Trust; Mr Dean Ambrose (the California Community Foundation); Mr Beryl Weiner and Mrs Judith Weiner; and Mr Richard Orgell, UCLA/DREW Project EXPORT, National Institutes of Health, National Center on Minority Health & Health Disparities (P20-MD00148-01), UCLA Center for Health Improvement in Minority Elders/Resource Centers for Minority Aging Research, National Institutes of Health, National Institute of Aging (AG-02-004)		
Declared interests of study authors	Not available		
Setting / provider	Community setting		
Country(s) / region	Los Angeles, USA		
Enrolment period	Not reported		
Length of treatment/ followup	15 weeks		
Description of population	*N=*	*Description*	
# participants	47	Adults with tension-type headaches (TTH) according to International Headache Society (IHS) criteria.	
details	*Inclusion criteria:* Aged 20-65, ability to undertake 30 minutes of mild exercise per day *Exclusion criteria:* other headache conditions, previous practice to Tai Chi or Qi Gong, significant comorbid illness, any additional conditions that might interfere with completion of the study, delivery of the intervention or evaluations, acute intercurrent illnesses that might interfere with the interpretation of results, inability to commit to the intervention schedule		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Tension type headache						
Study ID	**Abbott 2007**						
Intervention	24	Tai Chi (Yang Style) - 2x 60min sessions per week for 15 weeks. Yang style Tai Chi consisted of 24 standardised movements. Handouts were provided summarising the Tai Chi movements, and a video of the form was provided to assist participants.					
Comparator #1 (control)	23	Control - waitlist					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Tai Chi sessions were taught by Tai Chi instructor with >20 years experience.				
Is there an inactive comparator?	Yes	Comparison=control	Waitlist control group did not receive any intervention.				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*	

Characteristics of included studies	Tension type headache				
Study ID	**Abbott 2007**				
1	Not specified	Mood	Baseline, mid (5, 10 wks), end of treatment (15 wks)	SF-36v2 - mental health summary score	
2	Not specified	Physical health	Baseline, mid (5, 10 wks), end of treatment (15 wks)	SF-36v2 - physical health summary	
3	Not specified	Physical health	Baseline, mid (5, 10 wks), end of treatment (15 wks)	SF-36v2 (physical functioning)	10 items
4	Not specified	Physical health	Baseline, mid (5, 10 wks), end of treatment (15 wks)	SF-36v2 (role-physical)	4 items
5	Not specified	Physical health	Baseline, mid (5, 10 wks), end of treatment (15 wks)	SF-36v2 (bodily pain)	2 items

Characteristics of included studies	Tension type headache				
Study ID	**Abbott 2007**				
6	Not specified	Physical health	Baseline, mid (5, 10 wks), end of treatment (15 wks)	SF-36v2 (general health perceptions)	5 items
7	Not specified	Psychoemotional well being	Baseline, mid (5, 10 wks), end of treatment (15 wks)	SF-36v2 (role-emotional)	3 items
8	Not specified	Psychoemotional well being	Baseline, mid (5, 10 wks), end of treatment (15 wks)	SF-36v2 (energy/fatigue)	4 items
9	Not specified	Psychoemotional well being	Baseline, mid (5, 10 wks), end of treatment (15 wks)	SF-36v2 (emotional wellbeing)	5 items
10	Not specified	Psychoemotional well being	Baseline, mid (5, 10 wks), end of treatment (15 wks)	SF-36v2 (social functioning)	2 items

Characteristics of included studies	Tension type headache					
Study ID	**Abbott 2007**					
11	Not specified	Disease impact	Baseline, mid (5, 10 wks), end of treatment (15 wks)	Headache Impact Test (HIT-6)-total score	Measure of effects of headache on functional status and well-being.	Pain Ability to carry out usual activities Social functioning Energy/fatigue Cognitive functioning Psychological distress
12	--					
13	--					
14	--					
15	--					
16	--					

Characteristics of included studies	Tension type headache
Study ID	**Abbott 2007**
17	--
18	--
19	--
20	--
21	--
22	--
23	--
Method of analysis	

Characteristics of included studies	Tension type headache	
Study ID	**Abbott 2007**	
Statistics	t-tests were used to assess the statistical significance of the difference in changes in SF-36 scores and the HIT score between the treatment and control groups (Table 2). The 15 week follow-up data was used if available. If not available, the 10 week data was used. If still not available, the 5 week data was used.	
Population analysed	Intent-to-treat	Modified intention to treat, patients with missing outcome data had data carried forward.
Missing data	The 15 week follow-up data was used if available. If not available, the 10 week data was used. If still not available, the 5 week data was used.	

Characteristics of included studies	Rehabiltation after acute cardiac event		
Study ID	**Channer 1996**		
Study reference	Channer KS, Barrow D, Barrow R, Osborne M & Ives G. Changes in haemodynaic parameters following Tai Chi Chuan and aerobic exercise in patients recovering from acute myocardial infarction. Postgrad Medical Journal. 1996; 72: 349-351		
Study design	RCT	pseudorandomised	
Author affiliation	All authors affiliated with one hopstial		
Source of funds	Not available		
Declared interests of study authors	Not available		
Setting / provider	Not reported		
Country(s) / region	UK		
Enrolment period	Not available		
Length of follow up (months)	12 weeks		
Description of population	*N=*	*Description*	
participants	126	Cardiac rehabilitation, after acute event (myocardial infarction)	

Study ID	**Channer 1996**		
details	**Participants randomised three weeks after discharge following acute myocardial infarction** *Inclusion criteria:* definite acute myocardial infarction; capable of exercising; no severe arthritits, overt heart failure or limiting angina *Exclusion criteria:* not specified		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	38	Tai Chi Chuan: Comprised 'Chi Kung' exercises and 'Wu Style short form. Twice weekly for three weeks then weekly for five weeks. 1-hour session with 5-minute break. Encouraged to continue exercise program at home	
Comparator #1 (control)	47	Cardiac support group: 1-hour weekly sessions accompanied by their spouse. Discussed practical issues of risk factor modification and problems in rehabilitation. No formal exercise performed, however, advised to return to normal activities was given. Included 10-minutes relaxation at the end	
Comparator #2 (other)	41	Aerobic exercise: Twice weekly for three weeks then weekly for five weeks. Based on exercise-to-music format. 5 major components - warm up, aerobic training, cool down, muscular strength and endurance stretch and relaxation	
Comparator #3 (other)	--	--	
Co-interventions	Initial advice about risk factor modification		
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C	Not reported

Study ID	**Channer 1996**					
Is there an inactive comparator?	No	Comparison=other				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Cardiorespiratory health	Baseline, end of treatment (wk 10)	Blood pressure	Not reported	
2	Not specified	Aerobic capacity	Baseline, end of treatment (wk 10)	Pulse	Not reported	
3	--					
4	--					
5	--					

Study ID	Channer 1996
6	--
7	--
8	--
Method of analysis	
Statistics	Non-parametric methods used - Chi-squared test and Rank Spearman corrlation coefficient for trendover time were used as time intervals were not equally spaced. Statistically significant p < 0.05
Population analysed	Intent-to-treat
Missing data	Uncertain

Characteristics of included studies	Rehabiltation after acute cardiac event	
Study ID	**Liu 2020b**	
Study reference	Liu J, Yu P, Lv W & Wang X. The 24-form Tai Chi improves anxiety and depression and upregualtes miR-17-92 in coronary heart disease patients after percutaneous coronary intervention. Front. Physiol. 11:149. doi: 10.3389/fphys.2020.00149	
Study design	RCT	
Author affiliation	All authors affiliated with one tertiary institute	
Source of funds	Not available	
Declared interests of study authors	Authors declared no potential commercial or financial conflict of interest	
Setting / provider	Not reported	
Country(s) / region	China	
Enrolment period	March 2016 to June 2017	
Length of follow up (months)	10 to 12	
Description of population	*N=*	*Description*
participants	70	Cardiac rehabilitation, after acute event (percutaneous coronary intervention, <70 yrs)

Study ID	**Liu 2020b**		
details	**PCI stent imganted 1-4 days prior** *Inclusion criteria:* one of the following: 1) anxiety, depression, angina and dizziness, asthma, chills, sweating, nausea, syncope, other clinical symptoms; 2) coronary or left main porridge sclerosing lesions and luminal stenosis >50%; 3) history of acute MI and ECG showing old infarct Q waves; 4) ST segment of ECG at rest of rollwoing exercise was horizontal or down-tilted lower than 1mm and continuous tim > 2min *Exclusion criteria:* met one of the following - age over 70 years and treatment for mental illness and severe physical/psychological compliactions		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	35	Tai Chi: 24-form exercise program 50-60 min sessions twice daily. Intervention time 290-360 days (average 300.9 days)	
Comparator #1 (control)	35	Control group	
Comparator #2 (other)	--	--	
Comparator #3 (other)	--	--	
Co-interventions	Standard medical care (routine treatment, examination, nursing, health education) and the antidepressant amitriptyline was administered at a dose of 50–200 mg/day according to the different severity degrees of depression		
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C	Not reported

Study ID	**Liu 2020b**					
Is there an inactive comparator?	No	Comparison=other				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Anxiety	Baseline, end of treatment (wk 10)	General Anxiety Disorder (GAS)	7-item scale	High score means more anxiety
2	Not specified	Depression	Baseline, end of treatment (wk 10)	Patient Health Questionnaire-9 (PHQ-9)		High score means more depressed
3	Not specified	Psychosocial wellbeing	Baseline, end of treatment (wk 10)	Hospital Anxiety and Depression Scale	14-items	Higher scores indicates more severe anxiety and depression
4	Not specified	Perceived stress in the past month	Baseline, end of treatment (wk 10)	Perceived Stress Scale	14-items, 5-point Likert-type scale.	Higher scores indicates greater stress
5	Not specified	HRQoL	Baseline, end of treatment (wk 10)	SF-36 version 2	8-items reported separately	Higher scores indicates greater stress

Study ID	**Liu 2020b**					
6	Not specified	Biomarkers	Baseline, end of treatment (wk 10)	qPCR mi-RNA	expression promotes exercise-induced cardiac growth and thought to affect mood	A sample of 5mL of venous blood taken collected at time of diagnosis
7	--					
8	--					
Method of analysis						
Statistics	SPSS 20.0 software. Statistical significance $p < 0.05$. Count data analysied by chi-squared test. Kolmogorov-Smirnov and Shapiro-Wilk test used to test normal distribution of all variables. 2-sided t test used to compare anxiety, depression, stress and SF-36 schores before and after Mann-Whitney U test conducted when condition of normality not met. Correlation analysed using Pearson correlation coefficient test. Adjusted Cox proportional hazard models used to assess association					
Population analysed	Intent-to-treat	Modified				
Missing data	Yes	12.8% of participants lost to follow-up (9/70 - 5 in intervention and 4 in control). Unclear if these participants were included in analysis of outcomes.				

Characteristics of included studies	Rehabiltation after acute cardiac event		
Study ID	**Nery 2015**		
Study reference	1. Nery RM, Zanini M, de Lima JB, Buhler RP, da Silveira AD & Stein R. Tai Chi Chuan improves functional capaity after myocardial infarction: a randomized clinical trial. Acute Ischemic Heart Disease. 2015; 169: 854-860. 2. Grupo de Pesquisa em Cardiologia do ExercU´ cio, Nery RM, Zanini MZ, Camargo MDC, Schmitt RPS, Sucatti ATNZ, Ferrari JNF, Lmia JBL & Stein RS. Oxygen uptake after 12 weeks of a Tai Chi Chuan program for pacients after a recent myocardial infarct: a randomized clinical trial. Euro Prevent Congress Abstracts. May 2012: P647 3. NTC01340716(#3331)		
Study design	RCT	pseudorandomised	
Author affiliation	All authors affiliated with one hopstial		
Source of funds	Supported by the Hospital de Clinicas de Porto Alegre Research and Events Incentive Fund, National Council for Scientific and Technological Development and the Foundation for Research Support of the State of Rio Grande do Sul.		
Declared interests of study authors	The authors have none to declare		
Setting / provider	Outpatient clinic (hospital)		
Country(s) / region	Brazil		
Enrolment period	March 2009 and October 2012		
Length of follow up (months)	3		
Description of population	*N=*	*Description*	
participants	61	Cardiac rehabilitation, after acute event (myocardial infarction)	

Study ID	**Nery 2015**		
details	*Inclusion criteria:* 40-80 years; availability and ability to attend sessions. **Recent MI defined as rise in cardiac biomarker values** with at least one of the following: a) new-onset symptoms or ECG changes indicative of ischemia; b) new-onset ST-segment T wave changes; c) new left bundle branch block; d) development of pathologic Q waves; e) imaging evidence of loss of viable myocardium or regional wall motion abnormalities; or f) identification of an intracoronary thrombus on angiography *Exclusion criteria:* presence of unstable angina; detectable myocardial ischemia; inadequate BP response during exercise; congestive heart failure; pulmonary disease; difficulty/inability to walk		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	31	Tai Chi: Beijin style 3 x weekly sessions over 12 weeks.	
Comparator #1 (control)	--	--	
Comparator #2 (other)	30	Stretching exercises: 3 x weekly sessions over 12 weeks. Under guidance of physical education teachers.	
Comparator #3 (other)	--	--	
Co-interventions	Beta blocker medication and general orientation on health and management of cardiovascualr risk factors and psychologic support.		
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Tai Chi under guidance of a master and collaboration of phyiscal education teachers trained in the technique

Study ID	**Nery 2015**					
Is there an inactive comparator?	No	Comparison=other				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Aerobic capacity	Baseline, end of treatment (wk 12)	VO2 max		
2	Secondary	Cardiorespiratory health	Baseline, end of treatment (wk 12)	Cardiopulmonary Exercise Training (with treadmill and expired gas analysis)	peak SBP, peak DBP, peak HR, peakVE, VE/VCo2 slope, Respiratory exchange ratio	
3	--					
4	--					
5	--					

Study ID	**Nery 2015**	
6	--	
7	--	
8	--	
Method of analysis		
Statistics	SPSS for Windows 18.0 Kolmogorov-Smirnov test used to check for normality Student t test for between group comparisons for continuous variables or X2 tet for categorical variables Statistical significance <0.05	
Population analysed	Intent-to-treat	
Missing data	No	All participants completed study

Characteristics of included studies	Rehabiltation after acute cardiac event	
Study ID	**Zhang 2020**	
Study reference	Zhang G, Wang S, Gu Y, Song L, Yu S & Feng X. Tai Chi improves coronary heart disease risk by inactivating MAPK/ERK pathway through serum miR-126. Hindawi. 2020; Vol 2020, ID 456543	
Study design	RCT	Random number table
Author affiliation	All authors affiliated with tertiary hospital	
Source of funds	Not available	
Declared interests of study authors	Authors have no conflicts of interest to declare	
Setting / provider	Not specified	
Country(s) / region	China	
Enrolment period	September 2015 to Feburary 2016	
Length of follow up (months)	6	
Description of population	*N=*	*Description*
participants	36	Coronary heart disease (18+ yrs)

Study ID	**Zhang 2020**	
details	*Inclusion criteria:* **underwent PCI (limited to narrow stent implant)**; aged 45-75 years; heart rate > 60 BPM; living in Cangchun city; were conscious, normal thinking and normal communication *Exclusion criteria:* arrhythmia, chronic respiratory diseases, severe liver and kidney disease, severe cognitive dysfunction, mental illness, uncoordianted examination	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	19	Tai Chi: Performed for 90 minutes (starting at 8am) for 3 months.
Comparator #1 (control)	17	Control: Usual lifestyle and an equal amount of physcial activities as the Tai Chi group (walking, gardening, stretching, stationary biking).
Comparator #2 (other)	--	--
Comparator #3 (other)	--	--
Co-interventions	Traditional Chinese medicine used for all participants	
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C

Study ID	**Zhang 2020**					
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Cardiorespiratory health	baseline, end of treatment (3 months) and follow-up (6 months)	Cardiac volume	EATV Measurement	The volume determined by using CT values. Confirmed by indicating a pericardium wall between two lines.
2	Not specified	Cardiorespiratory health	baseline, end of treatment (3 months) and follow-up (6 months)	Blood pressure	Electronic sphygmomanometer. Also measured heart rate	
3	Not specified	Anthropometrics	baseline, end of treatment (3 months) and follow-up (6 months)	BMI		
4	Not specified	Anthropometrics	baseline, end of treatment (3 months) and follow-up (6 months)	% body fat	Dual-emission X-ray Absorptiometry (DEXA)	Fat content of various parts of the body
5	Not specified	Cardiac biomarkers	baseline, end of treatment (3 months) and follow-up (6 months)	Q-PCR to measure miR-126		

Study ID	**Zhang 2020**			
6	Not specified	HRQoL	baseline, end of treatment (3 months) and follow-up (6 months)	China Questionnaire of QoL in patients with cardiovascular disease
7	--			
8	--			
Method of analysis				
Statistics	SPSS 18.0 used for analysis. Normal distribution analysed by two independent samples and nonparametric Mann-Whitney U rank-sum test. ANOVA used to compare change. Pearson's correlation coefficient test to explore relationship. P<0.05 statistically significant			
Population analysed	Intent-to-treat	As-treated analysis (intervention = 18 and control = 12)		
Missing data	Yes	16.7% of pariticpants (6/36) were lost to follow-up at three months. One in the intervention group and 5 in the control group. Reasons provided.		

Characteristics of included studies	Hypertension	
Study ID	**Chan 2016**	
Study reference	1. Chan AWK, Sit JWH, Chair SY, Leung DYP, Lee DTF, Wong EML, et al. Evaluation of the effectiveness of tai chi versus brisk walking in reducing cardiovascular risk factors: protocol for a randomized controlled trial. International Journal of Environmental Research and Public Health. 2016; 13: 682 2.Chan AWK, Chair SY, Lee DTF, Leung DYP, Sit WJH, Cheng HY, et al. Tai chi exercise is more effective than brisk walking in reducing cardiovascular disease risk factors among adults with hypertension: a randomised controlled trial. International Journal of Nursing Studies. 2018; 88: 44-52. Chan 2016a, Chan 2017a, Chan 2017b, Chan 2018a, Chan 2018b, ChiCTR-IOR-15006129 (#3261)	
Study design	RCT	Computer based randomiser
Author affiliation	All authors affiliated with tertiary institutes	
Source of funds	Study funded by the Health Medical Research Fund, Food and Health Bureau, Hong Kong SAR.	
Declared interests of study authors	Not available	
Setting / provider	Outpatient clinics	
Country(s) / region	Hong Kong	
Enrolment period	Not specified	
Length of follow up (months)	9	
Description of population	*N=*	*Description*
participants	246	Hypertension (with modifiable CVD risk factors)

Study ID	**Chan 2016**		
details	*Inclusion criteria:* hypertension and at least two but no more than three CVD risk factors - diabetes, dyslipidaemia, hypertension, overweight, physical inactivity, smoking. *Exclusion criteria:* have developed CVD; suffered from sensory or cognitive impairment; cannot walk independently; have musculoskeletal disorders or other disabling diseases; have previous training and practiced Tai Chi within 6 months prior		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	82	Tai Chi (Yang style): 60 minute classes twice weekly for 3 months. Held in the indoor activity room of a sport centre. Overseen by the same qualified and experienced Tai Chi master. Participants advised to practice at home for 30 minutes per day on at least 5 days per week. Adherence defined as at least 80% of the prescribed sessions	
Comparator #1 (control)	82	Attention Control: Usual activities. No additional physical activity and no self-reported logbooks. All participants attended non-exercise community activities weekly for the 3 months.	
Comparator #2 (other)	82	Brisk walking: Participants instructed to walk between 5 and 6 km/h for 30 minutes at least 5 days per week. Pulse oximeter provided to each participant. Self-reported logbooks to record heart rate, frequency and duration of exercise were collected weekly. All participants attended non-exercise community activities weekly for the 3 months.	
Comparator #3 (other)	--	--	
Co-interventions	--	--	
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Qualified and experienced Tai Chi master

Study ID	**Chan 2016**					
Is there an inactive comparator?	Uncertain	Seek guidance from NTWC				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Cardiovascular health	Baseline, end of treatment (wk 12) and follow-up (6 and 9 months)	Blood pressure	Measurement taken twice at 5-minute intervals using digital monitor.	Participants sat for 5 mins before BP measurement. Average of the two readings used
2	Secondary	Disease risk	Baseline, end of treatment (wk 12) and follow-up (6 and 9 months)	Fasting blood sugar Glycated haemoglobin	After 8-10 hours fasting, blood sample taken using finger-stick	
3	Secondary	HRQoL	Baseline, end of treatment (wk 12) and follow-up (6 and 9 months)	SF-12v2	Higher score indicates better quality of life	
4	Secondary	Aerobic capacity	Baseline, end of treatment (wk 12) and follow-up (6 and 9 months)	2 minute step in place test	Raise knee one at a time to a height halfway between middle of the patella and the iliac crest as many times as possible in 2 minutes.	Score refers to number of times the knee reached the minimum height
5	Secondary	Psychosocial wellbeing	Baseline, end of treatment (wk 12) and follow-up (6 and 9 months)	Perceived stress scale (PSS-10)	Higher score indicating higher stress level.	

Study ID	**Chan 2016**				
6	Secondary	Anthropometric	Baseline, end of treatment (wk 12) and follow-up (6 and 9 months)	BMI (kg/m2)	
7	Secondary	General health	Baseline, end of treatment (wk 12) and follow-up (6 and 9 months)	Total cholesterol Triglycerides High and low density lipoprotein	
8	Secondary	Anthropometric	Baseline, end of treatment (wk 12) and follow-up (6 and 9 months)	Waist circumference (mm)	midway between lowest rib and iliac crest with subject standing at the end of gentle expiration
Method of analysis					
Statistics	Chi square and one-way ANOVA used to compare baseline group differences. Generalised estimating equation models with the appropriate link function and distribution assumptions were used to compare the differential changes of the outcomes across time and between groups. These models account for intra-correlated repeated measure data and accommodate missing data due to incomplete study assessments or dropouts				
Population analysed	Intent-to-treat				
Missing data	Yes	Retention rates were 88.6% (218/246) at 3 months, 80.1% (197/246) at 6 months and 78.9% (194/246) at 9 months.			

Characteristics of included studies	Hypertension	
Study ID	**Ma 2018**	
Study reference	Ma C, Zhou W, Tang Q & Huang S. The impact of group-based tai chi on health-status outcomes among community-dwelling older adults with hypertension. Heart & Lung. 2018; 47: 337-344	
Study design	RCT	
Author affiliation	Three authors affiliated with tertiary institutes	
Source of funds	Study supported by Guangdong Provincial Department of Science and Technology, the Guandong Special Program for Scientific Development (No. 2017A020215109)	
Declared interests of study authors	Not available	
Setting / provider	Outpatient (community healthcare centres)	
Country(s) / region	China	
Enrolment period	March 2015 to November 2016	
Length of follow up (months)	6	
Description of population	*N=*	*Description*
participants	158	Hypertension (60+ yrs)

Study ID	**Ma 2018**		
details	*Inclusion criteria:* 60 years and older; diagnosed with essential hypertension; taking antihypertensive medication; living in the Tianhe District, Guangzhou; consented to attend and adehere to the study *Exclusion criteria:* musculoskeletal diseases exacerbated by exercise; secondary hypertension; participating in other physical activities		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	79	Tai Chi: 90 minute classes offered twice per week for 5 weeks. Simplified 24-form taught. All participants received a free video to facilitate daily self-practice at home. Following this, group sessions were formed with one participant elected as the leader for each group. The exercise group was encouraged to practice at least 60 minutes , 3 to 5 times per week for 24 weeks.	
Comparator #1 (control)	79	Control (no intervention)	
Comparator #2 (other)	--	--	
Comparator #3 (other)	--	--	
Co-interventions	Usual care for hypertension from outpatient nurses at community healthcare centres. Contents included education, medication use, stress reduction, and dietary, exercise and lifestyle changes. Education brochure provided to all participants. All participants advised to maintain routine physcial activity.		
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Classes taught by two professional trainers, who had Tai Chi certification.

Study ID	**Ma 2018**					
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Psychosocial wellbeing	Baseline (wk 0) and end of treatment (wk 24)	Social support rating scale (SSRS)	Used to test social support. Higher score indicates more social support	
2	Not specified	Psychosocial wellbeing	Baseline (wk 0) and end of treatment (wk 24)	Center for epidemiologic studies depression scale (CES-D)	Shorter 10-item questionnaire used	
3	Not specified	HRQoL	Baseline (wk 0) and end of treatment (wk 24)	SF-36	Higher score indicates better quality of life	
4	Not specified	Cardiovascular health	Baseline (wk 0) and end of treatment (wk 24)	Blood pressure	Measured in the sitting position after 10 minutes rest.	
5	Not specified	Anthropometric	Baseline (wk 0) and end of treatment (wk 24)	BMI (kg/m2)		

Study ID	**Ma 2018**			
6	Not specified	Anthropometric	Baseline (wk 0) and end of treatment (wk 24)	Waist circumference
7	--			
8	--			
Method of analysis				
Statistics	SPSS version 19.0. Changes within each group were conducted by the paired t-tests. Between group differences in changes of measurement variables from baseline to 24 weeks were estimated and compared using generalised estimates equation models with group-by-time interactions after controlling for demographic and clinical variables. Statistical significance P <0.05			
Population analysed	Intent-to-treat	Missing values imputed based on an assumption of no change		
Missing data	Yes	28.5% of participants (45/158) dropped out of the study. This was balanced between the groups. Reasons included time limitations, no interest, lost contact and hospitalisation.		

Characteristics of included studies	Hypertension	
Study ID	**Shou 2019**	
Study reference	Shou XL, Wang L, Jin XQ, Zhu LY, Ren AH & Wang QN. Effect of t'ai chi exercise on hypertension in young and middle-aged in-service staff. The Journal of Alternative and Complementary Medicine. 2019; 25(1): 73-78	
Study design	RCT	pseudorandomised
Author affiliation		
Source of funds	Study supported by science and technology program of Traditional Chinese Medicien of Zhejiang Province (No. 2013ZB015); public welfare technology appliation research program of Zhenjian Provincial Department (No. 2016C33123); medical and health science and technology program of Zhejiang Province (No. 2012KYA001); and public welfare technology application research program of Zhejiang Provincial Department (No. 2015C33121)	
Declared interests of study authors	No competing financial interests exist	
Setting / provider	Not specified	
Country(s) / region	China	
Enrolment period	Not available	
Length of follow up (months)	3	
Description of population	*N=*	*Description*
participants	208	Hypertension, grade 1

Study ID	**Shou 2019**		
details	*Inclusion criteria:* primary grade I hypertension; aged 18-60 years; in-service with low mobility; compliance to the study. *Exclusion criteria:* secondary hypertension, coronary heart disease, diabetes or stroke; pregnant or lactating; physical activity disorder; could not consent or comply to the study		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	104	Tai Chi (Yang): Simplified 24-style tai chi exercises for three months. Exercise duration was 40-90 minutes Exercise intensity varied but was performed 1 to 2 times a day	
Comparator #1 (control)	--	--	
Comparator #2 (other)	104	Wellness education program: General daily lifestyle intervention (includes education, monitoring, lifesytle management)	
Comparator #3 (other)	--	--	
Co-interventions	--	--	
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C	subjects were directed by a professional rehabilitation therapist. It is not clear if certified in Tai chi

Study ID	**Shou 2019**					
Is there an inactive comparator?	No	Comparison=other				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Cardiovascular health	Baseline, mid (1 mos), end of treatment (3 mos)	Blood pressure	Mercury sphygmomanometer	Patient seated and rested for 5 minutes. Average of 3 measurements used.
2	Not specified	Anthromopetric	Baseline, mid (1 mos), end of treatment (3 mos)	BMI (kg/m2)	Height and body weight	
3	Not specified	General health	Baseline, mid (1 mos), end of treatment (3 mos)	Blood lipids	12h fasting	
4	Not specified	HRQoL	Baseline, mid (1 mos), end of treatment (3 mos)	SF-36	Higher score indicates better quality of life	
5	--					

Study ID	Shou 2019	
6	--	
7	--	
8	--	
Method of analysis		
Statistics	SPSS 16.0. Comparison of variables before and after in the same group conducted using paired t test. Comparisons of variables before and after between the two groups conducted using independent samples t test. P<0.05 considered statistically significant	
Population analysed	Intent-to-treat	
Missing data	Yes	16.3% of participants (34/208) were lost to follow-up. There were 14 in the intervention and 20 in the control group. These participants were excluded from final analysis

Characteristics of included studies	Hypertension	
Study ID	**Sun 2015a**	
Study reference	Sun J & Buys N. Community-based mind-body meditative tai chi program and its effects on improvement of blood pressure, weight, renal function, serum lipoprotein, and quality of life in Chinese adults with hypertension. American Journal of Caridology. 2015; 116: 1076-1081	
Study design	RCT	
Author affiliation	Both authors affiliated with tertiary institutes	
Source of funds	Not available	
Declared interests of study authors	The authors have no conflicts of interest to disclose	
Setting / provider	Not specified	
Country(s) / region	China	
Enrolment period	April 2012 to April 2014	
Length of follow up (months)	12	
Description of population	*N=*	*Description*
participants	300	Hypertension (45+ yrs)

Study ID	**Sun 2015a**		
details	*Inclusion criteria:* >45 years and diagnosed with hypertension; resident in Changshu city of Jiangsu Province or in the Fangshan District of Beijin *Exclusion criteria:* neurologic impairment or could not provide consent to participate		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	150	Tai Chi: Group sessions 3 hours per week and 2 hours per week at home practice for 12 months. Participants taught a variety of meditation techniques including breathing, balance, flexibility, concentration, calming and stress-reduction techniques.	
Comparator #1 (control)	--	--	
Comparator #2 (other)	150	Attention Control: Participants attended non-exercise related activities such as reading and learning computer software applications. Activities were carried out for 3 hours per week and 2 hours of home activities for 12 months.	
Comparator #3 (other)	--	--	
Co-interventions	--	--	
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Authors report Tai Chi taught by an experienced trainer.

Study ID	**Sun 2015a**					
Is there an inactive comparator?	Uncertain	Seek guidance from NTWC				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	General health	Baseline, end of treatment (12 mos)	Lipoprotein panel		
2	Not specified	General health	Baseline, end of treatment (12 mos)	Glucose	Fasting	
3	Not specified	General health	Baseline, end of treatment (12 mos)	Glomerular filtration		
4	Not specified	Cardiovascular health	Baseline, end of treatment (12 mos)	Blood pressure	Definition of hypertension are systolic BP >140 mmHg and diasolic BP >90 mmHg	
5	Not specified	Anthropometric	Baseline, end of treatment (12 mos)	BMI (kg/m2)	Overweight defined as 25-29.9 kg/m2 and obesity defiend as ≥30 kg/m2	

Study ID	**Sun 2015a**				
6	Not specified	Anthropometric	Baseline, end of treatment (12 mos)	Waist circumference	Abdominal obesity defined as waist circumference ≥90cm for men and ≥80cm for women
7	Not specified	HRQoL	Baseline, end of treatment (12 mos)	SF-12	Higher score indicates better quality of life
8	--				
Method of analysis					
Statistics	Multivariate general linear model used to compare differences before and after intervention in both groups on biomedical factors and HRQoL				
Population analysed	Intent-to-treat				
Missing data	Yes	11.3% of participants (34/300) were lost to follow-up. 14 in the Tai Chi group and 20 in the control group. Reasons for loss to follow-up were similar in both groups. Data for participants lost to follow-up were excluded from final analysis.			

Characteristics of included studies	Hypertension	
Study ID	**Talebi 2017**	
Study reference	1. Talebi E, Bastani F & Haqhani H. Effect of tai chi exercise on the stress of elderly women with hypertension. Journal of Client-Centred Nursing Care. 2017; 3(4): 263-268 2. Irct2015072923408N (#3236)	
Study design	RCT	cluster design
Author affiliation	All authors affiliated with tertiary institutions	
Source of funds	Not available	
Declared interests of study authors	Authors have no conflict of interest to declare	
Setting / provider	Community	
Country(s) / region	Iran	
Enrolment period	Not available	
Length of follow up (months)	1.5	
Description of population	*N=*	*Description*
participants	64	Hypertension (women, 60+ yrs)

Study ID	**Talebi 2017**		
details	Study population consists of geriatric women with hypertension in elderly care centres in Tehran under the supervision of welfare organisation *Inclusion criteria:* women over 60 years; no cognitive impairment; high blood pressure; no history of depression or anxiety; no drug addition or mediation; no previous Tai Chi exercises *Exclusion criteria:* not specified		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	32	Tai Chi: 8-form exercise program performed 3 times a week for 6 weeks. Duration 40 minutes.	
Comparator #1 (control)	32	Control: Routine care	
Comparator #2 (other)	--	--	
Comparator #3 (other)	--	--	
Co-interventions	--	--	
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Supervised by researcher with Tai Chi certification

Study ID	**Talebi 2017**					
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Psychosocial wellbeing	Baseline (wk 0) and end of treatment (wk 6)	Perceived stress scale (14-items)	Based on 4-point Likert scale	higher scores means more stress
2	--					
3	--					
4	--					
5	--					

Study ID	Talebi 2017	
6	--	
7	--	
8	--	
Method of analysis		
Statistics	SPSS version 21. To determine the statistical significance inferential statistics were used (Chi-squared, Fisher's exact test, independent t test, paired t test and repeatedmeasures ANOVA)	
Population analysed	Intent-to-treat	
Missing data	Yes	A total of 12 participants were lost to follow-up. This was balanced between the two groups. Data from these participants were not analysed at baseline and end of treatment

Characteristics of included studies	Hypertension	
Study ID	**Tsai 2003**	
Study reference	Tsai JC, Wang WH, Chan P, Lin LJ, Wang CH, Tomlinson B, et al. The beneficial effects of tai chi chuan on blood pressure and lipid profile and anxiety status in a randomized controlled trial. The Journal of Alternative and Complementary Medicine. 2003; 9(5): 747-754	
Study design	RCT	pseudorandomised
Author affiliation	All authors affiliated with tertiary institutes	
Source of funds	Not available	
Declared interests of study authors	Not available	
Setting / provider	Outpatient	
Country(s) / region	Taiwan	
Enrolment period	Not available	
Length of follow up (months)	3	
Description of population	*N=*	*Description*
participants	88	Hypertension, pre/early

Study ID	**Tsai 2003**		
details	*Inclusion criteria:* not receiving medication; not engaged in an exercise program; borderline hypertension (mean resting SBP 130-159 mmHg or DBP 85-99 mmHg) *Exclusion criteria:* personal history of coronary artery disease, stroke, limiting orthopedic problems or other major health problems		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	44	Tai Chi: Yang style. 50 minute sessions 3 times a week for 12 weeks	
Comparator #1 (control)	44	Control (usual activities): Usual lifestyle behaviours including eating habits, previously sedentary life pattern	
Comparator #2 (other)	--	--	
Comparator #3 (other)	--	--	
Co-interventions	--	--	
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Tai Chi movements provided by qualified master

Study ID	**Tsai 2003**					
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Cardiovascular health	Baseline (wk 0) and end of treatment (wk 12)	Blood pressure		
2	Not specified	General health	Baseline (wk 0) and end of treatment (wk 12)	Lipid profile		
3	Not specified	Psychosocial wellbeing	Baseline (wk 0) and end of treatment (wk 12)	State and Trait Anxiety Inventory	20 items on each trait and state anxiety	
4	--					
5	--					

Study ID	**Tsai 2003**	
6	--	
7	--	
8	--	
Method of analysis		
Statistics	Unpaired t test performed to analyze differences among baseline data between groups. Paired t test used to compare variables within each group. P<0.05 considered statistically significant	
Population analysed	Intent-to-treat	
Missing data	Yes	13.6% of participants (12/88) were lost to follow-up. This was balanced between the groups (7 in tai chi and 5 in control). Reasons included lack of interest and refusal to test. Missing data was excluded from baseline and end of treatment analysis.

Characteristics of included studies	Hypertension	
Study ID	**Young 1999**	
Study reference	Young DR, Appel LJ, Jee SH & Miller ER. The effects of aerobic exercise and t'ai chi on blood pressure in older people: results of a randomized trial. Journal of American Geriatrics Society. 1999; 47(3): 277-284	
Study design	RCT	
Author affiliation	All authors affiliated with tertiary institutes	
Source of funds	Study funded in part by HL 02642 and by RR 00722	
Declared interests of study authors	Not available	
Setting / provider	Suburban Clinic	
Country(s) / region	USA	
Enrolment period	Not specified	
Length of follow up (months)	3	
Description of population	*N=*	*Description*
participants	62	Hypertension, early (60+ yrs)

Study ID	**Young 1999**	
details	*Inclusion criteria:* 60-80 years; average systolic BP between 130 and 159 mmHg and diastolic ≤ 95 mmHg; participated in less than 10 minutes of vigorous exercise per week; approval to participate from physician *Exclusion criteria:* current use of antihypertensive medication or insulin; myocardial infarction or stroke within previous 6 months; current symptoms of angina, congestive heart failure or exercise-induced asthma; inability to perform moderate-intensity exercise; inability to participate in follow-up evaluation	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	31	Tai Chi: 13 Yang style movements. 1 hour group classes twice weekly, supplemented with 30 to 45 minutes home-based exercise 4 to 5 days per week for 12 weeks. Participants were asked to complet and return weekly exercise logs. NOTE - only recorded the frequency, duration and heart rate achieved during Tai Chi
Comparator #1 (control)	--	--
Comparator #2 (other)	31	Aerobic exercises: 1 hour group exercise twice weekly, supplemented with 30 to 45 minutes home-based exercise 4 to 5 days per week for 12 weeks. Participants were asked to complet and return weekly exercise logs
Comparator #3 (other)	--	--
Co-interventions	Behavioural skills and strategies relevant to each exercise group were taught	
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A Certified Tai Chi istructor

Study ID	**Young 1999**					
Is there an inactive comparator?	No	Comparison=other				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Cardiovascular health	Baseline, mid (2, 4, 6, 8, 10 wks), end of treament (wk 12)	Systolic blood pressure	Random zeero syphgmomanometer.	Two measurements recorded in seated position after 5 minutes resting.
2	Secondary	Cardiovascular health	Baseline, mid (2, 4, 6, 8, 10 wks), end of treament (wk 12)	Diastolic blood pressure	Random zeero syphgmomanometer.	Two measurements recorded in seated position after 5 minutes resting.
3	Secondary	Aerobic capacity	Baseline, mid (2, 4, 6, 8, 10 wks), end of treament (wk 12)	Cycle ergometer test (VO2 max)	Workload increased progressivly until participants HR exceeded 110 BPM at two consecutive workloads at which point the test was terminated.	Maximal workload estimated from plotting against predicted maximal HR.
4	Secondary	Cardiovascular health	Baseline, mid (2, 4, 6, 8, 10 wks), end of treament (wk 12)	Stanford 7-day Physcial Activity Recall	Interveiwer-administered questionnaire	
5	Secondary	Cardiovascular health	Baseline, mid (2, 4, 6, 8, 10 wks), end of treament (wk 12)	Yale Physcial Activity Survey	Interveiwer-administered questionnaire	

Study ID	**Young 1999**	
6	--	
7	--	
8	--	
Method of analysis		
Statistics	Within group changes for all outome variables were determined from paired t tests, after adjusting for basline leves. Between group differences in blood pressure determined from analysis of covariance.	
Population analysed	Intent-to-treat	
Missing data	Yes	3% of participants (2/62) were lost to follow-up for the primary outcome. This was equal between the two groups.

Characteristics of included studies	Coronary Heart Disease	
Study ID	**Li 2019b**	
Study reference	Li Y, Zhang H & Wang, Y. Tai Chi ameliorates coronary heart disease by affecting serum levels of miR-24 and miR-155. Frontiers in Physiology. 2019; 10: 587	
Study design	RCT	
Author affiliation	All authors affiliated with one tertiary institution	
Source of funds	Not available	
Declared interests of study authors	The authors declared no conflict of interest	
Setting / provider	Outpatient clinic (hospital)	
Country(s) / region	China	
Enrolment period	March 2014 to March 2016	
Length of follow up (months)	6	
Description of population	*N=*	*Description*
participants	326	Coronary heart disease (18+ yrs)

Study ID	**Li 2019b**		
details	*Inclusion criteria:* diagnosed with CHD according to NY Heart Association; heart function between I and III levels, LVEF < 40% and older than 18 years without dementia and **acute coronary event within the last 3 months**. *Exclusion criteria:* unclear patient awareness; occurrence of shock and need for defibrillation to restore cardiac reflex; pregnant or lactating women; CHD risk associated with changes in systemic inflammation; receiving medications (systemic, NSAIDS, hormone therapy)		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	163	Tai Chi (Yang style): 1 hour sessions daily. Consisted of 5 movements and 24 forms in a YANG style for 6 months	
Comparator #1 (control)	--	--	
Comparator #2 (other)	163	Physical exercise: 1 hour sessions daily.	
Comparator #3 (other)	--	--	
Co-interventions	Conventional treatment and care (treatment of CHD symptoms, diet, exercise, medicine, psychological therapy)		
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	intervention was delivered by Tai Chi tutors

Study ID	**Li 2019b**					
Is there an inactive comparator?	No	Comparison=other				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Activities of daily living	Baseline, end of treatment (6 mos)	Exercise of Self-Care Ability Test (ESCA)	High score indicates high level of self-care	measure self-care skils, self-responsibility, self-concept, health knowledge
2	Not specified	Activities of daily living	Baseline, end of treatment (6 mos)	Assessment of Daily Living Ability (ADL)	High score indicates reduced self-care	
3	Not specified	HR QoL	Baseline, end of treatment (6 mos)	SF-36-total	high score indicates better quality of life	8-items also reported separately
4	Not specified	Psychosocial wellbeing	Baseline, end of treatment (6 mos)	Self-rating anxiety score	score<50 = no depression, 50-59=mild , 60-69 moderate; 70+ high depression	
5	Not specified	Psychosocial wellbeing	Baseline, end of treatment (6 mos)	Self-rating depression score	score<50 = no depression, 50-59=mild , 60-69 moderate; 70+ high depression	

Study ID	Li 2019b				
6	Not specified	Cardiac function	Baseline, end of treatment (6 mos)	LVEF, time to arrhytmia, atrioventrocular block recovery	
7	Not specified	Serum biomarkers	Baseline, end of treatment (6 mos)	miR-24	indicate CVD risk
8	Not specified	Serum biomarkers	Baseline, end of treatment (6 mos)	miR-155	indicate CVD risk
Method of analysis					
Statistics	Multivariate analysis of vairance used to assess the conditional effect of each variable. Statistical difference between the two groups measured using X2 test. Other variables analysed using multivariate analysis with adjusted HR. P<0.05 statistically significant				
Population analysed	Intent-to-treat	Modified; assumed based on flow diagram indicating that only participants with completed data were analysed.			
Missing data	Yes	After 3 months, 13% of participants (43/326) were lost to follow-up. This was balanced between the two groups. After 6 months, 23.6% (77/326) were lost to followup. This was a little higher in the control group (35 in Tai Chi and 42 in control). Reasons not provided. Flow diagram suggests only those with complete data were analysed.			

Characteristics of included studies	Coronary Heart Disease		
Study ID	**Liu 2010**		
Study reference	Liu J, Li B and Shnider R. Effects of Tai Chi training on improving physcial function in patients with coronary heart diseases. Journal of Exercise Science and Fitness. 2010; vol 8(2): 78-84		
Study design	RCT	pseudorandomised	No randomisation process details provided
Author affiliation	Two authors affiliated with two tertiary institutions. One author affiliated with medical centre		
Source of funds	Not available		
Declared interests of study authors	Not available		
Setting / provider	Not provided		
Country(s) / region	USA		
Enrolment period	Not available		
Length of follow up (months)	3		
Description of population	*N=*	*Description*	
participants	30	Coronary heart disease (18+ yrs)	

Study ID	**Liu 2010**		
details	*Inclusion criteria:* All participants had gone through hospital stay (phase I), cardiac rehabilition (phase II) **follwing heart surgery/cardiac event** and planned to carry out home-based or long-term exercise program (phase III) *Exclusion criteria:*		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	15	Tai Chi: Two 1-hour classes per week for 12 weeks. Was a 12-form routine.	
Comparator #1 (control)	15	Control (no exercises): All participants were contacted by study coordinator to discuss issues related to their cardiac and health condition.	
Comparator #2 (other)	--	--	
Comparator #3 (other)	--	--	
Co-interventions	All participants encouraged to continue with standard cardiac rehabilitation activities and routine care procedures.		
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Tai Chi delivered by a well-tained Tai Chi instructor

Study ID	**Liu 2010**					
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Functional mobility	Baseline, end of treatment (12 wks)	Chair stand test	Measures leg strength. Number completed in 30 seconds	Perform full stands from seated position with arms folded across chest.
2	Not specified	Functional mobility	Baseline, end of treatment (12 wks)	Chair sit-and-reach test	Tests leg flexibility. Inches between fingers and toes of straight leg recorded.	Reach hands toward toes from sitting position on edge of chair with one leg bent and other leg straight.
3	Not specified	Balance	Baseline, end of treatment (12 wks)	One-leg stand test	Measures stationary balance.	Score determined by total time standing on one leg
4	Not specified	Functional mobility	Baseline, end of treatment (12 wks)	8-foot-and-go test	Measures dynamic balance.	Get up from seated position, walk 8 feet, turn and return to seated position in shortest time (seconds)
5	Not specified	Cardiorespiartory fitness	Baseline (week 0) and end of treatment (week 12)	2-minute step test	Measures aerobic endurance.	Perform full steps in 2 mins, raising each knee to required hight (number of times recorded)

Study ID	**Liu 2010**	
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Method of analysis		
Statistics	SPSS version 16.0 used. 2x2 MANOVA applied to determine differences. Follow-up analyses conducted. Statistical significance set at 0.05.	
Population analysed	Intent-to-treat	All participants analysed based on assigned group
Missing data	No	Data available for all participants

Characteristics of included studies	Coronary Heart Disease		
Study ID	**Sato 2010**		
Study reference	Sato S, Makita S, Uchida R, Ishihara S & Masuda M. Effect of Tai Chi training on baroreflex sensitivity and heart rate variability in patients with coronary heart disease. International Heart Journal. 2010; vol 51(4): 238-242		
Study design	RCT	pseudorandomised	No randomisation process details provided
Author affiliation	All authors affiliated with tertiary institutions		
Source of funds	Not available		
Declared interests of study authors	Not available		
Setting / provider	Not provided		
Country(s) / region	Japan		
Enrolment period	Not available		
Length of follow up (months)	12		
Description of population	*N=*	*Description*	
participants	20	Coronary heart disease (18+ yrs)	

Study ID	**Sato 2010**	
details	*Inclusion criteria:* ejection fraction > 40%; **clinical stable,** defined as no major changes in pharmacological therapy in the previous 3 months *Exclusion criteria:* atrial fibrilation or abnormal sinus node function, unstable angina pectoris, and resting arterial blood pressure > 170/100	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	10	Tai Chi (Yang): Supervised sessions once weekly + home-based sessions three times per week. 8 core movements adapted from YANG style. 20-minute instructional video tape presented to all participants and participants encouraged to continue individual home-based practice.
Comparator #1 (control)	10	Control (no intervention)
Comparator #2 (other)	--	--
Comparator #3 (other)	--	--
Co-interventions	Routine care (pharmacological therapy, dietary guidance and physical actiity counselling in accordance with Japanese Circulation Society guidelines.	
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C

Study ID	**Sato 2010**					
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Cardiovascular function	Baseline (week 0) and end of treatment (week 52)	Baroreflex sensitivity.	Calculated as the square root of the ratio of R-R interval power and SBP power in the LF band for values of coherence of 0.5 or greater	R-R intervals and systolic blood pressure continuously recorded
2	Primary	Cardiovascular health	Baseline (week 0) and end of treatment (week 52)	Heart rate variability.	Evaluated using auto-spectral analysis of R-R intervals and expressed as power of the LF and HF component and the low/high frequency power ratio	Performed in seated upright position for 60 seconds after 15 mins rest.
3	Not specified	Cardiorespiartory fitness	Baseline (week 0) and end of treatment (week 52)	Cardiopulmonary exercise testing (CPX)	Performed in upright postion on bicycle ergometer	Expired gas exchange measured by breath-by-breath analysis with metabolic cart. Oxygen intake calculated every 10 seconds
4	--					
5	--					

Study ID	**Sato 2010**	
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Method of analysis		
Statistics	T test or X2 test on SPSS version 16.0. Repeated two-way ANOVA used to compare effects. Statistical significance P < 0.05	
Population analysed	Intent-to-treat	All participants analysed based on assigned group
Missing data	No	All participants completed study. Data available for all participants

Characteristics of included studies	Heart failure		
Study ID	**Barrow 2007**		
Study reference	Barrow DE, Bedford A, Ives G, O'Toole L & Channer KS. An evaluation of the effects of tai chi chian and chi kung training in patients with symptomatic heart failure: a randomised controlled pilot study. Postgraduate Medical Journal. 2007; 83: 717-721.		
Study design	RCT	pseudorandomised	
Author affiliation	All authors affiliated with one hospital.		
Source of funds	Funded and supported by a grant from the British Heart Foundation		
Declared interests of study authors	Authors had no competeing interests to declare		
Setting / provider	Not specified		
Country(s) / region	UK		
Enrolment period	Not specified		
Length of follow up (months)	4		
Description of population	*N=*	*Description*	
participants	65	Heart failure, chronic (NYHA class II–III)	

Study ID	**Barrow 2007**		
details	*Inclusion criteria:* stable **symptomatic chronic heart failure for at least 3 months**, with evidence on ECG of left ventricular systolic dysfunction; NY Heart Association symptom class II-III *Exclusion criteria:* symptomatic postural hypotension, sustained ventricular arrhythmias, hypertension, severe obstructive valvular disease, other respiratory of locomotor condition limiting exercise capacity		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	32	Tai Chi (Wu Chian Chuan style) and Chi Kung: 2 x 55-minute sessions per week for 16 weeks. Participants encouraged to continue practicing at home and record time. Each session began with 20 min Chi Kung exercises - an introductory warmup to promote relaxation, stillness of mind and mood	
Comparator #1 (control)	33	Control (usual care). Standard medical supervision and drug treatment: Comprised regular contact with specialist and outpatient visits every three months. Participants were permitted to contact a member of research staff if any problems arose.	
Comparator #2 (other)	--	--	
Comparator #3 (other)	--	--	
Co-interventions	--	--	
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Exercises conducted by a trained Tai Chi trainer as well as a trained cardiac rehabilitiation nurse in attendance

Study ID	**Barrow 2007**					
Is there an inactive comparator?	Yes	Comparison=control	It is assumend the intervention group also received standard medical care, also this is not explicit in the study report.			
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Exercise capacity	Two tests performed at baseline (wk 0) and end of treatment (wk 16)	Incremental shuttle walk test (ISWT)	Subjects walk back and forth along a horizontal 10m course. Each shuttle must be completed before a pre-recorded signal (which shortens incrementally). Failure to complete a shuttle in time signals the end.	Average of two tests was used in the analysis
2	Secondary	HRQoL	Baseline (wk 0) and end of treatment (wk16)	Minnesota Living with Heart Failure questionnaire	Assesses disease specific symptoms and quality of life	
3	Secondary	Psychosocial	Baseline (wk 0) and end of treatment (wk16)	Symptom Checklist-Revised (SCL-R)	Assessment of mood	
4	Secondary	Cardiorespiratory health	Baseline (wk 0) and end of treatment (wk16)	Blood pressure		
5	--					

Study ID	**Barrow 2007**	
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7	--	
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Method of analysis		
Statistics	Comparasion using Students t test	
Population analysed	Intent-to-treat	
Missing data	Yes	20% of participants (13/16) were lost to follow-up. This was balanced between treatment groups.

Characteristics of included studies	Heart failure	
Study ID	**Caminiti 2011**	
Study reference	Caminiti G, Volterrani M, Marazzi G, Cerrito A, Massaro R, Arisi A, et al. Tai chi enhances the effects of endurance training in the rehabilitation of elderly patients with chronic heart failure. Rehabilitation Research and Practice. 2011; ID 761958.	
Study design	RCT	pseudorandomised
Author affiliation	All authors affiliated with a tertiary institute	
Source of funds	Not available	
Declared interests of study authors	Authors have no financial interests to disclose	
Setting / provider	Outpatient (hospital)	
Country(s) / region	Italy	
Enrolment period	Not specified	
Length of follow up (months)	3	
Description of population	*N=*	*Description*
participants	60	Heart failure, chronic (LVEF <45%, NYHA class II)

Study ID	**Caminiti 2011**		
details	*Inclusion criteria:* >65 years, **chronic heart failure of more than 1 year** due to ischemic or nonischemic dilated caridomyopathy, left ventricular ejection fraction ≤ 45%, NY Heart Association functional class II, stable clinical conditions and optimal heart failure treatment without changes for at least 3 months *Exclusion criteria:* history of myocardial infarction or angina less than three months, decompensated heart failure, complex ventricular arrhythmia, angina, and neurological or orthopaedic conditions limiting exercise protocol		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	30	Tai Chi (Yang style) plus endurance training: Programme was a 10-movement Yang style. 30 minutes of Tai Chi twice a week PLUS 30 minutes cycling or walking twice a week (total of 4 exercise sessions per week). 12 weeks total	
Comparator #1 (control)	--	--	
Comparator #2 (other)	30	Endurance training: 30 minutes cycling or walking four times per week over 12 weeks (total of 4 exercise sessions per week).	
Comparator #3 (other)	--	--	
Co-interventions	--	--	
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Tai Chi taught by an experienced Tai Chi instructor with trained cardiac rehabilitation therapist in attendance

Study ID	**Caminiti 2011**					
Is there an inactive comparator?	No	Comparison=other				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Cardiorespiratory fitness	Baseline (wk 0) and end of treatment (wk 12)	6-minute walk test	Patients asked to walk 100m at own maximal pace . A standard encouraging phrase said every minute.	Patients permitted to stop if signs, symptoms, significant distress occurred. **Test was supervised by a physical therapist.**
2	Primary	Perceived exertion	Baseline (wk 0) and end of treatment (wk 12)	Borg scale	Used to rate perceived exertion and level of dyspnoea	
3	Secondary	Cardiorespiratory health	Baseline (wk 0) and end of treatment (wk 12)	Blood pressure & heart rate	Assessed during all training session	
4	Secondary	Biomarkers	Baseline (wk 0) and end of treatment (wk 12)	NT-pro BNP assessment	Venous blood samples withdrawn after 20 minutes rest (patient supine).	NT-pro BNP determined by commercially available electrochemiluminescence immunoassay
5	Secondary	Muscle strength	Baseline (wk 0) and end of treatment (wk 12)	Isometric dynamometry testing of quadriceps	the patient carried out 3 consecutive maximal voluntary extensions (contraction time 3 s—resting time 7 s); the highest value was considered as the maximal strength	All measurements were performed while the subject was seated on the device. The ankle of the tested leg was attached to the strength transducer by a Velcro strip

Study ID	**Caminiti 2011**					
6	Secondary	Muscle strength	Baseline (wk 0) and end of treatment (wk 12)	Isokinetic muscle strength of the knee extensors	Strength recorded as torque. Assessed by the same dynamometric system (above).	Patients performed 5 consecutive knee extenson movements with maximal effort and with an angular speed of 90 degrees per second. With the dominant leg, the highest value obtained was regarded as the peak torque
7	Secondary	HR QoL	Baseline (wk 0) and follow-up	MacNew Quality of Life After Myocardial Infarction questionnaire	27 items in three domains (physical, social, emotional) with Global score from 1 (low) to 7 (high)	Self-administered questionnaire -
8	--					
Method of analysis						
Statistics	Primary and secondary outcomes evaluated comparing the detla (baseline - 12 weeks) of combined training vs endurance training using the Mann-Whitney test. P value <0.05 considered significant. SPSS used for all analyses.					
Population analysed	Intent-to-treat					
Missing data	No	Unclear how many participants lost to follow-up (if any). All participants inlcuded in analysis				

Characteristics of included studies	Heart failure		
Study ID	**Hagglund 2018**		
Study reference	Hagglund L, Boman K & Brannstrom M. A mixed methods study of tai chi exercise for patients with chronic heart failure aged 70 years and older. Nursing Open. 2018; 5(2): 176-185. NCT01294111 (#3327)		
Study design	RCT	pseudorandomised	No randomisation details
Author affiliation	All authors affiliated with tertiary institutes. One author affiliated with a hospital		
Source of funds	The study was funded by The Rönnbäret Fund, Skellefteå Municipality, Sweden, Swedish Heart and Lung Association, and Visare Norr Fund, Sweden.		
Declared interests of study authors	Not available		
Setting / provider	Local training centres		
Country(s) / region	Sweden	3 different cities	
Enrolment period	Not specified		
Length of follow up (months)	6		
Description of population	*N=*	*Description*	
participants	45	Heart failure, chronic (LVEF <50%, 70+ yrs)	

Study ID	**Hagglund 2018**		
details	*Inclusion criteria:* verified **chronic heart failure** (LVEF <50%), stable medication, perceived fatigue, aged 70 years or older. *Exclusion criteria:* Unstable angina pectoris, myocardial infarction with the last 3 months, cognifive impairment, no perceived fatigue.		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	25	Tai Chi: 60-minute sessions, twice a week for 16 weeks. Consisted of 5 movements from the Tai Chi Chuan simplified 24 forms, Yang style. The whole program could be performed sitting in a chair.	
Comparator #1 (control)	20	Control (usual activities)	
Comparator #2 (other)	--	--	
Comparator #3 (other)	--	--	
Co-interventions	--	--	
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Exercises led by experienced Tai Chi leaders, one in each city. All were trained in the specific form by the investigator

Study ID	**Hagglund 2018**					
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Fatigue	Baseline (wk 0), end of treatment (wk 16) and follow-up (6 months)	Multidimensional Fatigue Inventory (MFI-20)	Self-reported measurement of fatgue in the last few days Higher score indicates more fatigue.	(subscales = general, physical, metnal, motivation, activity).
2	Secondary	HR QoL	Baseline (wk 0), end of treatment (wk 16) and follow-up (6 months)	Minnesota Living with Heart Failure Questionnaire (MLWHQ)	Self-reported measurement of the impact of heart failure on quality of life.	A higher value indicating a higher impact of heart failure on quality of life.
3	Not specified	Functional mobility	Baseline (wk 0), end of treatment (wk 16) and follow-up (6 months)	Short Physical Performance Battery - Swedish version (SPPB-S)	Measures gait speed, standing balance and chair rise performance.	Higher score means better performance
4	Not specified	Cardiac markers	Baseline (wk 0), end of treatment (wk 16) and follow-up (6 months)	N-terminal pro-Brain Natriuretic Peptide (NTproBNP) and BNP	Represents myocardial stretch due to volume or pressure overload.	Blood samples taken and analysed with Roche Elecsys proBNP immunoassay.
5	--					

Study ID	Hagglund 2018	
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Method of analysis		
Statistics	The non-parametric test, Mann-Whitney U-test was used for comparisons between groups for non-normally distributed data and Wilcoxon signed rank test was used for related samples. Binary logistic regression was used for analyses within groups	
Population analysed	Intent-to-treat	Modified.
Missing data	Uncertain	Authors do not clearly report the handling of participants lost to follow-up or not completing the study

Characteristics of included studies	Heart failure		
Study ID	**Redwine 2019**		
Study reference	Redwine LS, Wilson KS, Pung MA, Chinh K, Rutledge T, Mills PJ, et al. A randomized study examining the effects of mild-to-moderate group exercises on cardiovascular, physical, and pyschological well-being in patients with heart failure. Journal of Cardiopulmonary Rehabilitation and Prevention. 2019; 39(6): 403-408 Redwine LS, Pung MA, Wilson K, Bangen KJ, Delano-Wood L & Hurwitz B. An exploratory randomized sub-study of light-to-moderate intestity exercise on cognitive function, depression symptoms and inflammation in older adults with heart failure. Journal of Psychosomatic Research. 2020; 128: 109883. NCT01467544 (#3328)		
Study design	RCT	Computer generated randomisation algorithms	
Author affiliation	All authors affiliated with tertiary institutes		
Source of funds	Research was supported by R01HL096784		
Declared interests of study authors	The authors decalre no conflicts of interest		
Setting / provider	Medical care and senior centres		
Country(s) / region	USA		
Enrolment period	2010 - 2015		
Length of follow up (months)	4		
Description of population	*N=*	*Description*	
participants	70	Heart failure, chronic (NYHA class II-III)	

Study ID	**Redwine 2019**		
details	*Inclusion criteria:* **Diagnosed with heart failure** (AHA/ACC Classification Stage C symptomatic (both HFpEF and HFrEF) for at least 3 months; Clinically stable (not having been hospitalized for a 3-month period); Stable doses of neurohormonal blocking agents and diuretics for at least 3 months; No cardiac surgeries for at least 6 months; Not in an exercise program; ≥40 yr of age. *Exclusion criteria:* presence of psychiatric diagnosis other than major depression (psychosis, bipolar), practicing Tai Chi within the previous year		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	25	Tai Chi (Yang): Yang-style Tai Chi Chuan Short Form. 1 hour sessions twice weekly for 16 weeks. Participants asked to practice at home for 10-20 minutes on non-class days. Written material provided to support home practice	
Comparator #1 (control)	23	Control: No intervention	
Comparator #2 (other)	22	Resistance band: 1 hour sessions twice weekly for 16 weeks. Participants asked to practice at home for 10-20 minutes on non-class days. Written material provided to support home practice	
Comparator #3 (other)	--	--	
Co-interventions	Usual care including regular visits to cardiologist, primary care physician and other health specialists.		
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	More than 10 years experience teaching Tai Chi

Study ID	**Redwine 2019**					
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Cardiac capacity	Baseline (wk 0), end of treatment (wk 16)	LVEF	ECG	
2	Secondary	Activities of daily living	Baseline (wk 0), end of treatment (wk 16)	6-minute walk test	Patients instructed to walk as far as possible in 6 minutes (performed in a 25 foot corridor).	Standard encouragement given halfway through.
3	Secondary	Psychosocial wellbeing	Baseline (wk 0), end of treatment (wk 16)	Beck Depression Inventory - 1A	Measure of depression	
4	--					
5	--					

Study ID	Redwine 2019	
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8	--	
Method of analysis		
Statistics	Analyses performed using SPSS version 24. Mixed-effects models used to analyse efficacy of Tai Chi compared with no intervention or resistance band exercises. Post hoc analyses performed to make specific group comparisons with repeated measrues ANCOVA using estimated mean imputation.	
Population analysed	Intent-to-treat	All allocated participants analysed
Missing data	Yes	15.7% of participants (11/70) discontinued intervention. This was balanced across all treatment groups. Analyses included all randomised participants

Characteristics of included studies	Heart failure
Study ID	**Yeh 2004**
Study reference	Yeh GY, Wood MJ, Lorell BH, Stevenson LY, Eisenberg DM, Wayne PM, et al. Effects of tai chi mind-body movement therapy on functional status and exercise capacity in patients with chronic heart failure: a randomized controlled trial. The American Journal of Medicine. 2004; 117(8): 541-548. Yeh GY, Wood MJ, Lorell BH, Jha AK. Benefits of tai chi for elderly patients with congestive heart failure. Journal of Clinical Outcomes Management. 2004; 11(11): 690-691. Yeh GY, Wood MJ, Lorell BH, Stevenson LW, Eisenberg DM, Wayne P, et al. Heart failure patients improve quality of life and exercise capacity with tai chi. Focus on Alternative and Complementary Therapies. 2005; 10(1): 50-51. Yeh GY, Wayne PM & Phillips RS. T'ai chi exercise in patients with chronic heart failure. Medicine and Sport Medicine. 2008; 52: 195-208.
Study design	RCT
Author affiliation	All authors affiliated with tertiary institutes.
Source of funds	This study was supported by unrestricted educational grants from the Bernard Osher Foundation and in part by the Beth Israel Deaconess Medical Center General Clinical Research Center grant (RR 01032) from the National Institutes of Health.
Declared interests of study authors	Some authors declared individual awards/supports received. No other conflicts of interest were formally declared
Setting / provider	Not specified
Country(s) / region	USA
Enrolment period	January 2002 and March 2003
Length of follow up (months)	3
Description of population	*N=* *Description*
participants	30 Heart failure, chronic (LVEF <40%)

Study ID	**Yeh 2004**		
details	*Inclusion criteria:* left ventricular ejection fraction ≤ 40% by ECG in the past year, maintenance on stable medical regimen, *Exclusion criteria:* unstable angina, myocardial infarction, cardiac surgery within past 3 months; uncontrolled cardiac arryhthmias; major structural valvular disease; current cardiac rehabilitation program participation; lower extremity amputation; congnitive dysfunction; inability to speak English.		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	15	Tai Chi: 1 hour group classes twice weekly for 12 weeks. 5 core movements adapted from Yang-style short form. Patients encouraged to practice at home at least 3 times per week.	
Comparator #1 (control)	15	Control (usual activities): NOTE - More than three quarters (77%) of patients reported some regular physical activity at home, such as walking. Similar proportions of patients in each group reported exercising (intervention: 14/15; control: 12/14). The duration of exercise ranged from 5 to 65 minutes, and the frequency ranged from once a week to daily.	
Comparator #2 (other)	--	--	
Comparator #3 (other)	--	--	
Co-interventions	Usual care including pharamcologic therapy, dietary counselling, general exercise advice		
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C	Each class supervised by a physician. Tai Chi movements developed by experienced Tai Chi instructor

Study ID	**Yeh 2004**					
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	HRQoL	Baseline (wk 0), during intervention (wk 6) and end of treatment (wk 12)	Minnesota Living with Heart Failure Questionnaire	Self-assessment of physical, psychological, and socioeconomic dimensions of illness.	Scores range from 0 to 105, with a lower score denoting a more favorable functional status
2	Primary	Activities of daily living	Baseline (wk 0), during intervention (wk 6) and end of treatment (wk 12)	6-minute walk test	Measures the distance walked at a comfortable pace.	Standard scripted instructions provided by unblinded assessor
3	Primary	Exercise capacity	Baseline (wk 0) and end of treatment (wk 12)	Symptom-limited exercise test	Performed on an electronically calibrated bicycle, with expired gas analysis under continuous ECG monitoring. BP taken at 3-minute intervals.	Performed by blinded assessor. Peak values were averaged from the final 20 seconds of the test. Respiratory gas analysis performed on a breath-by-breath basis using a Sensormedic metabolic cart.
4	Secondary	Biomarkers	Baseline (wk 0), during intervention (wk 6) and end of treatment (wk 12)	B-type natriuretic peptide	Samples analysed on whole blood collection using fluorescence immunoassay.	Serum levels >100 pg/mL support a diagnosis of symptomatic heart failure
5	Secondary	Biomarkers	Baseline (wk 0), during intervention (wk 6) and end of treatment (wk 12)	Norephinephrine	Analyses were performed using high-performance liquid chromatography/ electrochemical detection	

Study ID	Yeh 2004					
6	Secondary	Biomarkers	Baseline (wk 0) and end of treatment (wk 12)	24-hour continuous ambulatory ECG monitoring	Assess prevalence and frequency of cardiac arryhthmias.	Verified by experienced and blinded assessor
7	--					
8	--					
Method of analysis						
Statistics	Analyses performed using SAS version 8. Two-sample Wilcoxon rank sum tests that adjusted for baseline scores were used to compare the distribution of changes after 12 weeks between treatment and control groups. <0.05 statistically signficant					
Population analysed	Intent-to-treat					
Missing data	Yes	For three patients in the control group, last observation carried forward was used for the outcome of metabolic stress test and Holter data. For one patient in the control group, last observation carried forward was used for the outcome of 6 minute walk test and cardiac CE33biomarkers				

Characteristics of included studies	Heart failure	
Study ID	**Yeh 2011**	
Study reference	Yeh GY, McCarthy EP, Wayne PM, Stevenson LW, Wood MJ, Forman D, et al. Tai chi exercise improves quality of life in patients with chronic stable heart failure in a randomized controlled trial. Journal of Cardiac Failure. 2010; 16(11): 911. Yeh GY, McCarthy EP, Wayne PM, Stevenson LW, Wood JM, Forman D, et al. Tai chi exercise in patients with chronic heart failure: a randomized clinical trial. Archived International Medicine. 2011; 171(8): 750-757. Yeh G, Chan C, Wayne P. Conboy L. The impact of tai chi exercise program on patients with chronic heart failure: qualitative analysis from a randomized controlled trial. Journal of Alternative and Complementary Medicine. 2014; 20(5) A69-70. Yeh GY, Mu L, Davis RB & Wayne PM. Correlates of exercise self-efficacy in a randomized trial of mind-body exercise in patients with chronic heart failure. Journal of Cardiopulmonary Rehabilitation and Prevention. 2016; 36(3): 186-194. Yeh GY, Chan CW, Wayne PM & Conboy L. The impacts of tai chi exercise on self-efficacy, social support, and empowerment in heart failure: insights from a qualitative sub-study from a randomized controlled trial. PLOS One. 2016; 11(5): e0154678	
Study design	RCT	
Author affiliation	Four authors affiliated with tertiary institutes. Seven authors affiliated with hospitals and medical practices.	
Source of funds	Study supported by the R01AT002454 award from the National Centre for Complementary and Alternative Medicince and in part by grant RR01032 from the Beth Israel Deaconess Medical Centre from the National Institute of Health. Some authors received individual funding grants.	
Declared interests of study authors		
Setting / provider	Outpatient - academic medical centres	
Country(s) / region	USA	Boston
Enrolment period	Not available	
Length of follow up (months)	3	
Description of population	*N=*	*Description*
participants	100	Heart failure, chronic (LVEF <40%, NYHA class I-III)

Study ID	**Yeh 2011**		
details	*Inclusion criteria:* physician diagnosis of **chorinc systolic heart failure**; left ventricular ejection fraction 40% or lower in the past 2 years; stable medical regimen for the past 3 months; NY Heart Association class I, II or III heart failure *Exclusion criteria:* unstable angina or myocardial infarction in the past 3 months; major cardiac surgery within the past 3 months; history of cardiac arrest in the past 6 months; history of cardiac resynchronization therapy in the past 3 months; unstable serious ventricular arrhythmias; unstable structal valvular disease; current participation in conventional cardiac rehabilitation program; peripartum cardiomyopathy; severe cognitive dysfunction; inabilty to perform bicycle test; lower extremity amputation; inablilty to speak English; regular practice of Tai Chi		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	50	Tai Chi: 1 hour group classes twice weekly for 12 weeks. Adapted from Yang style. Chairs were provided for resting. 35-minute instructional video provided and participants encouraged to practice at home at least 3 times per week.	
Comparator #1 (control)	--	--	
Comparator #2 (other)	50	Wellness education program: 1 hour sessions twice weekly for 12 weeks. Led by nurse practitioner.	
Comparator #3 (other)	--	--	
Co-interventions	Usual care which included pharmacologic therapy and general exercise advice. Educational pamphlet (one per week)		
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Tai Chi taught by 1 or 2 certified and experienced instructors

Study ID	**Yeh 2011**					
Is there an inactive comparator?	No	Comparison=other				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Cardiorespiratory fitness	Baseline (wk 0), mid treatment (wk 6) and end of treatment (wk 12)	Peak oxygen uptake	Electronically calibrated upright bicycle, with expired gas analysis under continuous ECG monitoring. BP measured at 3 minute intervals.	
2	Not specified	Cardiorespiratory fitness	Baseline (wk 0), mid treatment (wk 6) and end of treatment (wk 12)	6-minute walk test	Conducted on each of 3 occasions, at least 2 hours before bicycle test.	
3	Not specified	Functional mobility	Baseline (wk 0), mid treatment (wk 6) and end of treatment (wk 12)	Timed Up and Go funtional assessment	Measures the time needed to stand up from a chair, walk 3 meters, turn around a cone, walk back and return to a seated position as quickly as possible	
4	Not specified	HR QoL	Baseline (wk 0), mid treatment (wk 6), end of treatment (wk 12) and follow-up (6 months)	Minnesota Living with Heart Failure Questionnaire (MLHFQ)	Lower score denoting better quality of life	
5	Not specified	Psychosocial wellbeing	Baseline (wk 0), mid treatment (wk 6) and end of treatment (wk 12)	Profile of Mood states	A decreased total mood disturbance score denotes and improved emotional state	

Study ID	Yeh 2011				
6	Not specified	Psychosocial wellbeing	Baseline (wk 0), mid treatment (wk 6) and end of treatment (wk 12)	Cardiac Exercise Self-efficiancy instrument	Higher score denotes increased self-efficacy
7	Not specified	Cardiac biomarkers	Baseline (wk 0) and end of treatment (wk 12)	B-type natriuretic peptide, Catecholamines, CRP	
8	--				
Method of analysis					
Statistics	All statistical analyses were performed on an intention-totreat basis. Two-sample Wilcoxon rank-sum tests were used to compare the distribution of change from baseline to 12 weeks between groups. We calculated both means and medians (first and third quartiles) to summarize continuous data. For primary and secondary outcomes, we also adjusted for baseline values of the outcome variables; we fit a least-squares regression model for each outcome that included baseline value plus treatment indicator and report adjusted P values for treatment based on the Wald test.				
Population analysed	Intent-to-treat				
Missing data	No	4% of participants (4/100) were lost to follow-up: 1 in the intervention and 3 in the control group. Authors did not impute data but used data available for the patients who were observed at 12 weeks.			

Characteristics of included studies	Heart failure	
Study ID	**Yeh 2013**	
Study reference	Yeh GY, Wood MJ, Wayne PM, Quilty MT, Stevenson LW, Davis RB, et al. Tai chi in patients with heart failure with preserved ejection fraction. Congestive Heart Failure, 2013; 19(2): 77-84.	
Study design	RCT	
Author affiliation	Five authors affiliated with tertiary institute. All authors affiliated with hosptials and medical centres	
Source of funds	This study was supported by an award from the National Center for Complementary and Alternative Medicine (Yeh, K23 AT00002624) and in part by the Beth Israel Deaconess Medical Center General Clinical Research Center grant (RR 01032) from the NIH.	
Declared interests of study authors	Not available	
Setting / provider	Community	
Country(s) / region	USA	
Enrolment period	Not available	
Length of follow up (months)	3	
Description of population	*N=*	*Description*
participants	16	Heart failure, chronic with preserved ejection fraction (LVEF >/=50%, NYHA class I-III)

Study ID	**Yeh 2013**		
details	*Inclusion criteria:* physician diagnosis of **HFPEF**; New York Heart Association functional class I, II or III; **left ventricular ejection fraction ≥ 50%** (by echocardiography, radionuclide angiography or contrast angiography) within 2 years of screening. *Exclusion criteria:* unstable angina, myocardial infarction or major cardiac surgery in the past 3 months; cardiac arrest in the past 6 months; significant valvular or pericardial disease accounting for signs and symptoms of heart failure; severe CPOD or chronic lung disease; moderate or severe pulmonary hypertension; atrial fibrillation; severe peripheral vascular disease, claudication or other physical condition that would preclude a walk test ; inability to perform bicycle ergometry; technically inadequate echocardiographic windows or valvular conditions precluding assessment of diastolic function; cognitive dysfunction; non-English speaking; current participation in conventional cardiac rehabilitation or regular practice of tai chi		
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	8	Tai Chi: 1 hour group classes twice weekly for 12 weeks. Movements adapted from Yang style. Participants provided with a 35-minute instructional video and encouraged to practice at home at least 3 times per week.	
Comparator #1 (control)	--	--	
Comparator #2 (other)	8	Conventional physical exercise (low impact aerobic): 1 hours sessions twice weekly for 12 weeks under the guidance of an experienced instructor. Low-impact exercises offered at local community centre. Hand weights and resistance bands were optional. Participants provided with a 35-minute instructional video and encouraged to practice at home at least 3 times per week.	
Comparator #3 (other)	--	--	
Co-interventions	Usual care including pharmacologic therapy and general exercise advice.		
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C	Classes provided under guidance of experienced instructor. Unclear if they are experienced in Tai Chi

Study ID	**Yeh 2013**					
Is there an inactive comparator?	No	Comparison=other				
Outcomes (measure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Cardiorespiratory fitness	Baseline (wk 0) and end of treatment (wk 12)	Peak oxygen uptake	Completed using an electronically calibrated upright bicycle and continuous ECG monitoring. Patients were encouraged to exercise to exhaustion.	Gas exchange was assessed using a SensorMedics metabolic cart. Peak oxygen uptake (VO2) values were averaged from the final 20 seconds of the test.
2	Not specified	Cardiorespiratory fitness	Baseline (wk 0) and end of treatment (wk 12)	6-minute walk test		
3	Not specified	Physical activity	Baseline (wk 0) and end of treatment (wk 12)	CHAMPS- Physical Activity Questionnaire for Older Adults	Captures weekly frequency and total time spent in different activities and allows estimation of caloric expenditure	Community Healthy Activities Model Program for Seniors
4	Not specified	HR QoL	Baseline (wk 0) and end of treatment (wk 12)	Minnesota Living with Heart Failure Questionnaire (MLHFQ)	Lower score denoting better quality of life	
5	Not specified	Psychosocial wellbeing	Baseline (wk 0) and end of treatment (wk 12)	Profile of Mood states	A decreased total mood disturbance scrore denotes and improved emotional state	

Study ID	Yeh 2013				
6	Not specified	Psychosocial wellbeing	Baseline (wk 0) and end of treatment (wk 12)	Cardiac Exercise Self-efficiancy instrument	Higher score denotes increased self-efficacy
7	Not specified	Cardiac biomarkers	Baseline (wk 0) and end of treatment (wk 12)	B-type natriuretic peptide, Catecholamines, CRP	
8	Not specified	Cardiac function	Baseline (wk 0) and end of treatment (wk 12)	ECG	includes mitral annular tissue Doppler measures, strain, strain rate, and flow propagation velocity
Method of analysis					
Statistics	All statistical analyses were performed on an intention-to-treat basis. Two-sample Wilcoxon rank-sum tests were used to compare the distribution of change from baseline to 12 weeks between treatment and control groups for exercise and functional parameters, questionnaire scores, echocardiographic indices and BNP.				
Population analysed	Intent-to-treat				
Missing data	Uncertain	Unclear if any participants were lost to follow-up or how missing data was handled.			

Characteristics of included studies	Chronic obstructive pulmonary disease	
Study ID	**Chan 2010**	
Study reference	Chan AWK, Lee A, Suen LKP, Tam WWS. Effectiveness of a Tai chi Qigong program in promoting health-related quality of life and perceived social support in chronic obstructive pulmonary disease clients. Qual Life Res. 2010:1-12. Chan AW, Lee A, Suen LK, Tam WW. "Effectiveness of a Tai chi Qigong program in promoting health-related quality of life and perceived social support in chronic obstructive pulmonary disease clients": Erratum. Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care & Rehabilitation. 2010;19(8):1241. Chan WK. Evaluation of a Tai Chi Qigong program in promoting physiological and psychosocial health statuses in chronic obstructive pulmonary disease clients. Dissertation Abstracts International: Section B: The Sciences and Engineering. 2013;73(8-B(E)):No Pagination Specified. ISRCTN70785677	
Study design	RCT	Computer-generated random sequence
Author affiliation	All authors were affiliated with universities in Hong Kong	
Source of funds	Health and Health Services Research Fund (Hong Kong)	
Declared interests of study authors	No information provided.	
Setting / provider	Outpatient clinics	
Country(s) / region	Hong Kong SAR, China	
Enrolment period	MAR 2008 - FEB 2010	
Length of follow up (months)	12 weeks	
Description of population	*N=*	*Description*
participants	206	Chronic obstructive pulmonary disease (FEV1 <70%)
details	*Inclusion criteria:* clinically diagnosed COPD with FEV1/FVC < 0.7, poorly reversible with bronchodilators, able to walk independently *Exclusion criteria:* severe sensory of cognitive impairment, symptomatic ischaemic heart disease, experience of Tai Chi Qigong within 1 year prior	

Characteristics of included studies	Chronic obstructive pulmonary disease					
Study ID	**Chan 2010**					
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	70	Tai Chi Qijong (TCQ) - 2x 60min sessions per week for 3 months The intervention consisted of 13 movements of Breathing Regulating Tai Chi Qigong, designed for easy learning and mastery in a shorter period. The 13 forms were referred to two TCQ experts to ensure validity and feasibility for use with COPD clients.				
Comparator #1 (control)	67	Control: Maintain usual routine				
Comparator #2 (other)	69	Exercise - 7x 60min sessions per week (daily) for 3 months Subjects in the exercise group were taught pursed-lip breathing and diaphragmatic breathing techniques. They performed breathing with walking as physical exercsie.				
Comparator #3 (other)	--	--				
Co-interventions	Usual care. All subjects continued their prescribed medical treatments. Subjects in the exercise and control groups were arranged to join community activities, such as Putonghua or writing classes, to ensure that all groups consistently attended weekly gatherings.					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	The TCQ class was led by a qualified TCQ master.			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies	Chronic obstructive pulmonary disease					
Study ID	**Chan 2010**					
1	Primary	Respiratory health	Baseline, mid (6 wks), end of treatment (3 mos), and followup (6 mos)	Measured by spirometry	Not reported	Outcome specified in trial registry, not reported
2	Primary	Functional capacity	Baseline, mid (6 wks), end of treatment (3 mos), and followup (6 mos)	6 minute walk test	Maximum distance an individual is able to walk in 6 minutes	Outcome specified in trial registry, not reported
3	Primary	COPD-Symptoms	Baseline, mid (6 wks), end of treatment (3 mos), and followup (6 mos)	St George Respiratory Questionnaire - Symptoms	scored from 0 to 100 where 0 is perfect health and 100 is the worst health (MCID is a change of 4 units)	The distress caused by respiratory symptoms
4	Primary	Functional capacity	Baseline, mid (6 wks), end of treatment (3 mos), and followup (6 mos)	St George Respiratory Questionnaire - Activity	scored from 0 to 100 where 0 is perfect health and 100 is the worst health (MCID is a change of 4 units)	Physical activities that cause or a limited by breathlessness
5	Primary	Psychosocial wellbeing	Baseline, mid (6 wks), end of treatment (3 mos), and followup (6 mos)	St George Respiratory Questionnaire - Impact	scored from 0 to 100 where 0 is perfect health and 100 is the worst health (MCID is a change of 4 units)	Social functioning, psychological disturbances resulting from airway disease

Characteristics of included studies	Chronic obstructive pulmonary disease					
Study ID	**Chan 2010**					
6	Primary	HRQoL	Baseline, mid (6 wks), end of treatment (3 mos), and followup (6 mos)	St George's Respiratory Questionnaire -Total - Chinese Version	scored from 0 to 100 where 0 is perfect health and 100 is the worst health (MCID is a change of 4 units)	The distress caused by respiratory symptoms
7	Secondary	Perceived Social Support	Baseline, mid (6 wks), end of treatment (3 mos), and followup (6 mos)	Multidimensional scale of perceived social support (12-items)	7-point Likert scale for each item (total score ranges from 12 to 84). Examines self-perceived social support from social relationships	higher values indicating better support
8	--	Level of dyspnoea	Baseline, mid (6 wks), end of treatment (3 mos), and followup (6 mos)	Borg scale for dyspnoea	Not reported	
9	--					
10	--					
11	--					

Characteristics of included studies	Chronic obstructive pulmonary disease
Study ID	**Chan 2010**
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Characteristics of included studies	Chronic obstructive pulmonary disease	
Study ID	**Chan 2010**	
19	--	
20	--	
Method of analysis		
Statistics	Descriptive, repeated measures analysis of variance.	
Population analysed	Intent-to-treat	In the case of withdrawals, data were carried forward. Per protocol was also conducted.
Missing data	Yes	A total of 48 participants dropped out of the trial: 10 in the intervention group (14.3%) and 19 in each of the control groups (28.3% in the inactive control, 27.5% in the exercise group). At 6-month follow up, 78 participants had dropped out: 20 in the intervention group (28.6%), 23 in the exercise group (33.3%) and 35 in the control group (52.2%).

Characteristics of included studies	Chronic obstructive pulmonary disease	
Study ID	**Kantatong 2019**	
Study reference	Kantatong T, Panpanich R, Deesomchok A, Sungkarat S, Siviroj P. Effects of the tai chi qigong programme on functional capacity, and lung function in chronic obstructive pulmonary disease patients: A ramdomised controlled trial. Journal of Traditional and Complementary Medicine. 2019. TCTR20180302006	
Study design	RCT	Stratified randomisation (blocks of 4) by drawing lots.
Author affiliation	All authors were affiliated with a university in Thailand	
Source of funds	Faculty of Medicine, Chiang Mai University	
Declared interests of study authors	The authors declared no potential conflicts of interest	
Setting / provider	Community	
Country(s) / region	Chiang Mai, Thailand	
Enrolment period	NOV 2015 - NOV 2016	
Length of follow up (months)	3 months	
Description of population	*N=*	*Description*
participants	50	Chronic obstructive pulmonary disease
details	*Inclusion criteria:* 40+ years old, able to walk independently *Exclusion criteria:* acute exacerbation within 4 weeks before starting study, significant cognitive impairment, tuberculosis, asthma, and musculoskeletal, pschyological, cardiovasuclar or benign conditions that preclude exercise.	

Characteristics of included studies	Chronic obstructive pulmonary disease						
Study ID	**Kantatong 2019**						
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*					
Intervention	25	Tai Chi Qigong - 3x ?min sessions per week + 2 sessions home practice per week for 12 weeks The intervention group received a modified 8-form Tai Chi Qigong. For home practice, they were given a poster with the movements to simplify self-practice. After 12 weeks of group practice, participants were encouraged to continue home practice, 3 times per week for an additional 12 weeks. Weekly phone calls and monthly home visits were implemented to facilitate adherence.					
Comparator #1 (control)	--	--					
Comparator #2 (other)	25	Weekly meetings - once a week for 12 weeks Subjects in the control group attended weekly meetings for 12 weeks to share their health experience.					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Tai Chi conducted under supervision of a certified TCQ instructor				
Is there an inactive comparator?	No	Comparison=other	Weekly meetings (attention control)				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*	

Characteristics of included studies	Chronic obstructive pulmonary disease					
Study ID	**Kantatong 2019**					
1	Primary	Functional capacity	Baseline, mid (6 wks), end of treatment (12 wks), and followup (24 wks)	6 minute walk test	Maximum distance an individual is able to walk in 6 minutes	
2	Primary	Lung function	Baseline, mid (6 wks), end of treatment (12 wks), and followup (24 wks)	Forced expiratory volume in 1 s	Measured by spirometry	
3	Primary	Lung function	Baseline, mid (6 wks), end of treatment (12 wks), and followup (24 wks)	Forced vital capacity	Measured by spirometry	
4	Secondary	COPD-Symptoms	Baseline, mid (6 wks), end of treatment (12 wks), and followup (24 wks)	St George Respiratory Questionnaire - Symptoms	scored from 0 to 100 where 0 is perfect health and 100 is the worst health (MCID is a change of 4 units)	The distress caused by respiratory symptoms
5	Secondary	Functional capacity	Baseline, mid (6 wks), end of treatment (12 wks), and followup (24 wks)	St George Respiratory Questionnaire - Activity	scored from 0 to 100 where 0 is perfect health and 100 is the worst health (MCID is a change of 4 units)	Physical activities that cause or a limited by breathlessness

Characteristics of included studies		Chronic obstructive pulmonary disease				
Study ID	**Kantatong 2019**					
6	Secondary	Psychosocial wellbeing	Baseline, mid (6 wks), end of treatment (12 wks), and followup (24 wks)	St George Respiratory Questionnaire - Impact	scored from 0 to 100 where 0 is perfect health and 100 is the worst health (MCID is a change of 4 units)	Social functioning, psychological disturbances resulting from airway disease
7	Secondary	Level of dyspnoea	Baseline, mid (6 wks), end of treatment (12 wks), and followup (24 wks)	modified Medical Research Council Dyspnea Scale (mMRC) - Thai version	Scale from 0 to 4, where 0 indicates "only gets breathless with strenuous exercise) and 4 indicates "too breathless"	
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Characteristics of included studies	Chronic obstructive pulmonary disease
Study ID	**Kantatong 2019**
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Characteristics of included studies	Chronic obstructive pulmonary disease	
Study ID	**Kantatong 2019**	
19	--	
20	--	
Method of analysis		
Statistics	Independent t-tests and chi-squared tests to assess differences between groups at baseline and again at 24 weeks, paired t-test to compare difference within groups.	
Population analysed	Intent-to-treat	No details given.
Missing data	No	No participants dropped out during the study.

Characteristics of included studies	Chronic obstructive pulmonary disease
Study ID	**Leung 2011**
Study reference	Leung RW, Alison JA, McKeough ZJ, Peters MJ. A study design to investigate the effect of short-form Sun-style Tai Chi in improving functional exercise capacity, physical performance, balance and health related quality of life in people with Chronic Obstructive Pulmonary Disease (COPD). Contemp Clin Trials. 2011;32(2):267-72. Leung RWM, McKeough Z, Peters M, J A. Short-form Sun-style Tai Chi as an exercise training modality in people with COPD: a randomised controlled trial. European respiratory journal: european respiratory society annual congress, vienna, austria, september 1-5. 2012;40(Suppl 56):637s [P3522]. Leung R, McKeough Z, Peters M, Alison J. Tai chi improves walking capacity, balance, quadriceps strength and quality of life in people with COPD. Respirology. 2012;1):32. Leung RW, McKeough ZJ, Peters MJ, Alison JA. Short-form Sun-style t'ai chi as an exercise training modality in people with COPD. Eur Respir J. 2013;41(5):1051-7. ACTRN12608000383369
Study design	RCT Computerised phone dial-up system, with minimisation for lung function, gender and the main limiting s
Author affiliation	Two authors were associated with a public hospital, and two authors were associated with a university in Australia
Source of funds	Physiotherapy Research Foundation and Physiotherapy Registration Board
Declared interests of study authors	The authors declared no potential conflicts of interest
Setting / provider	Community
Country(s) / region	Sydney, Australia
Enrolment period	JUN 2007 - OCT 2010
Length of follow up (months)	Not reported, assume no follow up
Description of population	*N=* *Description*
participants	42 Chronic obstructive pulmonary disease
details	*Inclusion criteria:* GOLD criteria I to IV *Exclusion criteria:* acute exacerbation of COPD within the 4 weeks before starting the study, had participated in formal exercise training in the previous 12 months, significant comorbidities including malignancy, symptomatic cardiovasuclar disease, other systemic musculoskeletal disease, required supplemental oxygen during training

Characteristics of included studies	Chronic obstructive pulmonary disease						
Study ID	**Leung 2011**						
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*					
Intervention	22	Tai Chi (Sun style): 2x 60 min sessions per week for 12 weeks. The intervention consised of a short-form Sun-style Tai Chi which included 21 forms, also known as Tai Chi for arthritis. Participants learned 2 to 3 forms per week, and by week 8 they had completed learning of all 21 forms. Participants aimed to train at a moderate level of breathlessness or exertion. Participants were also encouraged to focus on breathign rhythm. In addition to the two supervised training sessions per week, participants were encouraged to practice at home the other 5 days per week.					
Comparator #1 (control)	20	Control - usual care					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A					
Is there an inactive comparator?	Yes	Comparison=control					
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*	

Characteristics of included studies	Chronic obstructive pulmonary disease				
Study ID	**Leung 2011**				
1	Primary	Functional capacity	Baseline, end of treatment (12 wks)	Endurance shuttle walk test	Performed twice at each time point, with the better of each measurement used for analysis.
2	Secondary	Functional capacity	Baseline, end of treatment (12 wks)	Incremental shuttle walk test	Performed twice at each time point, with the better of each measurement used for analysis.
3	Secondary	Functional capacity	Baseline, end of treatment (12 wks)	Modified physical performance battery test	5 repeated chair stands, standing balance for 30s, unsupported single-leg stance for 30s, six-metre walk test with normal speed, six-metre narrow walk test.
4	Secondary	Balance	Baseline, end of treatment (12 wks)	Body sway tests, side-by-side stand	Two standing positions without support for 30s
5	Secondary	Balance	Baseline, end of treatment (12 wks)	Body sway tests, semi-tandem stand	Two standing positions without support for 30s

Characteristics of included studies	Chronic obstructive pulmonary disease					
Study ID	**Leung 2011**					
6	Secondary	Balance	Baseline, end of treatment (12 wks)	Functional reach	Three trials, with the best measurement being recorded.	
7	Secondary	Physical health	Baseline, end of treatment (12 wks)	Quadriceps isokinetic strength test	Using Kin Com, with speed at 90 degrees per second. Three trials with the best measurement being recorded.	
8	Secondary	Level of dyspnoea	Baseline, end of treatment (12 wks)	Chronic Respiratory Disease questionnaire	Dyspnoea domain (5 questions)	0.5 change in mean score is MCID
9	Secondary	Psychosocial wellbeing	Baseline, end of treatment (12 wks)	Chronic Respiratory Disease questionnaire	Fatigue (4 questions)	0.5 change in mean score is MCID
10	Secondary	Psychosocial wellbeing	Baseline, end of treatment (12 wks)	Chronic Respiratory Disease questionnaire	Emotional function (7 questions)	0.5 change in mean score is MCID
11	Secondary	Self-efficacy	Baseline, end of treatment (12 wks)	Chronic Respiratory Disease questionnaire	Mastery (4 questions)	0.5 change in mean score is MCID

Characteristics of included studies	Chronic obstructive pulmonary disease					
Study ID	**Leung 2011**					
12	Secondary	HR QoL - disease specific	Baseline, end of treatment (12 wks)	Chronic Respiratory Disease questionnaire	Total score	
13	Secondary	Psychosocial wellbeing	Baseline, end of treatment (12 wks)	Hospital Anxiety and Depression Scale	Anxiety sub-scale, 7 questions	
14	Secondary	Psychosocial wellbeing	Baseline, end of treatment (12 wks)	Hospital Anxiety and Depression Scale	Depression sub-scale, 7 questions	
15	Secondary	Functional capacity	Baseline, end of treatment (12 wks)	Functional Performance Inventory (12-items)	Perceived difficulty in functional performance. 6 sub-scales: body care (9 items), household maintenance (21 items), physical exercise (7 items), recreation (11 items), spiritual activities (5 items), and social activities	Validated in people with COPD. Self-report questionnaire.
16	Secondary	Acceptance and compliance of Tai Chi	Baseline, end of treatment (12 wks)	Investigator-designed survey		
17	Secondary	Exercise intensity	Baseline, end of treatment (12 wks)	Physiological responses	Oxygen consumptionm carbon dioxide production, tidal volume, breathing frequency, and minute ventilation	(intervention group only)
18	--					

Characteristics of included studies	Chronic obstructive pulmonary disease	
Study ID	**Leung 2011**	
19	--	
20	--	
Method of analysis		
Statistics		
Population analysed	Intent-to-treat	No details given.
Missing data	Yes	Overall, 4 participants (9.5%) dropped out of the trial. There were 3 drop outs (13.6%) in the intervention group, and 1 (5%) in the control group. No attempt was made to adjust for these missing value or assess their significance.

Characteristics of included studies	Chronic obstructive pulmonary disease
Study ID	**Ng 2014**
Study reference	Ng L, Chiang LK, Tang R, Siu C, Fung L, Lee A, et al. Effectiveness of incorporating Tai Chi in a pulmonary rehabilitation program for Chronic Obstructive Pulmonary Disease (COPD) in primary care-A pilot randomized controlled trial. European Journal of Integrative Medicine. 2014;6(3):248-58. NCT01259245
Study design	RCT Random number sequences using Microsoft Excel
Author affiliation	The authors were associated with a hospital and a univeristy in Hong Kong
Source of funds	Health Services Research Fund, Food and Health Bureau, Hong Kong SAR Government
Declared interests of study authors	The authors declared no potential conflicts of interest
Setting / provider	Community
Country(s) / region	Hong Kong SAR, China
Enrolment period	MAR 2011- MAY 2012
Length of follow up (months)	4.5 months
Description of population	*N=* *Description*
participants	192 Chronic obstructive pulmonary disease
details	*Inclusion criteria:* Medical Research Council MRC dyspnea score >=2, decreased FEV/FVC <70%, poorly reversible with bronchodilators *Exclusion criteria:* poor mobility, severe sensory or cognitive impairment, severe co-morbidities including acute MI in preceeding 6 months, practiced Tai Chi within a year prior to commencement

Characteristics of included studies	Chronic obstructive pulmonary disease					
Study ID	**Ng 2014**					
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	94	Tai Chi (Sun Style) - 2x 15min sessions per week for 6 weeks at the end of usual pulmonary rehabilitation sessions. The intervention group received 15 minutes of Sun Style Tai Chi during their usual pulmonary rehabilitation sessions which lasted 80 mins. The Tai Chi program included 5 forms and was taught by an accrediated Tai Chi physiotherapist.				
Comparator #1 (control)	--	--				
Comparator #2 (other)	98	Relaxation exercises - 2x 15min sessions per week for 6 weeksat the end of usual pulmonary rehabilitation sessions.				
Comparator #3 (other)	--	--				
Co-interventions	Both groups received the regular pulmonary rehabilitation program. Each session lasted 80 mins and consisted of 5 min warm up, two aerobic activities for 20 min each, 5 min cool down and 15 min relaxation. In the Tai Chi group, Tai chi replaced the relaxation exercises at the end. Both groups were also encouraged to practice at home for 60 mins daily. Both groups received a 30 min education session.					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A				
Is there an inactive comparator?	No	Comparison=other	Relaxation exercises			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies	Chronic obstructive pulmonary disease					
Study ID	**Ng 2014**					
1	Primary	COPD-Symptoms	Baseline, 2 months, 6 months	St George Respiratory Questionnaire, symptom domain - Hong Kong Chinese version	scored from 0 to 100 where 0 is perfect health and 100 is the worst health (MCID is a change of 4 units)	The distress caused by respiratory symptoms
2	Primary	Functional capacity	Baseline, 2 months, 6 months	St George Respiratory Questionnaire, activity domain - Hong Kong Chinese version	scored from 0 to 100 where 0 is perfect health and 100 is the worst health (MCID is a change of 4 units)	Physical activities that cause or a limited by breathlessness,
3	Primary	Psychosocial wellbeing	Baseline, 2 months, 6 months	St George Respiratory Questionnaire, impact domain - Hong Kong Chinese version	scored from 0 to 100 where 0 is perfect health and 100 is the worst health (MCID is a change of 4 units)	Social functioning, psychological disturbances resulting from airway disease
4	Primary	HR QoL	Baseline, 2 months, 6 months	St George Respiratory Questionnaire, total - Hong Kong Chinese version	50 items with 76 weighted responses, total score caluclated from all three categories.	0 is best health, 100 indicates worst health.
5	Primary	Self-efficacy	Baseline, 2 months, 6 months	COPD self-efficacy scale	34-item instrument measuring confidence in managing breathing difficulties. Can be measured by raw score out of 170 or an average rating score taking into account that some items might not be answered by each participant.	Average score was used for this study

Characteristics of included studies	Chronic obstructive pulmonary disease				
Study ID	**Ng 2014**				
6	Primary	Self-efficacy	Baseline, 2 months, 6 months	Self-efficacy for managing shortness of breath	Single question, 1-10 scale that measures overall confidence in managing breathing difficulties.
7	Secondary	Pulmonary function	Baseline, 2 months, 6 months	Spirometry	FEV1, FVC and FEV1/FVC
8	Secondary	Functional capacity	Baseline, 2 months, 6 months	6 minute walk test	Conducted according to American Thoracic Society protocol
9	Secondary	Level of dyspnoea	Baseline, 2 months, 6 months	Borg score	Self-rated 10-point scale for percived shortness of breath during exercise
10	Secondary	Oxygen saturation	Baseline, 2 months, 6 months	Pulse oximetry	Before and after 6MWT
11	--				

Characteristics of included studies	Chronic obstructive pulmonary disease
Study ID	**Ng 2014**
12	--
13	--
14	--
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Characteristics of included studies	Chronic obstructive pulmonary disease	
Study ID	**Ng 2014**	
19	--	
20	--	
Method of analysis		
Statistics	Descriptive, paired t-test to examine differences before/after intervention within groups, analysis of covariance used to analyse differences between groups, with baseli	
Population analysed	Intent-to-treat	For participants lost to follow up, last observation was carried forward.
Missing data	Yes	Overall, 54 participants (28%) were lost to follow up. This was roughly equal between groups: 28 dropped out in the control arm (28.6%), and 26 dropped out in the Tai Chi arm (27.6%). Reasons for drop out are given, but it is not stated how many dropped out for each reason. No attempt was made to adjust for this missing data or assess its significance.

Characteristics of included studies	Chronic obstructive pulmonary disease	
Study ID	**Niu 2013**	
Study reference	Niu RC, He RX, Luo BL, Hu CP. The effect of Tai Chi on lung function, exercise capacity and diaphragm strength in people with chronic obstructive pulmonary disease. Respirology. 2013;4):26. Niu R, He R, Luo BL, Hu C. The effect of tai chi on chronic obstructive pulmonary disease: a pilot randomised study of lung function, exercise capacity and diaphragm strength. Heart Lung Circ. 2014;23(4):347-52.	
Study design	RCT	Computer-generated random number sequence
Author affiliation	The authors were associated with a university in China.	
Source of funds	Self-funded	
Declared interests of study authors	The authors declared no potential conflicts of interest	
Setting / provider	Outpatients	
Country(s) / region	Hunan Province, China	
Enrolment period	JAN 2011- JUN 2011	
Length of follow up (months)	Not reported, assume no follow up	
Description of population	*N=*	*Description*
participants	40	Chronic obstructive pulmonary disease (moderate-severe)
details	*Inclusion criteria:* FEV1 < 65% predicted, FEV/FVC < 70% predicted, >45 years of age *Exclusion criteria:* COPD exacerbation within the past month, planned major pulmonary intervention within the next six months, severe peripheral vascular disease or other physical condition that would prevent a 6-minute walk test, severe cognitive dysfunction (mini mental state exam <24)	

Characteristics of included studies	Chronic obstructive pulmonary disease					
Study ID	**Niu 2013**					
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	20	Tai Chi - 4x 50min sessions per week + 3x sessions home practice for 6 months Each session consisted of a 10 minute warm up, 30 minutes of Tai Chi program and 10 minute relaxation. The intensity of the program was adjusted for each patient according to their toleration of the program. Participants were given a workout diary to record their home practice.				
Comparator #1 (control)	20	Control - routine medical care including medication, lip breathing and walking for 30 minutes daily				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A				
Is there an inactive comparator?	No	Comparison=other	Walking			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies	Chronic obstructive pulmonary disease				
Study ID	**Niu 2013**				
1	Primary	Pulmonary function	Baseline, end of treatment (6 mos)	Body plethysmography	Forced expiratory volume in 1 second (FEV1)
2	Primary	Pulmonary function	Baseline, end of treatment (6 mos)	Body plethysmography	FEV1 percentage of predicted normal value
3	Secondary	Functional capacity	Baseline, end of treatment (6 mos)	6 minute walk test	Maximum distance an individual is able to walk in 6 minutes
4	Secondary	Oesophageal pressure	Baseline, 6 months (after intervention)	Oesophageal catheter	Pressure measured by differential pressure transducer
5	Secondary	Gastric pressure	Baseline, 6 months (after intervention)	Oesophageal catheter	Pressure measured by differential pressure transducer

Characteristics of included studies	Chronic obstructive pulmonary disease				
Study ID	**Niu 2013**				
6	Secondary	Transdiaphragmatic pressure	Baseline, 6 months (after intervention)	Oesophageal catheter	Difference between gastric and oesophageal pressure
7	Not specified	Partial pressure of oxygen	Baseline, 6 months (after intervention)	Not specified	Not specified
8	Not specified	Partial pressure of carbon dioxide	Baseline, 6 months (after intervention)	Not specified	Not specified
9	Not specified	Adverse events	Throughout	Not specified	Muscle injury, injury from falls, dyspnoea, and induction of cardiovascular diseases
10	--				
11	--				

Characteristics of included studies	Chronic obstructive pulmonary disease
Study ID	**Niu 2013**
12	--
13	--
14	--
15	--
16	--
17	--
18	--

Characteristics of included studies	Chronic obstructive pulmonary disease	
Study ID	**Niu 2013**	
19	--	
20	--	
Method of analysis		
Statistics	Descriptive, mean and standard error/ Compared using paired t-test for before/after, independent t-test for between groups.	
Population analysed	Per protocol	One patient dies before outcome measurement and was not included in the final analysis.
Missing data	Yes	One patient dies before outcome measurement and was not included in the final analysis.

Characteristics of included studies	Chronic obstructive pulmonary disease
Study ID	**Polkey 2017**
Study reference	Polkey M, Qiu Z, Zhou L, He Y, Ye S, Jiang M, et al. Comparison of the adjunctive effects of Tai Chi and pulmonary rehabilitation on the effect of indacaterol in treatment naive patients with COPD. American Journal of Respiratory and Critical Care Medicine Conference: American Thoracic Society International Conference, ATS. 2017;195(no pagination). Polkey MI, Qiu ZH, Zhou L, Zhu MD, Wu YX, Chen YY, et al. Tai Chi and Pulmonary Rehabilitation Compared for Treatment-Naive Patients With COPD: A Randomized Controlled Trial. Chest. 2018;153(5):1116-24. NCT02665130
Study design	RCT pseudorandomised No mention of randomisation method
Author affiliation	The authors were associated with a research unit in the UK, and a univeristy and hospital in China
Source of funds	Novartis, The State Key Laboratory of Respiratory Disease, NIHR Respiratory Biomedial Research Unit, UK, National Key Research Development Program of China
Declared interests of study authors	The authors declared no conflict of interest.
Setting / provider	Community, conducted in a hospital
Country(s) / region	Guangzhou, China
Enrolment period	DEC 2014 - AUG 2016
Length of follow up (months)	12 weeks
Description of population	*N=* *Description*
participants	120 Chronic obstructive pulmonary disease (GOLD II-IV)
details	*Inclusion criteria:* bronchodilator-naïve, aged 40-80 years, postbrochodilator FEV1 >= 25% and < 80% predicted, FEV1/FVC < 0.7 *Exclusion criteria:* NR

Characteristics of included studies	Chronic obstructive pulmonary disease					
Study ID	**Polkey 2017**					
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	60	Tai Chi (Yang style) - 5x 60 min sessions per week for 12 weeks The intervention delivered was Yang style Tai Chi with 24 forms. Participants were taugh 2-3 movements each day in small groups at the beginning of the trial, progressing up to a larger group practice once participants had mastered the movements				
Comparator #1 (control)	--	--				
Comparator #2 (other)	60	Pulmonary Rehabilitation Program - 3x 60 min sessions per week for 12 weeks Standard pulmonary rehabilitation based on standard UK practire. The training included resistance exercises, progressive aerobic exercises and educational sessions.				
Comparator #3 (other)	--	--				
Co-interventions	All participants received bronchodilators, indacaterol 150 ug once daily.					
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C				
Is there an inactive comparator?	No	Comparison=other	Pulmonary rehabilitation included reistance and aerobic exercise			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies	Chronic obstructive pulmonary disease					
Study ID	**Polkey 2017**					
1	Primary	COPD-Symptoms	Baseline, end of treatment (12 wks), followup (24 wks)	St George Respiratory Questionnaire, symptom domain	scored from 0 to 100 where 0 is perfect health and 100 is the worst health (MCID is a change of 4 units)	The distress caused by respiratory symptoms
2	Primary	Functional capacity	Baseline, end of treatment (12 wks), followup (24 wks)	St George Respiratory Questionnaire, activity domain	scored from 0 to 100 where 0 is perfect health and 100 is the worst health (MCID is a change of 4 units)	Physical activities that cause or a limited by breathlessness,
3	Primary	Psychosocial wellbeing	Baseline, end of treatment (12 wks), followup (24 wks)	St George Respiratory Questionnaire, impact domain	scored from 0 to 100 where 0 is perfect health and 100 is the worst health (MCID is a change of 4 units)	Social functioning, psychological disturbances resulting from airway disease
4	Primary	HR QoL	Baseline, end of treatment (12 wks), followup (24 wks)	St George Respiratory Questionnaire, total	50 items with 76 weighted responses, total score caluclated from all three categories.	0 is best health, 100 indicates worst health.
5	Secondary	Pulmonary function	Baseline, end of treatment (12 wks), followup (24 wks)	Spirometry, in line with American Thoracic Society guidelines	FEV1 (% predicted)	

Characteristics of included studies	Chronic obstructive pulmonary disease				
Study ID	**Polkey 2017**				
6	Secondary	Functional capacity	Baseline, end of treatment (12 wks), followup (24 wks)	6 minute walk test	Maximum distance an individual is able to walk in 6 minutes
7	Secondary	Level of dyspnoea	Baseline, end of treatment (12 wks), followup (24 wks)	Modified Medical Research Council dyspnea score	Scale from 0 to 4, where 0 indicates "only gets breathless with strenuous exercise) and 4 indicates "too breathless"
8	Secondary	Functional capacity	Baseline, end of treatment (12 wks), followup (24 wks)	Short physical performance battery score	
9	Secondary	General health	Baseline, end of treatment (12 wks), followup (24 wks)	Height, weight, BMI, fat-free mass	
10	Secondary	Physical health	Baseline, end of treatment (12 wks), followup (24 wks)	Quadriceps maximum voluntary contraction force in the dominant leg	
11	Secondary	Physical activity	Baseline, end of treatment (12 wks), followup (24 wks)	ActiGraph over 7 days	

Characteristics of included studies	Chronic obstructive pulmonary disease
Study ID	**Polkey 2017**
12	--
13	--
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Characteristics of included studies	Chronic obstructive pulmonary disease	
Study ID	**Polkey 2017**	
19	--	
20	--	
Method of analysis		
Statistics	Descriptive, paired t-test for before/after within groups, ANOVA for changes between groups	
Population analysed	Intent-to-treat	Last observation carried forward
Missing data	Yes	A total of 10 people (8.3%) did not complete the trial, 5 in both the intervention and control arms.

Characteristics of included studies	Chronic obstructive pulmonary disease		
Study ID	**Wang 2019**		
Study reference	Wang L, Wu K, Chen X, Liu Q. The Effects of Tai Chi on Lung Function, Exercise Capacity and Health Related Quality of Life for Patients With Chronic Obstructive Pulmonary Disease: A Pilot Study. Heart Lung Circ. 2019;28(8):1206-12.		
Study design	RCT	pseudorandomised	No mention of randomisation method
Author affiliation	All authors were associated with a medical university in China		
Source of funds	The research was funded by the Department of Education of Guizhou province, China		
Declared interests of study authors	The authors declared no conflict of interest		
Setting / provider	Community		
Country(s) / region	China		
Enrolment period	MAR 2016 - MAY 2017		
Length of follow up (months)	None		
Description of population	*N=*	*Description*	
participants	50	Chronic obstructive pulmonary disease	
details	*Inclusion criteria:* >= 45 years old, FEV1 <80% predicted, FEV1/FVC < 0.7, able to walk independently *Exclusion criteria:* symptomatic ischaemic heart disease, severe sensory or cognitive impairment, or other physical condition that would preclude a 6 minute walk test, current participation in pulmonary rehabilitation or Tai Chi		

Characteristics of included studies	Chronic obstructive pulmonary disease					
Study ID	**Wang 2019**					
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	26	Tai Chi (Yang style) - 3x 60min sessions per week + 4x sessions home practice for 3 months The intervention consisted of a 10 form Yang style Tai Chi taught by a qualified instructor. Each participant aimed to train at a moderate level of breathlessness or exertion.				
Comparator #1 (control)	24	Control - usual activities				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A				
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies	Chronic obstructive pulmonary disease				
Study ID	**Wang 2019**				
1	Primary	Pulmonary function	Baseline, 3 months (post-intervention period)	Spirometry	Forced expiratory volume in 1 second (FEV1)
2	Primary	Pulmonary function	Baseline, 3 months (post-intervention period)	Spirometry	Percentage predicted forced vital capacity (FVC)
3	Primary	Respiratory health	Baseline, 3 months (post-intervention period)	Spirometry	Percentage predicted normal values (FEV1%)
4	Primary	Functional capacity	Baseline, 3 months (post-intervention period)	6 minute walk distance	Maximum distance an individual is able to walk in 6 minutes
5	Primary	HR QoL	Baseline, 3 months (post-intervention period)	COPD Assessment Test (CAT)	Eight items, each as a semantic six-point differential scale (0-5).

Characteristics of included studies	Chronic obstructive pulmonary disease			
Study ID	**Wang 2019**			
6	Secondary	Compliance with Tai Chi training	Post-intervention	Total number of supervised sessions attended, the unsupervised home practice time per day and the number of days practised
7	Secondary	Adverse events	Throughout	Muscle injury, injury from falls, dyspnoea, induction of cardiovascular disease
8	--			
9	--			
10	--			
11	--			

Characteristics of included studies	Chronic obstructive pulmonary disease
Study ID	**Wang 2019**
12	--
13	--
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18	--

Characteristics of included studies	Chronic obstructive pulmonary disease	
Study ID	**Wang 2019**	
19	--	
20	--	
Method of analysis		
Statistics	Descriptive, t-test to compared groups at baseline. Wilcoxon rank sum test where data is not normally distributed, paired t-test for within group comparison before/after.	
Population analysed	Per protocol	Analysis method is not specified, suspect intention to treat.
Missing data	Yes	There were 4 drop outs in total, 2 in each group.

Characteristics of included studies	Chronic obstructive pulmonary disease	
Study ID	**Yeh 2010**	
Study reference	Yeh GY, Roberts DH, Wayne PM, Davis RB, Quilty MT, Phillips RS. Tai chi exercise for patients with chronic obstructive pulmonary disease: a pilot study. Respir Care. 2010;55(11):1475-82. NCT01007903 NCT01027338	
Study design	RCT	Conputer-generation randomisation sequence
Author affiliation	The authors are associated with a medical school and medical centre in the USA.	
Source of funds	National Institutes of Health National Center for Complementary and Alternative Medicine, and by the Beth Israel Deaconess Medical Center General Clinical Research Center	
Declared interests of study authors	One author disclosed a relationship with Gilead Pharmaceuticals, the other authors disclosed no conflict of interest	
Setting / provider	Patients were recruited from an ambulatory pulmonary practice	
Country(s) / region	Boston, USA	
Enrolment period	No information	
Length of follow up (months)	No information	
Description of population	*N=*	*Description*
participants	10	Chronic obstructive pulmonary disease (FEV1 <65%, 45+ yrs)
details	*Inclusion criteria: FEV1 < 65% predicted, FEV1/FVC < 0.70, >=45 years of age* *Exclusion criteria:* COPD exacerbation that required systemic steroids, antibiotics, emergency depratment visits or hospitalisation within the past month, any planned major pulmonary intervention in the coming 3 months, sever peripheral vascular disease and claudication or other physical condition that would preclude a 6 minute walk test, inability to perform bicycle ergometry, severe cogntiive dysfunction (mini-mental state exam <24), inability to speak English, current participation in conventional pulmonary therapy or Tai Chi practice	

Characteristics of included studies	Chronic obstructive pulmonary disease					
Study ID	**Yeh 2010**					
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	5	Tai Chi (Yang style) - 2x 60 min sessions per week + 3x home practice per week for 12 weeks The intervention consisted of 5 form Tai Chi, adapted from Yang-style short form.				
Comparator #1 (control)	5	Control - usual care included pharmacologic therapy and general exercise advice, but not a formal supervised exercise protocol.				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A				
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies	Chronic obstructive pulmonary disease					
Study ID	**Yeh 2010**					
1	Not specified	Exercise capacity	Baseline, 6 weeks, 12 weeks (post-intervention)	Peak oxygen uptake	Bicycle ramp protocol to determine peak oxygen uptake and cycling endurance. Breath-by-breath respiratory gas analysis.	Expired gas analysis and continuous electrocardiographic monitoring. Peak values average for final 20 seconds of the test.
2	Not specified	Exercise capacity	Baseline, 6 weeks, 12 weeks (post-intervention)	Exercise duration	Bicycle ramp protocol to determine peak oxygen uptake and cycling endurance. Breath-by-breath respiratory gas analysis.	Expired gas analysis and continuous electrocardiographic monitoring. Peak values average for final 20 seconds of the test.
3	Not specified	Physical activity	Baseline, 6 weeks, 12 weeks (post-intervention)	6 minute walk test	Maximum distance an individual is able to walk in 6 minutes	
4	Not specified	Physical activity	Baseline, 6 weeks, 12 weeks (post-intervention)	Timed up-and-go test		
5	Not specified	HR QoL	Baseline, 6 weeks, 12 weeks (post-intervention)	Chronic respiratory disease questionnaire - total	Validated tool employed in patients with COPD	

Characteristics of included studies	Chronic obstructive pulmonary disease				
Study ID	**Yeh 2010**				
6	Not specified	Psychosocial wellbeing	Baseline, 6 weeks, 12 weeks (post-intervention)	Chronic respiratory disease questionnaire - emotion domain	Emotional function (7 questions)
7	Not specified	Psychosocial wellbeing	Baseline, 6 weeks, 12 weeks (post-intervention)	Chronic respiratory disease questionnaire - mastery domain	Mastery (4 questions)
8	Not specified	Level of dyspnoea	Baseline, 6 weeks, 12 weeks (post-intervention)	Chronic respiratory disease questionnaire - dyspnea domain	Dyspnoea domain (5 questions)
9	Not specified	Psychosocial wellbeing	Baseline, 6 weeks, 12 weeks (post-intervention)	Chronic respiratory disease questionnaire - fatigue domain	Fatigue (4 questions)
10	Not specified	Level of dyspnoea	Baseline, 6 weeks, 12 weeks (post-intervention)	University of California, San Diege Shortness of Breath Questionnaire	
11	Not specified	Level of dyspnoea	Baseline, 6 weeks, 12 weeks (post-intervention)	Modified Medical Research Council dyspnea scale	Scale from 0 to 4, where 0 indicates "only gets breathless with strenuous exercise) and 4 indicates "too breathless"

Characteristics of included studies	Chronic obstructive pulmonary disease					
Study ID	**Yeh 2010**					
12	Not specified	Psychosocial wellbeing	Baseline, 6 weeks, 12 weeks (post-intervention)	COPD self-efficacy scale	34-item instrument measuring confidence in managing breathing difficulties. Can be measured by raw score out of 170 or an average rating score taking into account that some items might not be answered by each participant.	
13	Not specified	Psychosocial wellbeing	Baseline, 6 weeks, 12 weeks (post-intervention)	Center for Epidemiologic Studies Depression Scale		
14	Not specified	Attitudes to complementary therapies	Baseline, 6 weeks, 12 weeks (post-intervention)	Holistic Complementary and Alternative Health Questionnaire		
15	Not specified	Pulmonary function	Baseline, 6 weeks, 12 weeks (post-intervention)	Spirometry	FEV1, FVC	A minimum of 3 acceptable spirometry efforts were performed, with a rolling-seal volume-displacement spirometer
16	Not specified	Pulmonary function	Baseline, 6 weeks, 12 weeks (post-intervention)	Plethysmography	Functional residual capacity	
17	Not specified	Pulmonary function	Baseline, 6 weeks, 12 weeks (post-intervention)	Plethysmography	Ratio of inspiratory capacity to total lung capacity	
18	Not specified	Pulmonary function	Baseline, 6 weeks, 12 weeks (post-intervention)	Plethysmography	Total lung capacity	

Characteristics of included studies	Chronic obstructive pulmonary disease				
Study ID	**Yeh 2010**				
19	Not specified	Functional capacity	Throughout	Community Healthy Activities Model Program for Seniors (CHAMPS) Physical Activity Questionnaire	Weekly frequency and total time spent in different activities
20	Not specified	Healthcare utilisation and adverse events	Throughout	Medication and healthcare utilisation, medical illnesses, other adverse events	
Method of analysis					
Statistics	Descriptive, t-test for continuous and Fisher's exact test for nominal values. 2-sample Wilcoxon rank-sum test adjusted for baseline score to compare distribution of change after 12 weeks of intervention between the two groups.				
Population analysed	Intent-to-treat				
Missing data	Yes	No, all participants were analysed			

Characteristics of included studies	Chronic obstructive pulmonary disease	
Study ID	**Zhu 2018**	
Study reference	Zhu S, Shi K, Yan J, He Z, Wang Y, Yi Q, et al. A modified 6-form Tai Chi for patients with COPD. Complement Ther Med. 2018;39:36-42.	
Study design	RCT	Random numbers, unclear how generated
Author affiliation	The authors were affiliated with a univeristy in China, and a univeristy in the USA	
Source of funds	China Medical Board	
Declared interests of study authors	The authors declared no conflict of interest	
Setting / provider	Community	
Country(s) / region	Changsha, China	
Enrolment period	Not reported	
Length of follow up (months)	6 months	
Description of population	*N=*	*Description*
participants	60	Chronic obstructive pulmonary disease (FEV1 <80%, 45+ yrs)
details	*Inclusion criteria: >= 45 years old, FEV1 < 80% predicted, able to walk independently, live in downtown Changsha* *Exclusion criteria:* symptomatic ischaemic heart disease, severe sensory or cognitive impairment, cludication or other physical condition that would preclude a 6 minute walk test, current participation in a pulmonary rehabilitation program or regular practice of Tai Chi, inability to provide data or follow instructions	

Characteristics of included studies	Chronic obstructive pulmonary disease					
Study ID	**Zhu 2018**					
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*				
Intervention	30	Tai Chi - 3x 40-50 min sessions per week for 3 months T The intervention consisted of a modified 6-form Tai Chi for patients with COPD.				
Comparator #1 (control)	--	--				
Comparator #2 (other)	30	Educational advice (Self-management handbook)				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A				
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*

Characteristics of included studies	Chronic obstructive pulmonary disease				
Study ID	**Zhu 2018**				
1	Not specified	Lung function	Baseline, 3 months (post-intervention), 9 months (follow-up)	Spirometry	FEV1
2	Not specified	Exercise capacity	Baseline, 3 months (post-intervention), 9 months (follow-up)	6 minute walk test	Maximum distance an individual is able to walk in 6 minutes
3	Not specified	Symptoms	Baseline, 3 months (post-intervention), 9 months (follow-up)	Modified Medical Research Council dyspnea scale	Scale from 0 to 4, where 0 indicates "only gets breathless with strenuous exercise' and 4 indicates "too breathless"
4	Not specified	Health status	Baseline, 3 months (post-intervention), 9 months (follow-up)	COPD Assessment Test - Chinese version	Eight items, each as a semantic six-point differential scale (0-5).
5	--				

Characteristics of included studies	Chronic obstructive pulmonary disease
Study ID	**Zhu 2018**
6	--
7	--
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Characteristics of included studies	Chronic obstructive pulmonary disease
Study ID	**Zhu 2018**
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Characteristics of included studies	Chronic obstructive pulmonary disease	
Study ID	**Zhu 2018**	
19	--	
20	--	
Method of analysis		
Statistics	Generalised estimating equations	
Population analysed	Intent-to-treat	All cases, including dropouts were included
Missing data	Yes	There were 8 drop-outs (13.3%) in total over the 9-month study. 5 dropouts occurred in the intervention arm (16.6%) and 3 occurred in the control arm (10%).

Characteristics of included studies	Arthropathies		
Study ID	**Brismee 2007**		
Study reference	Brismee, J. M., et al. (2007). "Group and home-based tai chi in elderly subjects with knee osteoarthritis: a randomized controlled trial." Clin Rehabil 21(2): 99-111.		
Study design	RCT	Randomisation table	
Author affiliation	All 10 authors are affiliated with an American academic institution		
Source of funds	Lubbock Endowed Professorship Earnings and Texas Tech University Health Sciences Center School of Allied Health Sciences students' funding		
Declared interests of study authors	No conflicts of interest		
Setting / provider	Campus		
Country(s) / region	Texas, USA		
Enrolment period	Study dates not reported		
Length of treatment/ followup	12 weeks		
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*	
participants	41	Knee osteoarthritis (Adults 50+)	

Characteristics of included studies	Arthropathies		
Study ID	**Brismee 2007**		
details	*Inclusion Criteria:* Knee pain + at least 4 or the following 6 criteria: - Age greater than 50 years - AM stiffness < 30 minutes - Crepitus - Bony Tenderness - Bony enlargment - No palpable warmth Selection of subjects was based on the Classification Criteria of the American Rheumatism Association for Idiopathic Osteoarthritis of the Knee - clinical category (Table 8) [DOI: 10.1002/art.1780290816]	*Exlusion criteria:* lack of English proficiency, medical condition involving knee trauma or intra-articular knee injection within one month, exercise induced uncontrolled angina within three months, severe dyspnoea at rest, terminal illness, uncontrolled hypertension, acute or chronic renal failure, bilateral total knee arthroplasties, or a Mini-Mental State Exam score of 23 or lower.	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	22	Tai Chi: 24-form simplified Yang-style 40min, 3x/week, 6 weeks of group tai chi class. Followed by 6 weeks of home video tai chi practice 3x/week. Both types consisted of 5 min warm up, 30 min tai chi, and 5 min cool-down. The tai chi routine was repeated 5x during the training period based on a standard speed of about 6 min per routine. After the home exercise period, subjects were asked to discontinue tai chi for six weeks of detraining.	
Comparator #1 (control)	--	--	

Characteristics of included studies	Arthropathies					
Study ID	**Brismee 2007**					
Comparator #2 (other)	19	Health education group sessions: 40min, 3x/week, 6 weeks. No further intervention after the 6 weeks of sessions.				
Comparator #3 (other)	--	--				
Co-interventions	None	--				
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C	Tai chi instructor provides the lessons; not specified if certified or experienced			
Is there an inactive comparator?	No	Comparison=other	Active educational control			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Knee pain (overall)	baseline, mid (3, 6, 9 wks), end of treatment (12 wks), followup (15 & 18 wks)	Visual analogue scale (VAS)		
2	Primary	Knee pain (maximum)	baseline, mid (3, 6, 9 wks), end of treatment (12 wks), followup (15 & 18 wks)	Visual analogue scale (VAS)		

Characteristics of included studies	Arthropathies					
Study ID	**Brismee 2007**					
3	Secondary	Knee range of motion	baseline, mid (3, 6, 9 wks), end of treatment (12 wks), followup (15 & 18 wks)	Standard goniometry	Two blinded investigators took measurements and inter-rater reliability was established	
4	Secondary	Stiffness	baseline, mid (3, 6, 9 wks), end of treatment (12 wks), followup (15 & 18 wks)	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)	indicates the level of difficulty associated with overall functional activities due to OA.	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)
5	Secondary	Pain	baseline, mid (3, 6, 9 wks), end of treatment (12 wks), followup (15 & 18 wks)	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)	indicates the level of difficulty associated with overall functional activities due to OA.	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)
6	Secondary	Functional limitations	baseline, mid (3, 6, 9 wks), end of treatment (12 wks), followup (15 & 18 wks)	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)	indicates the level of difficulty associated with overall functional activities due to OA.	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)
7	Secondary	Overall disease impact	baseline, mid (3, 6, 9 wks), end of treatment (12 wks), followup (15 & 18 wks)	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)	indicates the level of difficulty associated with overall functional activities due to OA.	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)

Characteristics of included studies	Arthropathies
Study ID	**Brismee 2007**
8	--
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10	--
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12	--

Characteristics of included studies	Arthropathies
Study ID	**Brismee 2007**
13	--
14	--
15	--
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17	--
18	--

Characteristics of included studies	Arthropathies
Study ID	**Brismee 2007**
19	--
20	--
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26	--

Characteristics of included studies	Arthropathies
Study ID	**Brismee 2007**
27	--
28	--
29	--
30	--
Method of analysis	
Statistics	Mixed model ANOVA. Blocks for binary age and sex were included to account for the stratified randomisation scheme. Two-sample t-tests were used to determine baseline comparability of treatment groups for the demographic and outcome (dependent) variables. Chi square analyses were use to evluate the difference between dropout rates from tai chi and control groups. Statistical analyses performed using SAS 9.1.3.
Population analysed	Intent-to-treat: All subjects were included in the analysis unless dropout occurred in the first week. 1 participant from the control group dropped out between weeks 0 and 6, therefore it is possible this participant was excluded from the analysis if the dropout occurred in the first week.
Missing data	6/19 (32%) dropped out of control group due to loss of interest, personal, and unknown reasons. 4/22 (18%) dropped out of tai chi group due to travel, illness, or unknown reasons. It is not reported whether data was missing for these participants, however given the reasons for dropout, it seems plausible that there was missing data. The study does not report how investigators handled missing data in the analysis. Given that data was reported in aggregate for the tai chi and control groups and there was no mention of "last observation carried forward" or other method of handling missing data, it is likely that at each time point, all values that were available were analysed and missing values ignored.

Characteristics of included studies	Arthropathies		
Study ID	**Callahan 2016**		
Study reference	Callahan, L. F., R. J. Cleveland, M. Altpeter and B. Hackney (2016). "Evaluation of Tai Chi Program Effectiveness for People with Arthritis in the Community: A Randomized Controlled Trial." Journal of Aging & Physical Activity 24(1): 101-110. Callahan, L. F., J. H. Shreffler, B. S. Hackney, K. R. Martin and B. Charnock (2010). "Evaluation of Tai Chi course effectiveness for people with arthritis." Arthritis and Rheumatism 10: 690. NCT01184924		
Study design	RCT	stratified permuted randomization with varying block size and patterns	
Author affiliation	All authors affiliated with an American university		
Source of funds	Grant from The Arthritis Foundation and funds of a CDC cooperative agreement with the Arthritis Foundation (DP000607 01/01/09-12/31/11).		
Declared interests of study authors	Not reported		
Setting / provider	20 community locations in North Carolina (n = 12) and New Jersey (n = 8)		
Country(s) / region	United States		
Enrolment period	Study dates not reported		
Length of treatment/ followup	September 2008 to February 2010. One-year self-report followup assessments for the tai chi group were conducted by mailed survey from November 2009 to April 2011 and		
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*	
participants	343	Adults with **arthritis** (18+)	

Characteristics of included studies	Arthropathies		
Study ID	**Callahan 2016**		
details	*Inclusion Criteria:* -Self-Reported doctor diagnosed arthritis -Age 18 years or older -Able to move independently without assistance *(predominantly OA but no further details provided)*	*Exclusion Criteria:* -Pregnancy -Non-English speaking -Cognitive impairment -Serious medical conditions: History of MI, stroke, prescribed beta-blockers, surgery in past 6 months, uncontrolled hypertension, chest pain, diabetes mellitus -Severe impairment of physical functioning -Participation in Tai Chi exercise in last 3 months	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	181	Tai chi (Arthritis Foundation Tai chi program, based on Sun style). 60min, 2x/week, 8 weeks. 12 tai chi movements.	
Comparator #1 (control)	162	Waitlist control. Instructed to maintain usual care and activities. Received tai chi intervention on a delayed basis after the 8-week intervention period was complete.	

Characteristics of included studies	Arthropathies					
Study ID	**Callahan 2016**					
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	Usual care	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Instructors for the study were trained by Arthritis Foundation master tai chi trainers in a standardized, two-day session. 14 instructors participated.			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Pain	Baseline, end of treatment (8 wks), followup (1 year)	Visual analogue scale (VAS)	The amount of pain, for example, experienced over the past week	assessed using a 10-cm VAS anchored with “No pain” and “Pain as bad as it could be”
2	Primary	Stiffness	Baseline, end of treatment (8 wks), followup (1 year)	Visual analogue scale (VAS)		assessed using a 10-cm VAS anchored with “No stiffness” and “as bad as it could be”

Characteristics of included studies	Arthropathies					
Study ID	**Callahan 2016**					
3	Primary	Fatigue	Baseline, end of treatment (8 wks), followup (1 year)	Visual analogue scale (VAS)		assessed using a 10-cm VAS anchored with “No fatigue” and “as bad as it could be”
4	Primary	Disability	Baseline, end of treatment (8 wks), followup (1 year)	Health assessment questionnaire (HAQ) - disability index (20-items)	eight domains (dressing, arising, eating, walking, hygiene, activities, reach, and grip)	Each item is scored from 0 (no disability) to 4 (maximum disability). Total overall score ranges from 0 to 80, with higher score representing higher disability.
5	Primary	Functional capacity, muscle strength	Baseline, end of treatment (8 wks), followup (1 year)	Timed chair stands	Number of times participants stood all the way up and sat back down in 30 seconds was recorded.	17-inch chair height.
6	Primary	Balance	Baseline, end of treatment (8 wks), followup (1 year)	Distance-based multi-directional reach test (MDRT)	With feet flat on the floor, participants performed maximal reaches with the oustretched arm forward, to the right, to the left, and leaning backward	
7	Primary	Balance	Baseline, end of treatment (8 wks), followup (1 year)	Timed single leg stance		

Characteristics of included studies	Arthropathies					
Study ID	**Callahan 2016**					
8	Primary	Functional fitness	Baseline, end of treatment (8 wks), followup (1 year)	Normal gait speed and fast gait speed	Participant walks 20 feet, with 6-foot acceleration and deceleration zones at each end, at both normal and fast walking pace.	Two trials for each pace. Times to complete each pace are averaged.
9	Secondary	Perceived helplessness	Baseline, end of treatment (8 wks), followup (1 year)	Rheumatoid Athritis Index (RAI) - Helplessness subscale	5 items scores 1 to 5, 5 being the greatest helplessness	
10	Secondary	Self-efficacy	Baseline, end of treatment (8 wks), followup (1 year)	Arthritis Self Efficacy (ASE) pain	10-point scale	
11	Secondary	Self-efficacy	Baseline, end of treatment (8 wks), followup (1 year)	Arthritis Self Efficacy (ASE) symptoms	10-point scale	
12	Secondary	Sleep disturbances	Baseline, end of treatment (8 wks), followup (1 year)	Patient-Reported Outcomes Measurement Information System - Sleep Disturbances (PROMIS-SD)	5-point Likert scale	

Characteristics of included studies	Arthropathies				
Study ID	**Callahan 2016**				
13	Secondary	Participation in social roles	Baseline, end of treatment (8 wks), followup (1 year)	Patient-Reported Outcomes Measurement Information System - Participation in Social Roles (PROMIS-PSR)	5-point Likert scale
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Characteristics of included studies	Arthropathies
Study ID	**Callahan 2016**
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Characteristics of included studies	Arthropathies	
Study ID	**Callahan 2016**	
27	--	
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Method of analysis		
Statistics	Demographics: descriptive statistics, baseline group differences: independent t-tests and chi-square tests. Primary and secondary outcomes: analyses of covariance multiple linear regression models with study site as a random variable and controlling for baseline scores were used to calculated adjusted means for 8-week outcomes and 1-year scores. Covariates included baseline scores, age, race, BMI, and comorbidities. Effect sizes expressed as Cohen's d, which was calculated comparing the mean change scores from baseline to eight weeks for intervention and control groups divided by the pooled standard deviation.	
Population analysed	Intent-to-treat	Modified ITT analysis was used (participants who were lost to follow up were not included in the analysis).
Missing data	Yes	283/343 (83%) of participants returned for the 8 week follow-up. Attrition at 8 weeks was 16.7% (30/181) for the tai chi group and 17.9% (29/162) for the control group.

Characteristics of included studies	Arthropathies
Study ID	**Fransen 2007**
Study reference	Fransen, M., L. Nairn, J. Winstanley, P. Lam and J. Edmonds (2007). "Physical activity for osteoarthritis management: a randomized controlled clinical trial evaluating hydrotherapy or Tai Chi classes." Arthritis & Rheumatism 57(3): 407-414. NCT00123994
Study design	RCT Computerised randomisation at an offsite location
Author affiliation	One author is affiliated with an Australian health research institute, 2 authors are affiliated with Australian universities, and one author is affiliated with an Australian hospital
Source of funds	National Arthritis and Musculoskeletal Conditions Improvements grant, the University of New South Wales, the St. George Division of General Practice, and the Central Sydney Division of General Practice. Participants each contributed $35.
Declared interests of study authors	One of the authors received royalties from the sale of a video/DVD about tai chi for arthritis and a book called *Overcoming Arthritis*
Setting / provider	Public hospital
Country(s) / region	Australia
Enrolment period	Study dates: January 2004 - October 2005
Length of treatment/ followup	6 months (24 weeks)
Description of intervention/comparator (as per TIDIER checklist)	*N=* *Description*
participants	152 **Osteoarthritis** of hip or knee (59-85 yrs)

Characteristics of included studies	Arthropathies		
Study ID	**Fransen 2007**		
details	*Inclusion Criteria:* - Symptomatic osteoarthritis of the hip(s) or knee(s) according to American College of Rheumatology (ACR) clinical and radiographic (hip) criteria.	*Exclusion Criteria:* - Participating in recreational physical activity more than twice a week. - Unable to walk indoors for more than 10 minutes without a walking aid. - Unable to exercise at a moderate level due to major co-morbidity. - Incontinent, afraid of water or uncontrolled epilepsy. - Low back pain referring to limbs. - Joint replacement surgery in past year. - Arthroscopic surgery or intra-articular injections in knee or hip in past 3 months	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	56	Tai chi (Sun style). 60min, 2x/week, 12 weeks. Home practice encouraged. Specially designed Tai chi program from Tai Chi for Arthritis Video created by one of the study authors. Modified version of 24-from Sun style, including 10min warm-up. Participants could purchase a DVD to aid with home practice.	
Comparator #1 (control)	41	Control (waitlist). After 12 weeks on the waitlist, this group was assigned to either hydrotherapy or tai chi.	

Characteristics of included studies	Arthropathies					
Study ID	**Fransen 2007**					
Comparator #2 (other)	55	Hydrotherapy				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Trained in *Tai Chi for Arthritis* program			
Is there an inactive comparator?	Yes	Comparison=control	One comparator is inactive and the other is active.			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Pain	Baseline, end of treatment (12 wks), followup (24 wks)	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)	indicates the level of difficulty associated with overall functional activities due to OA.	Scores were standardized to a 0–100 range, with higher scores indicating greater pain or physical disability.
2	Primary	Functional status/disability	Baseline, end of treatment (12 wks), followup (24 wks)	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)	indicates the level of difficulty associated with overall functional activities due to OA.	Scores were standardized to a 0–100 range, with higher scores indicating greater pain or physical disability.

Characteristics of included studies	Arthropathies				
Study ID	**Fransen 2007**				
3	Secondary	General health status - physical	Baseline, end of treatment (12 wks), followup (24 wks)	SF-12 v2 - physical component summary	Transformed to have a mean +/- SD score of 50 +/- 10 in the general US population
4	Secondary	General health status - mental	Baseline, end of treatment (12 wks), followup (24 wks)	SF-12 v2 - mental component summary	
5	Secondary	Depression	Baseline, end of treatment (12 wks), followup (24 wks)	Depression, Anxiety and Stress Scale (DASS21)	Score range of 0-42
6	Secondary	Anxiety	Baseline, end of treatment (12 wks), followup (24 wks)	Depression, Anxiety and Stress Scale (DASS21)	Score range of 0-42
7	Secondary	Stress	Baseline, end of treatment (12 wks), followup (24 wks)	Depression, Anxiety and Stress Scale (DASS21)	Score range of 0-42

Characteristics of included studies	Arthropathies				
Study ID	**Fransen 2007**				
8	Secondary	Funcional mobility/falls risk	Baseline, end of treatment (12 wks), followup (24 wks)	Timed up and go	
9	Secondary	Funcional capacity	Baseline, end of treatment (12 wks), followup (24 wks)	Timed 50-foot walk	
10	Secondary	Physical performance	Baseline, end of treatment (12 wks), followup (24 wks)	Stair climb	
11	Secondary	Patient global assessment of effectiveness	Baseline, end of treatment (12 wks), followup (24 wks)	CT registry says that visual analogue scale (VAS) 100mm was going to be used.	Publication says 5-level categorical scale from "much better" to "much worse" was used.
12	Secondary	Patient global assessment of current status	Baseline, end of treatment (12 wks), followup (24 wks)	CT registry says that visual analogue scale (VAS) 100mm was going to be used.	Publication says 5-level categorical scale from "much better" to "much worse" was used.

Characteristics of included studies	Arthropathies
Study ID	**Fransen 2007**
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Characteristics of included studies	Arthropathies
Study ID	**Fransen 2007**
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Characteristics of included studies	Arthropathies	
Study ID	**Fransen 2007**	
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Method of analysis		
Statistics	Compared tai chi group to control and hydrotherapy group to control for first 12 weeks using paired t-tests and chi-square analyses. Standardised response mean (SRM) was calculated for outcomes demonstrating significant improvement. An additional analysis combined the original tai chi and hydrotherapy groups with participants from the waitlist control group who had begun their respective tai chi and hydrotherapy classes after the initial 12-week period. Therefore, this pooled analysis compared results of 77 total participants in hydrotherapy and 75 total participants in tai chi (although participants had been exposed to the intervention in two sequential waves rather than all in parallel simultaneously).	
Population analysed	Intent-to-treat	Modified - all participants included in final analysis; last observation carried forward for participants lost to follow-up and adjusted for any systemic changes as ascertained in the control group.
Missing data	Yes	Posttreatment assessments at 12 weeks were completed for 141 participants (93%) and followup assessments were completed 12 weeks later for 133 participants (88%). 3/55 (5%) hydrotherapy participants dropped out (transportation difficulties, unsuitable time, not willing to forego physical treatment during control period). 8/56 (14%) tai chi participants dropped out (disliked tai chi [n=2], exacerbation of knee pain [n=2], wanted hydrotherapy, lost interest, family commitments).

Characteristics of included studies	Arthropathies	
Study ID	**Hartman 2000**	
Study reference	Catherine A. Hartman, Tina M. Manos, Christa Winter, Dwight M. Hartman, Baiqing Li, and John C. Smith. Effects of T'ai Chi Training on Function and Quality of Life Indicators in Older Adults with Osteoarthritis. JAGS 48:1553-1559,2000	
Study design	RCT	Prospective cohort
Author affiliation	One author affiliated with the Dana Farber Cancer Institute, Boston MA; 3 affiliated with Springfield College, Springfield, MA; one affiliated with Lahey Clinic, Burlington, MA; and one affiliated with The School of T'ai Chi, Springfield, MA.	
Source of funds	Supported, in part, by the Governor's Committee on Physical Fitness and Sports, Department of Public Health, Bureau of Family and Community Health, Boston, Massachusetts.	
Declared interests of study authors	No information provided	
Setting / provider	Allied Health Sciences Center at Springfield College	
Country(s) / region	USA	Springfield, Massachusetts
Enrolment period		
Length of treatment/ followup	12 weeks	
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*
participants	33	Community-dwelling participants (mean age 68) diagnosed with osteoarthritis of lower extremeties

Characteristics of included studies	Arthropathies		
Study ID	**Hartman 2000**		
details	*Inclusion Criteria:* - Written medical clearance from a physician - Documented diagnosis of symptomatic and/or radiographic osteoarthritis in the lumbar spine and/or one or more of the lower extremity joints, including the hips, knees, ankles, and joints of the foot. - Patients with multiple joint involvement - Those who had undergone major joint surgery	*Exclusion Criteria:* - Individuals with previous T'ai Chi training of longer than 2 weeks	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	18	T'ai Chi training: two 1-hour classes per week for 12 weeks 9-form Yang style routine. The forms included a gradual progression of slow, controlled movements which emphasized body and trunk rotation, flexion of hips and knees, weight shifting, reciprocal arm movements, and balance. Each 1-hour T'ai Chi session consisted of a 10- to 15-minute warm-up, 35 to 45 minutes of T'ai Chi practice, and a 5-minute cool-down Participants were asked, but not required, to practice T'ai Chi outside of class for at least 15 min per day.	
Comparator #1 (control)	--	--	

Characteristics of included studies	Arthropathies					
Study ID	**Hartman 2000**					
Comparator #2 (other)	15	Contact control: usual physical activities and routine care procedures and were also invited to three group meetings to meet one another, enjoy a light meal, and share experiences				
Comparator #3 (other)	--	--				
Co-interventions						
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Certified and experienced T'ai Chi practitioner			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Self-efficacy	Baesline, post intervention (12 weeks)	Arthritis self-efficacy scale	Measured using the subscales: arthritis pain self-efficacy (PSE), self-efficacy for physical function (FSE), and self efficacy for other arthritis symptoms (OSE).	Each subscale was scored separately by taking the mean of the subscale items, with high scores representing high self-efficacy.
2	Not specified	HR QoL	Baesline, post intervention (12 weeks)	Arthritis Impact Measurement scale	5-point Likert scales: arthritis pain, mood, level of tension, and satisfaction with general health status	Scores from the scales were recoded and normalized on a range from 0 to 10 units, with higher scores indicating poorer health.

Characteristics of included studies	Arthropathies				
Study ID	**Hartman 2000**				
3	Not specified	Lower extremity functional mobility	Baesline, post intervention (12 weeks)	Single-leg stance	The balance score was determined by the total time standing on one leg
4	Not specified	Lower extremity functional mobility	Baesline, post intervention (12 weeks)	50-foot walking speed	time required to walk a 50-foot course as fast as possible
5	Not specified	Lower extremity functional mobility	Baesline, post intervention (12 weeks)	Chair-stand test	Time required to complete five full stands from a sitting position in a straight backed chair without the use of upper extremites
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Characteristics of included studies	Arthropathies
Study ID	**Hartman 2000**
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Characteristics of included studies	Arthropathies
Study ID	**Hartman 2000**
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Characteristics of included studies	Arthropathies
Study ID	**Hartman 2000**
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Characteristics of included studies	Arthropathies	
Study ID	**Hartman 2000**	
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Method of analysis		
	Statistical analyses using chi-square and independent groups t tests were performed to determine group differences at pretest for age, gender, height, weight, and all dependent variables.	
Statistics	Group times time (2 X 2) mixed factorial Analyses of Variance (ANOVAs) were used to determine the significance of pre-post changes with regard to arthritis self-efficacy, quality of life indicators, and lower extremity functional mobility in each group. The overall alpha was set at .05.	
Population analysed	Per protocol	2 participants dropped out before postintervention testing - they were not included in the analysis.
Missing data	No	Two participants dropped out of the study, one from the control group because she was not selected for the T'ai Chi classes and one from the T'ai Chi group because of the death of a spouse.

Characteristics of included studies	Arthropathies	
Study ID	**Lee 2009**	
Study reference	Hwa-Jin Lee, Hi-Joon Park, Younbyoung Chae, Song-Yi Kim, Seung-Nam Kim, Seung-Tae Kim, Je-Ho Kim, Chang-Shik Yin and Hyejung Lee. Tai Chi Qigong for the quality of life of patients with knee osteoarthritis: a pilot, randomized, waiting list controlled trial. Clinical Rehabilitation 2009; 23: 504–511	
Study design	RCT	Controlled before and after study
Author affiliation	All authors affiliated with either: Kyung Hee University, Seoul, Republic of Korea or Department of Rehabilitation Medicine, Hwaseong City Health Center	
Source of funds	This work was supported by the Korea Science and Engineering Foundation (KOSEF) grant funded by the Korean government (MEST) (R11-2005-014)	
Declared interests of study authors	No information provided	
Setting / provider	General community, performed at Hwaseong City Health Center.	
Country(s) / region	South Korea, Hwaseong	
Enrolment period	February to July 2008	
Length of treatment/ followup	8 weeks	
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*
participants	44	Elderly subjects (mean age, 69.1 5.4 years) with knee osteoarthritis.

Characteristics of included studies	Arthropathies		
Study ID	**Lee 2009**		
details	*Inclusion Criteria:* (1) symptomatic osteoarthritis with radiologic alterations in the knee joint of grade 2 or higher (Kellgren–Lawrence Scale) at least six months prior to study entry (2) no current participation in an exercise programme (3) 50–80 years of age	*Exclusion Criteria:* (1) had received a corticosteroid injection in the symptomatic knee within six months of study entry (2) had received medication for osteoarthritis within six months (3) had a history of knee surgery or a prior diagnosis of inflammatory arthritis.	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	29	Tai Chi Qigong: 60 minutes per session twice a week for 8 weeks Consisted of 18 movements, in which traditional warm-up exercises include weight shifting, arm swinging, visualization techniques and gentle stretches of the neck, shoulder spine, arms and legs. These exercises focus on releasing tension in the physical body, incorporating mindfulness and imagery into movement, increasing awareness of breathing and promoting overall relaxation of the body and mind.	
Comparator #1 (control)	15	Control (waitlist): received no intervention during the study period. After the intervention study, the control group was offered the same training programme as the treatment group.	

Characteristics of included studies	Arthropathies					
Study ID	**Lee 2009**					
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions						
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C				
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Health related quality of life (HR QoL)	Baseline, and post-intervention (at 8 weeks)	Short Form 36 (SF-36) Health Survey - Total	36 items rated on Likert scales, scores were standardized to a 0–100 range	Higher scores indicate more favourable health
2	Primary	General health status - physical	Baseline, and post-intervention (at 8 weeks)	SF-36 - physical component score		Higher scores indicate more favourable health

Characteristics of included studies	Arthropathies					
Study ID	**Lee 2009**					
3	Primary	General health status - mental	Baseline, and post-intervention (at 8 weeks)	SF-36 - mental component score		Higher scores indicate more favourable health
4	Secondary	Disease impact	Baseline, and post-intervention (at 8 weeks)	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)	Indicates the level of difficulty associated with overall functional activities due to knee pain	
5	Secondary	Pain	Baseline, and post-intervention (at 8 weeks)	WOMAC - pain subscale	Knee pain (35 points)	
6	Secondary	Stiffness	Baseline, and post-intervention (at 8 weeks)	WOMAC - stiffness subscale	10 points	
7	Secondary	Physical function	Baseline, and post-intervention (at 8 weeks)	WOMAC - physical function subscale	85 Points	

Characteristics of included studies	Arthropathies				
Study ID	**Lee 2009**				
8	Secondary	Functional fitness	Baseline, and post-intervention (at 8 weeks)	6-minute walk test (6MWT)	Patients were instructed to walk a distance of 6m as fast as possible and the elapsed time was recorded.
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Characteristics of included studies	Arthropathies
Study ID	**Lee 2009**
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Characteristics of included studies	Arthropathies
Study ID	**Lee 2009**
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Characteristics of included studies	Arthropathies	
Study ID	**Lee 2009**	
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Method of analysis		
Statistics	The primary analysis was based on general linear models, with the outcome measures applied as dependent variables. Each analysis of an individual patient's baseline level was used as a covariate in the corresponding one-way analysis of covariance (ANCOVA). Independent t-test was additionally used to compare the changes of the scores between two groups. Differences were considered statistically significant at P50.05	
Population analysed	Intent-to-treat	Analysis was performed on the 44 participants who were randomized for the intention-to treat analysis using the 'last score carried forward' technique.
Missing data	Yes	During the course of the trial one female patient in the training group was withdrawn from the study protocol due to the professional activities not related to her clinical condition. One woman withdrew because she moved to another place and one with no reason given

Characteristics of included studies	Arthropathies		
Study ID	**Li 2019d**		
Study reference	Li, L., S. Cheng, G. Wang, G. Duan and Y. Zhang (2019). "Tai chi chuan exercises improve functional outcomes and quality of life in patients with primary total knee arthroplasty due to knee osteoarthritis." Complementary Therapies in Clinical Practice 35: 121-125. ChiCTR1800017510		
Study design	RCT	Prospective cohort	Random numbers generated by SAS (v9.2) statistical software
Author affiliation	Authors are affiliated with two Chinese university hospitals		
Source of funds	Natural Science Foundation of Shandong Province (Grant Numbers: ZR2017MH119)		
Declared interests of study authors	No conflicts of interest		
Setting / provider	Hospital/home		
Country(s) / region	China		
Enrolment period	Study dates: January 2014 to January 2017		
Length of treatment/ followup	3.5 months (14 weeks)		
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*	
participants	129	Adults (65-74 yrs) with **knee osteoarthritis, recovering from unilateral total knee arthroplasty**	

Characteristics of included studies	Arthropathies		
Study ID	**Li 2019d**		
details	*Inclusion criteria:* (a) clinical andradiographic evidence diagnosed with end-stage knee OA according to the diagnosis criteria and scheduled for primary unilateral TKA surgery (b) 65–74 years of age (c) no history ofsignificant cardiovascular, pulmonary, metabolic, musculoskeletal, or other chronic diseases (d) fully informed consent about the program (e) a partner to oversee the entire exerciseprocess to ensure safety (f) a normally active lifestyle	*Exclusion criteria:* (a) a history of knee infection, a lesion involving bilateral knees, orany intra-articular hyaluronic acid injections in the 6 months prior to assessment (b) serious medical conditions that limited his/her ability to safely participate in either the TCC or physical therapy programs (c) inability to walk at least 150 m in 6 min due to some seriousdiseases (e.g., epilepsy, diminished mental capabilities) (d) previous experience with TCC orexercised regularly with other similar types of complementary and alternative medicine suchas qi gong or yoga (e) inability to complete the study (e.g., not Chinese-speaking orintended to move out of the region)	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	64	Tai chi - 45 minutes 5 days a week for 14 weeks During 2 weeks in hospital, participants completed traditional physical exercises. From weeks 2 through 14 postoperatively, participants received 45min per day of tai chi training 5x/week.	
Comparator #1 (control)	--	--	

Characteristics of included studies	Arthropathies					
Study ID	**Li 2019d**					
Comparator #2 (other)	65	Traditional physical exercise - 45 minutes 5 times a week for 14 weeks During 2 weeks in hospital, participants completed traditional physical exercises. From weeks 2 through 14 postoperatively, participants continued traditional physical exercise for 45min per day 5x/week.				
Comparator #3 (other)	--	--				
Co-interventions	2 weeks of traditional physical exercise in hospital after total knee arthroplasty due to osteoarthritis					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A				
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Pain	3 days preoperatively, week 2 postoperatively, week 14 postoperatively	Western Ontario and McMaster Universities Arthritis Index (WOMAC) - Pain	indicates the level of difficulty associated with overall functional activities due to OA.	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)
2	Primary	Stiffness	4 days preoperatively, week 2 postoperatively, week 14 postoperatively	Western Ontario and McMaster Universities Arthritis Index (WOMAC) - Stiffness	indicates the level of difficulty associated with overall functional activities due to OA.	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)

Characteristics of included studies	Arthropathies					
Study ID	**Li 2019d**					
3	Primary	Function	5 days preoperatively, week 2 postoperatively, week 14 postoperatively	Western Ontario and McMaster Universities Arthritis Index (WOMAC) - Functional Status	indicates the level of difficulty associated with overall functional activities due to OA.	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)
4	Primary	Functional fitness	6 days preoperatively, week 2 postoperatively, week 14 postoperatively	6-minute walk test (6MWT)		
5	Not specified	Knee range of motion - Flexion	6 days preoperatively, week 2 postoperatively, week 14 postoperatively	Goniometry	Accurate to 1 degree	
6	Not specified	Knee range of motion - Extension	6 days preoperatively, week 2 postoperatively, week 14 postoperatively	Goniometry	Accurate to 1 degree	
7	Primary	Health status - physical	6 days preoperatively, week 2 postoperatively, week 14 postoperatively	SF-36 - Physical Component Summary	Higher score indicates better health	

Characteristics of included studies		Arthropathies				
Study ID		**Li 2019d**				
8	Primary	Health status - mental	6 days preoperatively, week 2 postoperatively, week 14 postoperatively	SF-36 - Mental Component Summary	Higher score indicates better health	
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Characteristics of included studies	Arthropathies
Study ID	**Li 2019d**
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Characteristics of included studies	Arthropathies
Study ID	**Li 2019d**
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Characteristics of included studies	Arthropathies	
Study ID	**Li 2019d**	
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Method of analysis		
Statistics	Continuous data variables were examined statistically for normality of distribution (using Kolmogorov-Smirnov test), after affirming normal distribution, continuous data were expressed as mean +/- SD. One-way ANOVA was used to analyse continuous data. Chi square test used to examine differences between groups for categorical data. Statistical analyses were performed using SPSS version 21.0.	
Population analysed	Intent-to-treat	Modified - participants who discontinued the intervention or were lost to follow-up were excluded from the analysis.
Missing data	Yes	10/64 tai chi participants dropped out; 12/65 control group participants dropped out. These participants were excluded from the final analysis.

Characteristics of included studies	Arthropathies		
Study ID	**Liu 2019a**		
Study reference	Liu, J., L. Chen, X. Chen, K. Hu, Y. Tu, M. Lin, J. Huang, W. Liu, J. Wu, Z. Qiu, J. Zhu, M. Li, J. Park, G. Wilson, C. Lang, G. Xie, J. Tao and J. Kong (2019). "Modulatory effects of different exercise modalities on the functional connectivity of the periaqueductal grey and ventral tegmental area in patients with knee osteoarthritis: a randomised multimodal magnetic resonance imaging study." British Journal of Anaesthesia 123(4): 506-518. Liu, J., L. Chen, Y. Tu, X. Chen, K. Hu, Y. Tu, M. Lin, G. Xie, S. Chen, J. Huang, W. Liu, J. Wu, T. Xiao, G. Wilson, C. Lang, J. Park, J. Tao and J. Kong (2019). "Different exercise modalities relieve pain syndrome in patients with knee osteoarthritis and modulate the dorsolateral prefrontal cortex: A multiple mode MRI study." Brain, Behavior, & Immunity 82: 253-263. ChiCTR-IOR-16009308		
Study design	RCT	Prospective cohort	Computer-generated random number sequence generated using SAS.
Author affiliation	Authors are affiliated with a Chinese university and an American hospital		
Source of funds	Chinese National Rehabilitation Research Center of Traditional Chinese Medicine, Fujian Rehabilitation Industrial Institution, and Fujian Rehabilitation Tech Co-Innovation Center (China. X2012001-Collaboration); Fujian Provincial Science and Technology Department (China. 2017L2011)		
Declared interests of study authors	JK has equity in a start-up company (MNT, Boston, MA, USA) and a pending patent to develop a new brain stimulation device,but declares no conflict of interest. All other authors declare no competing interests.		
Setting / provider	Not specified, likely hospital		
Country(s) / region	China		
Enrolment period	June 2015 to October 2015		
Length of treatment/ followup	3 months (12 weeks)		
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*	
participants	140	Osteoarthritis (knee, 40-70 yrs)	

Characteristics of included studies	Arthropathies		
Study ID	**Liu 2019a**		
details	*Inclusion criteria:* 1.Be diagnosed with knee osteoarthritis according to the Diagnostic and Therapeutic Criteria from Committee of the American Rheumatism Association 2.Aged 40-70 years,BMI≤30kg/m2 3.Kellgren and Lawrence (K/L) grade 2 or 3 4.WOMAC pain subscale score (visual analog version) of ≥ 40 (range 0 to 500) 5.The score of Brief Pain Inventory (BPI) >2 6.The score of Beck Depression Inventory(BDI) <14 7.Information consent ,participate voluntary.	*Exclusion criteria:* 1. Participants who have bleeding tendency 2. Any intra-articular steroid injections in three months or reconstructive surgery within six months 3. Knee pain due to causes other knee osteoarthritis, such as inflammation 4. Primary or secondary muscle disease such as idiopathic inflammatory myopathy, progressive muscular dystrophy, glycogen storage disease 5. Serious knee joint varus or valgus deformity 6. Psychophtic, without independent capacity and can not cooperate with the clinical observation and treatment 7. Seriously joint instability and limb alignment offset caused by lower extremity fractures or knee trauma, or uneven of articular surface because of fractures 8. regular aerobic exercise (3 months with a frequency more than 3 times per week were considered as the minimal standard for regular aerobic exercise) 9. Serious medical conditions that limit his/her ability to safely participate in either the Tai Chi or baduanjin programs, including severe organ failure, severe cardiovascnlar and cerebrovascular diseases, severe musculoskeletal system disease, and other sports contraindications 10. MRI contraindications (e.g.non-removable denture, cardiac pacemaker) and taking benzodiazepines or other medications that may influence brain imaging 11. The Mini-Mental Status Examination score < 24
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	35	Tai chi (60min, 5x/week, 12 weeks). Style not specified.	
Comparator #1 (control)	35	Health education (60min, 1x/week, 12 weeks). Including lesson coping with knee osteoarthritis and other health-related knowledge.	

Characteristics of included studies	Arthropathies					
Study ID	**Liu 2019a**					
Comparator #2 (other)	35	Baduanjin training (60min, 5x/week, 12 weeks).				
Comparator #3 (other)	35	Cycling training (60min, 5x/week, 12 weeks).				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	>5 years experience			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Pain	Baseline, end of treatment (12 wks)	Knee Injury and Osteoarthritis Outcome Score (KOOS) - Pain subtest	Pain subtest has 0-100 scale where 0 represents extreme knee problesm and 100 represents no knee problems	
2	Not specified	Biomarker, immune/inflammatory response	Baseline, end of treatment (12 wks)	brain-derived neurotrophic factor (BNDF)	Enzyme-linked immunosorbent assay (ELISA)	

Characteristics of included studies	Arthropathies				
Study ID	**Liu 2019a**				
3	Not specified	Biomarker, immune/inflammatory response	Baseline, end of treatment (12 wks)	IFN-gamma	Enzyme-linked immunosorbent assay (ELISA)
4	Not specified	Biomarker, immune/inflammatory response	Baseline, end of treatment (12 wks)	serum programmed death-1 (PD-1)	Enzyme-linked immunosorbent assay (ELISA)
5	Not specified	Biomarker, immune/inflammatory response	Baseline, end of treatment (12 wks)	T-cell Ig- and mucin domain containing molecule-3 (TIM-3)	Enzyme-linked immunosorbent assay (ELISA)
6	Not specified	Brain functional connectivity- pain receptors	Baseline, end of treatment (12 wks)	Periaqueductal grey (PAG) region	Resting state functional magnetic resonance (fMRI) imaging
7	Not specified	Brain functional connectivity- pain receptors	Baseline, end of treatment (12 wks)	Ventral tegmental area (VTA)	Resting state functional magnetic resonance (fMRI) imaging

Characteristics of included studies	Arthropathies
Study ID	**Liu 2019a**
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Characteristics of included studies	Arthropathies
Study ID	**Liu 2019a**
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Characteristics of included studies	Arthropathies
Study ID	**Liu 2019a**
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Characteristics of included studies	Arthropathies	
Study ID	**Liu 2019a**	
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Method of analysis		
Statistics	Performed using SPSS software. Shapiro-Wilk test to check normality of continuous variables. Normal distribution continuous variables were analyses using one-way ANOVA. ANCOVA was used to compare changes post-intervention to pre-intervention in KOOS scores and blood serum indicators. Post hoc analysis with Sidak correction was applied to explore between group differences. For non-normally distributed data and categorical variables, non-parametric testing was used to compare between-groups differences.	
Population analysed	Intent-to-treat	Modified - participants lost to follow-up were excluded from the final analysis.
Missing data	Yes	108/140 randomised subjects completed the study: Tai chi (28/35), Baduanjin (29/35), stationary cycling (27/35), control (24/35). Among those who dropped out, there was no significant difference in characteristics. No adverse effects or significant changes in daily activities were reported. No significant differences in attendance rates bewteen groups of final remaining participants (one-way ANOVA).

Characteristics of included studies	Arthropathies	
Study ID	**Nahayatbin 2018**	
Study reference	Nahayatbin, M., M. Ghasemi, A. Rahimi, K. Khademi-Kalantari, S. S. Naimi, S. M. Tabatabaee and S. Zarein-Dolab (2018). "The effects of routine physiotherapy alone and in combination with either Tai Chi or closed kinetic chain exercises on knee osteoarthritis: A comparative clinical trial study." Iranian Red Crescent Medical Journal 20 (4) (no pagination)(e62600). IRCT2014010215936N1	
Study design	RCT	Prospective cohort
Author affiliation	Authors are affiliated with an Iranian university	
Source of funds	Shahid Beheshti University of Medical Sciences (International Branch)	
Declared interests of study authors	Not reported	
Setting / provider	Private clinic	
Country(s) / region	Iran	
Enrolment period	Expected recruitment dates from clinical trial registry: December 2013 to May 2014	
Length of treatment/ followup	1 month (after completion of 12 sessions)	
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*
participants	48	Osteoarthritis (knee, 45-65 yrs)

Characteristics of included studies	Arthropathies		
Study ID	**Nahayatbin 2018**		
details	*Inclusion criteria:* - anterior knee pain(at least 3 in VAS) - grade 2 and 3 of knee OA - absence of : malignancy and infection in the knee, metabolic, endocrine, cardiovascular, neurological and other musculo-skeletal diseases that affect a person's standing, bursitis around the patella corticosteroid injection within recent thirty days, using of non-steroidal anti-inflammatory drugs during the prior week, fracture and open knee wound, knee surgery in the past six months, low back and hip surgery, knee pain duration less than one year, knee hyper mobility and instability, cruciate ligament injuries, severe swelling around the knee, psychological problems physical therapy in the prior six months, using of exercise therapy for improving the performance of the lower extremities in prior six months.	*Exclusion criteria:* - unwilling to continuing the treatment program - incomplete treatment - using of non-steroidal anti-inflammatory drugs or steroid injection in the knee joint during the study - if during the 6 minute walk test subjects have symptoms such as chest pain, dyspnea, leg cramp, staggering, excessive sweating, - abilty to complete the test - two consecutive absences in the treatment sessions	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	16	Tai chi (Yang style 6 forms). 20min, 12 sessions (3 sessions/week) within 4 weeks. 5min warm-up, 10min tai chi, 5min cool-down.	
Comparator #1 (control)	16	Control (no intervention)	

Characteristics of included studies	Arthropathies					
Study ID	**Nahayatbin 2018**					
Comparator #2 (other)	16	Close kinetic chain exercise. 20min, 12 sessions within 4 weeks. 5min static stretching of rectus femoris, 10min exercise (knee extension, mini squat, step up, lunge), 5min stretching of rectus femoris as cool-down.				
Comparator #3 (other)	--	--				
Co-interventions	Routine physiotherapy: 15min infrared ultrasound and 5min of pulsed ultrasound (1MHZ, 80% pulse, intensity 1W/Cm2, 5min)					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A				
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Pain	Baseline, mid (6 wks) end of treatment (12 wks), followup (16 wks)	Knee Injury and Osteoarthritis Outcome Score (KOOS) - Pain subscale	Likert scale: options scored from 0 (No problems) to 4 (Extreme problems)	
2	Primary	Symptoms	Baseline, mid (6 wks) end of treatment (12 wks), followup (16 wks)	Knee Injury and Osteoarthritis Outcome Score (KOOS) - Symtpoms subscale	Likert scale: options scored from 0 (No problems) to 4 (Extreme problems)	

Characteristics of included studies	Arthropathies				
Study ID	**Nahayatbin 2018**				
3	Primary	Activities of daily living	Baseline, mid (6 wks) end of treatment (12 wks), followup (16 wks)	Knee Injury and Osteoarthritis Outcome Score (KOOS) - ADL subscale	Likert scale: options scored from 0 (No problems) to 4 (Extreme problems)
4	Primary	Sport and recreational activity	Baseline, mid (6 wks) end of treatment (12 wks), followup (16 wks)	Knee Injury and Osteoarthritis Outcome Score (KOOS) - Sport and recreational activity subscale	Likert scale: options scored from 0 (No problems) to 4 (Extreme problems)
5	Primary	Knee-related quality of life	Baseline, mid (6 wks) end of treatment (12 wks), followup (16 wks)	Knee Injury and Osteoarthritis Outcome Score (KOOS) - QoL subscale	Likert scale: options scored from 0 (No problems) to 4 (Extreme problems)
6	Primary	Total score	Baseline, mid (6 wks) end of treatment (12 wks), followup (16 wks)	Knee Injury and Osteoarthritis Outcome Score (KOOS) - total score	Scores are transformed to a 0–100 scale, with 0= extreme knee problems and 100 = no knee problems
7	Primary	knee range of motion, flexion	Baseline, mid (6 wks) end of treatment (12 wks), followup (16 wks)	Goniometry	

Characteristics of included studies	Arthropathies			
Study ID	**Nahayatbin 2018**			
8	Primary	knee range of motion, extension	Baseline, mid (6 wks) end of treatment (12 wks), followup (16 wks)	Goniometry
9	Primary	Joint swelling above and 5cm upper and lower of the patella	Baseline, mid (6 wks) end of treatment (12 wks), followup (16 wks)	Tape
10	Primary	Functional fitness	Baseline, mid (6 wks) end of treatment (12 wks), followup (16 wks)	6-minute walk test
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Characteristics of included studies	Arthropathies
Study ID	**Nahayatbin 2018**
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Characteristics of included studies	Arthropathies
Study ID	**Nahayatbin 2018**
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Characteristics of included studies	Arthropathies	
Study ID	**Nahayatbin 2018**	
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Method of analysis		
Statistics	Performed using SPSS v19. After determining normality of distribution using the Shapiro-Wlk test, two factorial repeated measures ANOVA with one between-subject factor group and one within-subject factor was used to determine effects of interventions. Significant differences were analysed using Bonferroni for post-hoc comparison.	
Population analysed	Intent-to-treat	Outcomes were reported for all 48 participants.
Missing data	No	

Characteristics of included studies	Arthropathies		
Study ID	**Song 2007**		
Study reference	Song, R., E. O. Lee, P. Lam and S. C. Bae (2007). "Effects of a Sun-style Tai Chi exercise on arthritic symptoms, motivation and the performance of health behaviors in women with osteoarthritis." Daehan Ganho Haghoeji 37(2): 249-256. Qian, G., K. Xue, L. Tang, F. Wang, X. Song, M. C. Chyu, B. C. Pence, C. L. Shen and J. S. Wang (2012). "Mitigation of oxidative damage by green tea polyphenols and Tai Chi exercise in postmenopausal women with osteopenia." PLoS ONE [Electronic Resource] 7(10): e48090.		
Study design	RCT	Prospective cohort	Using Excel program
Author affiliation	Authors are affiliated with Korean and Australian universities		
Source of funds	Korea Research Foundation (Grant No. 2002-042-F00100), Seoul, Korea		
Declared interests of study authors	Not reported		
Setting / provider	University		
Country(s) / region	Korea		
Enrolment period	Not reported		
Length of treatment/ followup	3 months (12 weeks)		
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*	
participants	72	Osteoarthritis (women, 55+)	

Characteristics of included studies	Arthropathies		
Study ID	**Song 2007**		
details	*Inclusion criteria:* (1) clinical and radiographic evidence of osteoarthritis (2) no chronic disease or disability that would hinder from performing Tai Chi exercise such as ischemic heart disease or cerebrovascular attack (3) no participation in any regular exercise program during the previous year	*Exclusion criteria:* Not reported	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	38	Tai chi (Sun style, 12 forms). 60min, 3x/week, 2 weeks. Home practice followed for 10 weeks, with the expectation that participants would practice tai chi 3-4x/week for the remaining 10 weeks. Weekly phone calls were made to participants to encourage adherence.	
Comparator #1 (control)	34	Control (waitlist). Control group participants were able to attend Tai chi lessons after completion of the study.	

Characteristics of included studies	Arthropathies					
Study ID	**Song 2007**					
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Nurses participated in a certification workshop			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Pain	Baseline, end of treatment (12 wks)	Korean version of the Western Ontario-McMaster Universities OA index (K-WOMAC)	indicates the level of difficulty associated with overall functional activities due to OA.	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)
2	Not specified	Stiffness	Baseline, end of treatment (12 wks)	Korean version of the Western Ontario-McMaster Universities OA index (K-WOMAC)	indicates the level of difficulty associated with overall functional activities due to OA.	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)

Characteristics of included studies	Arthropathies				
Study ID	**Song 2007**				
3	Not specified	Balance	Baseline, end of treatment (12 wks)	Single-leg stance	how long (seconds) subjects could stand on one foot with eyes closed.
4	Not specified	Abdominal muscle strength	Baseline, end of treatment (12 wks)	Number of sit-ups performed in 30 seconds	
5	Not specified	Knee muscle strength	Baseline, end of treatment (12 wks)	Measured by isokinetic dynamometer in degrees/second. Tests 4 times and averaged.	
6	Not specified	Knee muscle endurance	Baseline, end of treatment (12 wks)	Measured by isokinetic dynamometer in degrees/second. Tests 4 times and averaged.	
7	Not specified	Flexibility	Baseline, end of treatment (12 wks)	Sitting down and reaching both hands towards feet without bending knees; the cm between hands and feet was measured	

Characteristics of included studies	Arthropathies			
Study ID	**Song 2007**			
8	Not specified	Anthropometrics	Baseline, end of treatment (12 wks)	Body mass index (kg/m2)
9	Not specified	Cardiorespiratory fitness	Baseline, end of treatment (12 wks)	Stationary bike for 13 minutes maintaining 50-60 rotations per minute
10	Not specified	Self-efficacy	Baseline, end of treatment (12 wks)	Motivation Scale for Health Behaviours
11	Not specified	Perceived benefits	Baseline, end of treatment (12 wks)	Motivation Scale for Health Behaviours
12	Not specified	Perceived barriers	Baseline, end of treatment (12 wks)	Motivation Scale for Health Behaviours

Characteristics of included studies	Arthropathies			
Study ID	**Song 2007**			
13	Not specified	Emotional salience	Baseline, end of treatment (12 wks)	Motivation Scale for Health Behaviours
14	Not specified	Health responsibility	Baseline, end of treatment (12 wks)	Health Behaviour Scale
15	Not specified	Exercise	Baseline, end of treatment (12 wks)	Health Behaviour Scale
16	Not specified	Diet behaviour	Baseline, end of treatment (12 wks)	Health Behaviour Scale
17	Not specified	Stress management	Baseline, end of treatment (12 wks)	Health Behaviour Scale
18	Not specified	Smoking cessation	Baseline, end of treatment (12 wks)	Health Behaviour Scale

Characteristics of included studies	Arthropathies
Study ID	**Song 2007**
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Characteristics of included studies	Arthropathies	
Study ID	**Song 2007**	
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Method of analysis		
Statistics	Data were analysed using SPSS v10.0. Descriptive statistics used for demographic variables. Homogeneity test confirmed there were no significant group differences in the demographic data and pre-test measures. Independent t-test was used to examine between-group differences in outcomes.	
Population analysed	Intent-to-treat	Modified - participants who dropped out were excluded from the analysis.
Missing data	Yes	Dropout rate was 41%; 22/38 in the tai chi group and 21/34 in the control group completed the study, resulting in dropout rates of 43% and 39%, respectively. Reasons for dropout included knee replacement surgery, childcare, transportation to the exercise site.

Characteristics of included studies	Arthropathies		
Study ID	**Song 2010**		
Study reference	Song, R., B. L. Roberts, E. O. Lee, P. Lam and S. C. Bae (2010). "A randomized study of the effects of t'ai chi on muscle strength, bone mineral density, and fear of falling in women with osteoarthritis." Journal of Alternative & Complementary Medicine 16(3): 227-233.		
Study design	RCT	Prospective cohort	Computer-generated random numbers
Author affiliation	Authors are affiliated with Korean, American, and Australian universities		
Source of funds	Not reported		
Declared interests of study authors	No conflicts of interest		
Setting / provider	Not specified		
Country(s) / region	Korea		
Enrolment period	Not reported		
Length of treatment/ followup	6 months		
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*	
participants	82	Osteoarthritis (women, 55+ yrs)	

Characteristics of included studies	Arthropathies		
Study ID	**Song 2010**		
details	*Inclusion criteria:* (1) age 55 years or older (2) clinical and radiographic evidence of OA (3) no chronic disease or disability that would prevent completion of the t'ai chi program, such as ischemic heart disease or cerebrovascular attack (4) no participation in a regular exercise program during the previous year.	*Exclusion criteria:* Not reported	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	41	Tai chi (Sun style, 31 forms with QiGong breathing). 60min, 2x/week, 3 weeks: 10min warm-up, 40-45min tai chi, 5-10min cool-down. 1x/week for the remainder of the 6 month period. Participants encouraged to practice tai chi at home for 20 mins every day.	
Comparator #1 (control)	--	--	

Characteristics of included studies	Arthropathies					
Study ID	**Song 2010**					
Comparator #2 (other)	41	Self-help education program. 2hours, 1x/month, 6 months. Based on the Arthritis Self-Management Program. Intended to enhance self-management skills and knowledge through increasing self-efficacy. Participants encouraged to apply the self-management skills to their daily activities. Participants in the control group were offered the tai chi exercise program after the end of the study.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Certified			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	muscle strength, flexor knee	Baseline, end of treatment (6 mos)	Isokinetic dynamometer (Nm/kg).		
2	Not specified	muscle strength, extensor knee	Baseline, end of treatment (6 mos)	Isokinetic dynamometer (Nm/kg).		

Characteristics of included studies	Arthropathies				
Study ID	**Song 2010**				
3	Not specified	muscle endurance, flexor knee	Baseline, end of treatment (6 mos)	Isokinetic dynamometer (Nm/kg).	
4	Not specified	muscle endurance, extensor knee	Baseline, end of treatment (6 mos)	Isokinetic dynamometer (Nm/kg).	
5	Not specified	Fracture risk	Baseline, end of treatment (6 mos)	Bone mineral density - femoral neck	T score
6	Not specified	Fracture risk	Baseline, end of treatment (6 mos)	Bone mineral density - ward's triangle	T score
7	Not specified	Fracture risk	Baseline, end of treatment (6 mos)	Bone mineral density - trochanter	T score

Characteristics of included studies	Arthropathies			
Study ID	**Song 2010**			
8	Not specified	Fear of falling	Baseline, end of treatment (6 mos)	Survey of activities and fear of falling in the elderly (Korean version). 11 items.
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Characteristics of included studies	Arthropathies
Study ID	**Song 2010**
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Characteristics of included studies	Arthropathies
Study ID	**Song 2010**
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Characteristics of included studies	Arthropathies	
Study ID	**Song 2010**	
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Method of analysis		
Statistics	Analysed using SPSSWIN v15.0. Descriptive statistics used for demographics and outcome variables. Independent t tests used to assess between-group differences in baseline measures. ANCOVA used to compare between-group differences at post-test after adjusting for baseline measures.	
Population analysed	Intent-to-treat	Modified - participants who dropped out were not included in the analysis.
Missing data	Yes	11/41 tai chi group participants dropped out (surgery, n=2; moved away, n=2; family matters, n=3; lost to follow-up, n=4). 6/41 control group participants dropped out (lost to follow-up, n=4; lost interest, n=2).

Characteristics of included studies	Arthropathies		
Study ID	**Tsai 2013**		
Study reference	Tsai, P. F., J. Y. Chang, C. Beck, Y. F. Kuo and F. J. Keefe (2013). "A pilot cluster-randomized trial of a 20-week Tai Chi program in elders with cognitive impairment and osteoarthritic knee: effects on pain and other health outcomes." Journal of Pain & Symptom Management 45(4): 660-669. Tsai, P. F., J. Y. Chang, C. Beck, Y. F. Kuo, F. J. Keefe and K. Rosengren (2015). "A supplemental report to a randomized cluster trial of a 20-week Sun-style Tai Chi for osteoarthritic knee pain in elders with cognitive impairment." Complementary Therapies in Medicine 23(4): 570-576. Tsai, P., J. Chang, C. Beck and Y. Kuo (2011). "A randomized controlled trial of a 20 week Tai Chi program for osteoarthritic knee pain in elders with mild dementia." Journal of Pain 1): P71.		
Study design	RCT	cluster design	Random number table used to assign each site. 4 sites assigned to each intervention.
Author affiliation	Authors are affiliated with American universities		
Source of funds	This pilot study was supported by grant R21NR010003 from the National Institute of Nursing Research, and also was supported in part by grant 1IL1RR029884 from the National Center for Research Resources.		
Declared interests of study authors	No conflicts of interest		
Setting / provider	Senior centres and residential complexes		
Country(s) / region	USA		
Enrolment period	Study dates: January 2008 to June 2010		
Length of treatment/ followup	5 months (21 weeks)		
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*	
participants	55	Osteoarthritis (knee, 60+ yrs)	

Characteristics of included studies	Arthropathies		
Study ID	**Tsai 2013**		
details	*Inclusion Criteria:* - Age 60 years or order; -A MMSE score of 18-28; -Diagnosis of knee OA based on medical history reviewed with elders or family members/staff and confirmation from the physician/APN; -Self-report of knee OA pain ≥ 2 on the VDS, or pain score ≥ 3 on the WOMAC pain subscale; -Ability to speak English; -Physician's/APN's permission to participate; -No regular exercise program in the past month; -Ambulation without assistance from staff or a walking device for 50 meters; and -Ability to stand and maintain balance for 1 minute without a walking device	*Exclusion Criteria:* -Uncorrectable moderate or severe hearing or vision deficits; -Parkinson's disease; -Cancer pain; -Chronic pain conditions, such as rheumatoid arthritis, fibromyalgia, or severe low back pain; -Diabetic neuropathy; -Arthroscopic surgery or total knee- or hip-replacement surgery in the past 6 months; -Fractures in the past 6 months; -Major psychiatric disorder or positive screen for depressive symptoms (GDS-15 score ≥ 5) without taking medication; -History of falls in the past 3 months; or -Vertigo in the past month	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	28	Tai chi (Sun style 12-form tai chi for arthritis, adapated for older adultswith knee OA). 25- to 45-min, 3x/week, 20 weeks. Sun TC includes 6 basic and 6 advanced forms designed for all ages with arthritis seeking a joint-safe exercise routine. 5-min rest included in each session.	
Comparator #1 (control)	--	--	

Characteristics of included studies	Arthropathies					
Study ID	**Tsai 2013**					
Comparator #2 (other)	27	Health education and cultural activities. The attention control protocol was standardized in terms of teaching content, materials and duration. The length and frequency of the activities carried out in this group closely matched those in the TC group.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Certified, 6 years experience teaching Sun-style tai chi for patients with arthritis. 2 other certified tai chi instructors with at least 3 years experience also assisted.			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Pain	Baseline, mid (5, 9, 13, 17 wks), end of treatment (22 wks)	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) Pain subscale	indicates the level of difficulty associated with overall functional activities due to OA.	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)
2	Secondary	Physical	Baseline, mid (5, 9, 13, 17 wks), end of treatment (22 wks)	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) Physical subscale	indicates the level of difficulty associated with overall functional activities due to OA.	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)

Characteristics of included studies	Arthropathies					
Study ID	**Tsai 2013**					
3	Secondary	Stiffness	Baseline, mid (5, 9, 13, 17 wks), end of treatment (22 wks)	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) stiffness subscale	indicates the level of difficulty associated with overall functional activities due to OA.	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)
4	Secondary	Functional mobility/falls risk	Baseline, mid (5, 9, 13, 17 wks), end of treatment (22 wks)	Get up and go (GUG) test	Stand up from chair, walk 50 feet, return to chair, and sit down	
5	Secondary	Functional capacity, muscle strength	Baseline, mid (5, 9, 13, 17 wks), end of treatment (22 wks)	Sit to stand	Rise 5x from chair as fast as possible	
6	Secondary	Cognitive functioning	Baseline, mid (5, 9, 13, 17 wks), end of treatment (22 wks)	Mini-Mental State Examination (MMSE)		
7	Not specified	Pain intensity	Baseline, mid (5, 9, 13, 17 wks), end of treatment (22 wks)	Verbal Descriptive Scale (scores pain on a scale from 0 to 6 - no pain to most intense pain imaginable)	Collected for 3 days at each time point; average of the three reports was used in the analysis	

Characteristics of included studies	Arthropathies					
Study ID	**Tsai 2013**					
8	Not specified	Pain behaviour	Baseline, mid (5, 9, 13, 17 wks), end of treatment (22 wks)	10-minute videotaped behaviour; assessors observed pain-related behaviours	1 point per behaviour observed; maximum score for each 20-second observation was 5 points. With 20 observation periods, scores could range from 0 to 100.	
9	Not specified	Pain relief	average daily analgesic dosage	Analgesic intake	Type, dosage, frequency. Reported by participants + assessors counted pills to calculate average dose per day. Doses of each analgesic were standardised to acetaminophen equivalents.	The average daily analgesic dosage in acetaminophen equivalents for each time point was used in the analysis.
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Characteristics of included studies	Arthropathies
Study ID	**Tsai 2013**
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Characteristics of included studies	Arthropathies
Study ID	**Tsai 2013**
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Characteristics of included studies	Arthropathies	
Study ID	**Tsai 2013**	
27	--	
28	--	
29	--	
30	--	
Method of analysis		
Statistics	Bivariate statistics (t-tests and Chi-squared analysis) and general linear mixed models were used. To account for cluster randomisation, the random effects of sites and the random intercept of subject effects within a site were included in the mixed models. Change in outcome variables between baseline and each follow-up time point for participants in the TC group and control group were estimated from the mixed models, stratified by group.	
Population analysed	Intent-to-treat	All partcipants were included in the final analysis.
Missing data	Yes	4/28 (14%) of tai chi group participants dropped out (busy schedule, n=1; health problem, n=3). 6/27 (22%) of control participants dropped out (busy schedule, n=2; health problem, n=2; moving to another facility, n=1; wanted tai chi group, n=1). For participants who dropped out, the last observation was carried forward.

Characteristics of included studies	Arthropathies		
Study ID	**Wang 2005**		
Study reference	Wang, C., R. Roubenoff, J. Lau, R. Kalish, C. H. Schmid, H. Tighiouart, R. Rones and P. L. Hibberd (2005). "Effect of Tai Chi in adults with rheumatoid arthritis." Rheumatology (oxford, england) 44(5): 685-687. Wang, C. (2008). "Tai Chi improves pain and functional status in adults with rheumatoid arthritis: results of a pilot single-blinded randomized controlled trial." Medicine & Sport Science 52: 218-229.		
Study design	RCT	Prospective cohort	Computer-generated random numbers
Author affiliation	One author is affiliated with a pharmaceutical company (which has since been acquired by Takeda); all other authors are affiliated with an American academic institution.		
Source of funds	This study was supported in part by the General Clinical Research Center (NIH Grant M01-RR0054) and a grant from Tufts-New England Medical Center.		
Declared interests of study authors	One of the authors is an employee of Millenium Pharmaceuticals		
Setting / provider	Not reported (participants were recruited from an outpatient clinic)		
Country(s) / region	USA		
Enrolment period	Study dates: June 2002 and February 2003		
Length of treatment/ followup	3 months (12 weeks)		
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*	
participants	20	Rheumatoid arthritis (class I or II)	

Characteristics of included studies	Arthropathies		
Study ID	**Wang 2005**		
details	*Inclusion Criteria:* Class I or II rheumatoid arthritis. No other inclusion criteria specified. Baseline characteristics include (TC/Control): - Average age: 48/51 - Female: 80%/70% - White race: 80%/70% - Average BMI: 24/28 - Average weight (kg): 64/82	*Exclusion Criteria:* None specified	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	10	Tai chi (Yang style). 60min, 2x/week, 12 weeks. Each sesssion included 10min warm-up, 30min tai chi, 10min breathing technique, and 10min relaxation. Subjects were instructed to practice tai chi at least 20min/day at home.	
Comparator #1 (control)	--	--	

Characteristics of included studies	Arthropathies					
Study ID	**Wang 2005**					
Comparator #2 (other)	10	Wellness education and stretching. 60min, 2x/week, 12 weeks. 40min information about RA disease, diet and nutrition, therapies to treat RA, and physical and mental health education. 20min stretching exercises. Subjects were encouraged to practice 20min of strength exercise once a day at home.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C				
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	ACR20 response	Baseline, end of treatment (12 wks)	American College of Rheumatology 20 (ACR20)	At least 20% improvement in both the tender joint and swollen count and at least 20% improvement in 3 out of 5 of the following:	patient measurement of pain, patient's or physician's global assessment of disease activity, or a physican function measure (disability index of the HAQ), and serum levels of CRP or erythrocyte sedimentation rate (ESR).
2	Secondary	Tender joint count	Baseline, end of treatment (12 wks)			

Characteristics of included studies	Arthropathies					
Study ID	**Wang 2005**					
3	Secondary	Swollen joint count	Baseline, end of treatment (12 wks)			
4	Secondary	Joint tenderness	Baseline, end of treatment (12 wks)	Ritchie Articular Index	the sum of the grades of tenderness (0 = not tender, 1 = tender, 2 = tender and causes wince, and 3 = tender, causes wince and effort to withdraw) elicited by applying firm pressure over the joint margin of articular joints	
5	Secondary	Disability	Baseline, end of treatment (12 wks)	Health assessment questionnaire (HAQ) - disability index (20-items)	Eight domains (dressing, arising, eating, walking, hygiene, activities, reach, and grip). Each item is scored from 0 (no disability) to 4 (maximum disability).	Total overall score ranges from 0 to 80, with higher score representing higher disability.
6	Secondary	Pain (in the past week)	Baseline, end of treatment (12 wks)	Visual analogue scale (VAS) - 0-3 scale		
7	Secondary	Pain (current)	Baseline, end of treatment (12 wks)	Visual analogue scale (VAS) - 10cm		

Characteristics of included studies	Arthropathies				
Study ID	**Wang 2005**				
8	Secondary	Disease severity	Baseline, end of treatment (12 wks)	Visual analogue scale (VAS) - 10cm	Patient and physician global assessment of disease severity
9	Secondary	Fatigue	Baseline, end of treatment (12 wks)	Visual analogue scale (VAS) - 10cm	
10	Secondary	Inflammatory biomarker	Baseline, end of treatment (12 wks)	Erythrocyte sedimentation rate (ESR)	
11	Secondary	Inflammatory biomarker	Baseline, end of treatment (12 wks)	C-reactive protein (CRP) levels	
12	Secondary	Functional capacity, muscle strength	Baseline, end of treatment (12 wks)	Handgrip strength (kg)	Dynamometer

Characteristics of included studies	Arthropathies					
Study ID	**Wang 2005**					
13	Secondary	Functional capacity, muscle strength	Baseline, end of treatment (12 wks)	Chair stand time (s)		
14	Secondary	Functional mobility	Baseline, end of treatment (12 wks)	50-foot walking time (s)	10 repetitions, using the best, lowest score	
15	Secondary	Physical health	Baseline, end of treatment (12 wks)	SF-36 - Physical Component Score	Scale: 0-50	
16	Secondary	Mental health	Baseline, end of treatment (12 wks)	SF-36 - Mental Component Score	Scale: 0-50	
17	Secondary	Physical funtioning	Baseline, end of treatment (12 wks)	SF-36 - Physical functioning subscale	0-100	higher score indicates better health status
18	Secondary	Role-physical	Baseline, end of treatment (12 wks)	SF-36 - role-physical subscale	0-100	higher score indicates better health status

Characteristics of included studies	Arthropathies					
Study ID	**Wang 2005**					
19	Secondary	Bodily pain	Baseline, end of treatment (12 wks)	SF-36 - bodily pain subscale	0-100	higher score indicates better health status
20	Secondary	General health	Baseline, end of treatment (12 wks)	SF-36 - general health subscale	0-100	higher score indicates better health status
21	Secondary	Vitality	Baseline, end of treatment (12 wks)	SF-36 - Vitality subscale	0-100	higher score indicates better health status
22	Secondary	Social functioning	Baseline, end of treatment (12 wks)	SF-36 - social functioning subscale	0-100	higher score indicates better health status
23	Secondary	Role-emotional	Baseline, end of treatment (12 wks)	SF-36 - role-emotional	0-100	higher score indicates better health status
24	Secondary	Mental health	Baseline, end of treatment (12 wks)	SF-36 - mental health subscale	0-100	higher score indicates better health status
25	Secondary	HR QoL	Baseline, end of treatment (12 wks)	EQ-5D Thermometer Rating Scale (0-100)	Five dimensions: mobility, self-care, usual activities, pain/discomfort, anxiety/depression	
26	Secondary	Depression	Baseline, end of treatment (12 wks)	Center for Epidemiology Studies Depression Index	0-60	higher score indicates greater dissatisfaction with life.

Characteristics of included studies	Arthropathies	
Study ID	**Wang 2005**	
27	--	
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Method of analysis		
Statistics	Values reported as mean +/- standard deviation. P-values for continuous variables are exact values from Wilcoxon rank sum test. P-values for categorical variables are from the Fisher exact test. All tests were two-sided.	
Population analysed	Intent-to-treat	All participants included in the analysis.
Missing data	No	No mising data reported. Study reports that all 20 participants completed the 12-week evaluation and telephone interview.

Characteristics of included studies	Arthropathies		
Study ID	**Wang 2008b**		
Study reference	Wang, C., C. H. Schmid, P. L. Hibberd, R. Kalish, R. Roubenoff, R. Rones, A. Okparavero and T. McAlindon (2008). "Tai Chi for treating knee osteoarthritis: designing a long-term follow up randomized controlled trial." BMC Musculoskeletal Disorders 9: 108. Wang, C., C. H. Schmid, P. L. Hibberd, R. Kalish, R. Roubenoff, R. Rones and T. McAlindon (2009). "Tai Chi is effective in treating knee osteoarthritis: a randomized controlled trial." Arthritis & Rheumatism 61(11): 1545-1553. Wang, C., C. Schmid and T. McAlindon (2010). "Influence of Tai Chi exercise on proprioception in patients with Knee Osteoarthritis: Results from a pilot randomized controlled trial." Osteoarthritis and Cartilage 2): S145-S146. Schmid, A., T. McAlindon, C. H. Schmid and C. Wang (2013). "The Influence of Tai Chi Exercise on Proprioception in Patients with Knee Osteoarthritis: Results from a Pilot Randomized Controlled Trial." International Journal of Integrative Medicine 1. NCT00362453		
Study design	RCT	Prospective cohort	Computer-generated random numbers
Author affiliation	Authors are affiliated with American academic institutions		
Source of funds	National Center for Complementary and Alternative Medicine of the National Institutes of Health (R21AT002161).		
Declared interests of study authors	No conflicts of interest		
Setting / provider	Urban tertiary care medical centre		
Country(s) / region	USA		
Enrolment period	Enrolment: October 2005 to February 2006. Study dates: August 2005 to March 2008		
Length of treatment/ followup	12 months (48 weeks)		
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*	
participants	40	Osteoarthritis (knee, 55+ yrs)	

Characteristics of included studies	Arthropathies	
Study ID	**Wang 2008b**	
details	*Inclusion Criteria:* -Age 55 or older -Body Mass Index (BMI) <= 40 kg/m -Pain on more than half the days of the past month during at least one of the following activities (walking, going up or down stairs, standing upright, or in bed at night -Radiographic evidence of knee OA, defined as the presence of osteophytes in the tibiofemoral compartment and/or the patellofemoral compartment, as assessed on standing anterior/posterior and lateral views -WOMAC pain subscale score, at least 1 of 5 (range 0 to 100 each) >= 40 (visual analog version) -Physically able to participate in both the Tai Chi and stretching and education programs -Willing to complete the 12-week study, including twice a week Tai Chi or stretching and education sessions -Willing to abstain from Tai Chi until completion of the program, if randomized to the stretching and education sessions	*Exclusion Criteria:* -Prior experience with Tai Chi or other similar types of Complementary and Alternative Medicine such as Qi gong, yoga, and acupuncture since these share some of the principles of Tai Chi -Dementia, neurological disease, cardiovascular disease, pulmonary disease, metabolic disease, renal disease, liver disease, or other serious medical conditions limiting ability to participate in either the Tai Chi or stretching programs as determined by primary care physicians -Any intra-articular steroid injections in the previous 3 months or reconstructive surgery on the affected knee -Any intra-articular Synvisc or Hyalgan injections in the previous 6 months -Inability to pass the Mini-Mental Status examination (with a score below 24) -Enrollment in any other clinical trial within the last 30 days -Plan to permanently relocate from the region during the trial period -Non English Speaking
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	20	Tai Chi (Yang Style). 60min, 2x/week, 12 weeks. 10min self-massage, 30min tai chi, 10min breathing technique, 10min relaxation. Several modifications were developed to achieve the physical and mental goals of the study for knee OA, accommodate knee OA symptoms and limit dropouts. Subjects were instructed to practice Tai Chi at least 20 minutes a day at home. After completing the 12 weeks of tai chi sessions, subjects were instructed to continue practicing tai chi at home using a DVD and handouts for guidance until the 48-week follow-up visit.
Comparator #1 (control)	--	--

Characteristics of included studies	Arthropathies					
Study ID	**Wang 2008b**					
Comparator #2 (other)	20	Wellness education and stretching. 60min, 2x/week, 12 weeks. 40min information about OA knowledge, nutrition, and physical and mental health education. 20min stretching exercises. Subjects were encouraged to practice 20min of stretching once a day at home.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	>20 years experience			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Pain	Baseline, end of treatment (12 wks), followup (24, 48 wks)	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)- Pain subscale	indicates the level of difficulty associated with overall functional activities due to OA.	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)
2	Secondary	Physical function	Baseline, end of treatment (12 wks), followup (24, 48 wks)	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) - physical function subscale	indicates the level of difficulty associated with overall functional activities due to OA.	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)

Characteristics of included studies	Arthropathies					
Study ID	**Wang 2008b**					
3	Secondary	Stiffness	Baseline, end of treatment (12 wks), followup (24, 48 wks)	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) - stiffness subscale	indicates the level of difficulty associated with overall functional activities due to OA.	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)
4	Secondary	Pain (global knee)	Baseline, end of treatment (12 wks), followup (24, 48 wks)	Visual analogue scale (VAS) - 10cm	Global knee pain status - physician assessment	Wang 2009b
5	Secondary	Pain (global knee)	Baseline, end of treatment (12 wks), followup (24, 48 wks)	Visual analogue scale (VAS) - 10cm	Global knee pain status - patient assessment	Wang 2009b
6	Secondary	Functional fitness	Baseline, end of treatment (12 wks), followup (24, 48 wks)	6-minute walk test (6MWT)	Walk as far as possible for 6 minute period; distance covered is noted.	Wang 2009b
7	Secondary	Functional capacity, muscle strength	Baseline, end of treatment (12 wks), followup (24, 48 wks)	Chair stand time (seconds)		Wang 2009b

Characteristics of included studies	Arthropathies					
Study ID	**Wang 2008b**					
8	Secondary	Body composition	Baseline, end of treatment (12 wks), followup (24, 48 wks)	Body mass index		Wang 2009b
9	Secondary	Mental health	Baseline, end of treatment (12 wks), followup (24, 48 wks)	SF-36 - Mental Component Summary (MCS)		Wang 2009b
10	Secondary	Physical health	Baseline, end of treatment (12 wks), followup (24, 48 wks)	SF-36 - Physical Component Summary (PCS)		Wang 2009b
11	Secondary	Depression	Baseline, end of treatment (12 wks), followup (24, 48 wks)	Center for Epidemiological Studies Depression Scale (CES-D)	Range 0-60	Wang 2009b
12	Secondary	Self efficacy	Baseline, end of treatment (12 wks), followup (24, 48 wks)	Self-efficacy score	Range 1-5	Wang 2009b

Characteristics of included studies	Arthropathies					
Study ID	**Wang 2008b**					
13	Secondary	Knee joint proprioception	Baseline, end of treatment (12 wks), followup (24, 48 wks)	Non-weight-bearing passive knee joint repositioning test using a biometrics electrogoniometer	Three test angles: 30, 45, and 60. With participant sitting on edge of exam table, the assessor placed knee at each angle using goniometer, then returned the leg to dangle. Participant asked to recreate each position with eyes closed.	Schmid 2013
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Characteristics of included studies	Arthropathies
Study ID	**Wang 2008b**
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Characteristics of included studies	Arthropathies	
Study ID	**Wang 2008b**	
27	--	
28	--	
29	--	
30	--	
Method of analysis		
Statistics	Compared between-group changes in outcomes across all times at 0, 12, 24, and 48 weeks with mixed models, using time and group as categorical fixed factors with random intercepts and first-order autocorrelation of the errors. Similar mixed models were used to examine weekly WOMAC pain analyses from baseline to 12 weeks. Also, we evaluated for potential effects of confounding or interaction with treatment by covariates, including age, sex, BMI, disease duration, disease severity (pain, function, and radiograph score), comorbidities, health status, and use of pain medications.	
Population analysed	Intent-to-treat	All participants included in the analysis.
Missing data	No	All participants completed the evaluations at each time point.

Characteristics of included studies	Arthropathies		
Study ID	**Wang 2013a**		
Study reference	Wang, X. Q., L. Y. Huang, Y. Liu, J. X. Li, X. Wu, H. P. Li and L. Wang (2013). "Effects of tai chi program on neuromuscular function for patients with knee osteoarthritis: study protocol for a randomized controlled trial." Trials [Electronic Resource] 14: 375. Zhu, Q., L. Huang, X. Wu, Y. Zhang, F. Min, J. Li and L. Yu (2017). "Effect of Taijiquan practice versus wellness education on knee proprioception in patients with knee osteoarthritis: a randomized controlled trial." Journal of Traditional Chinese Medicine 37(6): 774-781. Zhang, Z., L. Huang, Y. Liu and L. Wang (2020). "Effect of Tai Chi Training on Plantar Loads during Walking in Individuals with Knee Osteoarthritis." BioMed Research International 2020: 3096237. Zhu, Q., L. Huang, X. Wu, L. Wang, Y. Zhang, M. Fang, Y. Liu and J. X. Li (2016). "Effects of Tai Ji Quan training on gait kinematics in older Chinese women with knee osteoarthritis: A randomized controlled trial." Journal of Sport & Health Science 5(3): 297-303. Lu, J., L. Huang, X. Wu, W. Fu and Y. Liu (2017). "Effect of Tai Ji Quan training on self-reported sleep quality in elderly Chinese women with knee osteoarthritis: a randomized controlled trail." Sleep Medicine 33: 70-75.		
Study design	RCT	Prospective cohort	Computer-generated random sequence
Author affiliation	Authors are affiliated with a Chinese university		
Source of funds	This study was supported by the Key Laboratory of Exercise and Health Science of the Ministry of Education in Shanghai University of Sport and the Shanghai Shangti Orthopedic Hospital. This work was supported by the National Natural Science Fund of China (11572202).		
Declared interests of study authors	No conflicts of interest		
Setting / provider	University/community centre		
Country(s) / region	China		
Enrolment period	Enrolment period: January to March 2013		
Length of treatment/ followup	6 months (24 weeks)		
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*	
participants	46	Osteoarthritis (knee, women 60-70 yrs)	

Characteristics of included studies	Arthropathies		
Study ID	**Wang 2013a**		
details	*Inclusion criteria:* 1. man or woman [this is according to clinical trial registry and protocol; however ultimately only women were recruited because "male patients were considered more likely to have a part-time job after retirement"] 2. diagnostic criteria of definite OA of the knee (unilateral or bilateral) according to ACR clinical and radiographic criteria with reports of pain symptoms for at least 3 months 3. medication not expected to change during the study period; d) able to ambulate for a minimum of 20-minutes, continuously, at their own pace with minimal reports of pain (3 out of 10 on a visual analogue scale) and able to be treated as an out-patient (appropriate footwear or adapted insoles necessary) 4. availability - 3 times a week over a period of 12 months.	*Exclusion criteria:* 1. a history of lower limb surgery 2. other orthopedic problems of the hip, knee, and ankle 3. neurological disease (e.g. Parkinson's, dementia, vertigo, or cerebral apoplexy). 4. Patients who often participated in other forms of exercise were also excluded, as were those who were unable to stand and walk, had received other forms of therapy in the last 2 months, or wished to use any medication or other types of rehabilitation programs during the study period	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	23	Tai chi [described slightly differently between papers - some described Yang-style 8-form, others describe 5 forms]. 60min, 2-3x/week, 24 weeks. Participants attended sessions 2x/week for the first 4 weeks, then participants practiced individually or in groups 3x/week for the rest of the intervention period. The first 4 weeks of sessions included 10min warmup, 20min learning new movements, 20min reviewing the movements, 10min cooldown. The sessions in subsequent weeks included 10min warmup, 45min practice and refinement, and 5min cooldown.	
Comparator #1 (control)	--	--	

Characteristics of included studies	Arthropathies					
Study ID	**Wang 2013a**					
Comparator #2 (other)	23	Wellness education program. 60min, 1x/week, 24 weeks. 30min lecture and 30min discussion.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Tai chi master			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Pain	Baseline, end of treatment (24 wks),	Visual analogue scale (0-10)		
2	Primary	Pain, left & right knee	Baseline, end of treatment (24 wks),	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)	indicates the level of difficulty associated with overall functional activities due to OA.	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)

Characteristics of included studies	Arthropathies					
Study ID	**Wang 2013a**					
3	Primary	Stiffness, left & right knee	Baseline, end of treatment (24 wks),	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)	indicates the level of difficulty associated with overall functional activities due to OA.	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)
4	Primary	Functional limitations, left & right knee	Baseline, end of treatment (24 wks),	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)	indicates the level of difficulty associated with overall functional activities due to OA.	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)
5	Primary	Functional limitations	Baseline, end of treatment (24 wks),	Lequesne Knee Score	0-24, with lower score indicating less functional impairment	>13= extremely severe; 11-13= very severe; 8-10= severe; 5-7= moderate; 1-4= mild; 0=none
6	Secondary	Balance	Baseline, end of treatment (24 wks),	Berg Balance Scale (14-items)		
7	Secondary	Functional mobility/falls risk	Baseline, end of treatment (24 wks),	Timed Up and Go	Get up from chair, walk 3m, turn around, and return to the chair and sit down	

Characteristics of included studies	Arthropathies					
Study ID	**Wang 2013a**					
8	Secondary	Balance, dynamic stability	Baseline, end of treatment (24 wks),	Functional reach test	measures a persons margin of stability/ability to maintain balance	
9	Secondary	Muscle strength, knee extensor & flexor	Baseline, end of treatment (24 wks),	Isokinetic dynamometer	Highest peak torque normalised by kg of body weight.	Dynamic endurance assessed by measuring 40 repeated maximum contractions with an angular velocity of 180 degrees/s
10	Secondary	Muscle strength, ankle dorsiflexor & plantarflexor	Baseline, end of treatment (24 wks),	Isokinetic dynamometer	Peak torgeu determied as the highest torque generated from three trials	Angular velocity of 30 degrees/s.
11	Secondary	Three-dimentional biomechanics	Baseline, end of treatment (24 wks),	Peak pressure - M1 to M7 foot regions	Pedar-X system. Plantar loading data were processed with the Novel Multimask Evaluation software.	Insoles were calibrated before plantar loading, participants walked on a 15m walkway. 5 trials recorded.
12	Secondary	Three-dimentional biomechanics	Baseline, end of treatment (24 wks),	Maximum force - M1 to M7 foot regions	Pedar-X system. Plantar loading data were processed with the Novel Multimask Evaluation software.	Insoles were calibrated before plantar loading, participants walked on a 15m walkway. 5 trials recorded.

Characteristics of included studies	Arthropathies					
Study ID	**Wang 2013a**					
13	Secondary	Proprioception, left & right knee flexion	Baseline, end of treatment (24 wks),	Custom apparatus used to position knee at specific angles and measure participant proprioception		Participant asked to recreate each position with eyes closed.
14	Secondary	Proprioception, left & right knee extension	Baseline, end of treatment (24 wks),	Custom apparatus used to position knee at specific angles and measure participant proprioception		Participant asked to recreate each position with eyes closed.
15	Secondary	Neuromuscular response	Baseline, end of treatment (24 wks),	Electromyography of leg muscles		
16	Secondary	Sleep quality	Baseline, end of treatment (24 wks),	Pittsburgh Sleep Quality Index (PSQI) - Global	19 items; 7 domains; score ranges from 0 to 21	Higher score means poorer sleep quality
17	Secondary	Subjective sleep quality	Baseline, end of treatment (24 wks),	PSQI - Subjective sleep quality		
18	Secondary	Sleep latency	Baseline, end of treatment (24 wks),	PSQI - Sleep latency		

Characteristics of included studies	Arthropathies					
Study ID	**Wang 2013a**					
19	Secondary	Sleep duration	Baseline, end of treatment (24 wks),	PSQI - Sleep duration		
20	Secondary	Habitual sleep efficiency	Baseline, end of treatment (24 wks),	PSQI - Habitual sleep efficiency		
21	Secondary	Sleep disturbance	Baseline, end of treatment (24 wks),	PSQI - Sleep disturbance		
22	Secondary	Sleep medicine use	Baseline, end of treatment (24 wks),	PSQI - Sleep medicine use		
23	Secondary	Daytime dysfunction	Baseline, end of treatment (24 wks),	PSQI - Daytime dysfunction		
24	Secondary	Activites of daily living	Baseline, end of treatment (24 wks),	Barthel Index (10-items)	Scores are weighted and range from 0 (dependence) to 100 (independence)	0-20=total dependence; 21-60 severe; 61-90 moderate; 91-99 slight
25	Secondary	Functional capacity	Baseline, end of treatment (24 wks),	Short physical performance battery	3 balance tests, short distance walk, standing 5 times from seated chair. (Ordinal scale from 0 to 4)	Total score out of 12; higher score indicates better performance.
26	Secondary	Physical health	Baseline, end of treatment (24 wks),	SF-36 - Physical Component Summary (PCS)	scale 0-100	

Characteristics of included studies	Arthropathies				
Study ID	**Wang 2013a**				
27	Secondary	Mental health	Baseline, end of treatment (24 wks),	SF-36 - Mental component summary (MCS)	scale 0-100
28	Secondary	Gait	Baseline, end of treatment (24 wks),	Gait velocity (cm/s)	
29	Secondary	Gait	Baseline, end of treatment (24 wks),	Step length (cm)	
30	--				
Method of analysis					
Statistics	Performed using SPSS and Excel. Knee proprioception and WOMAC scores: Given normal distribution of data (verified by Shapiro-Wilk test), student t-tests used to compare efficacy of ITCRP and control group. Paired student t-tests used to compared differences within each group. Plantar loads: 2-way repeated measures ANOVA used to examine effects of interventions on plantar loads. Paired sample t-tests used to compare changes in outcomes variables in both groups. Gait kinematics: change from baseline assessed using independent t-test. Within group differences compared using paired student t-tests. Sleep: Paired t-test for normally distributed data and Wilcoxon signed-rank test for non- parametric data -- used to compare difference from baseline in each group.				
Population analysed	Intent-to-treat	Modified - all participants were included in the analysis (some with missing data).			
Missing data	Yes	There is some discrepancy between papers: -Zhu 2017: 4/23 patients dropped out of the tai chi group (consent withdrawn, n=1; traffic accident, n=1) and 6/23 dropped out of the control group (lost to follow up, n=2; consent withdrawn, n=2; lack of time, n=1; considering no use in efficacy, n=1). Despite dropping out of the study, a subset of these participants completed the 24-week evaluation. Ultimately there were 20/23 tai chi participants who completed the 24-week evaluation and 18/23 of the control group participants who completed the 24-week evaluation. -Zhang 2020 and Zhu 2016a: 21/23 tai chi participants and 19/23 control group participants completed the evaluation. -Lu 2017: dropout rates and missing data not reported			

Characteristics of included studies	Arthropathies		
Study ID	**Wang 2015a**		
Study reference	Chang, A. H., J. Lee, J. Song, L. Price, A. C. Lee, K. F. Reid, R. A. Fielding, J. B. Driban, W. F. Harvey and C. Wang (2017). "Associations between pre-intervention physical activity levels and treatment response to exercise therapy in persons with knee osteoarthritis." Osteoarthritis and Cartilage 25 (Supplement 1): S339. Chang, A. H., J. Lee, J. Song, L. L. Price, A. C. Lee, K. F. Reid, R. A. Fielding, J. B. Driban, W. C. Harvey and C. Wang (2019). "Association between Pre-Intervention Physical Activity Level and Treatment Response to Exercise Therapy in Persons with Knee Osteoarthritis - An Exploratory Study." ACR Open Rheumatology 1(2): 104-112. Lee, A., W. F. Harvey, X. Han, L. L. Price, J. B. Driban, R. R. Bannuru and C. Wang (2017). "Pain and functional trajectories in symptomatic knee osteoarthritis over a 12- week period of non-pharmacological exercise interventions." Arthritis and Rheumatology. Conference: American College of Rheumatology/Association of Rheumatology Health Professionals Annual Scientific Meeting, ACR/ARHP 69(Supplement 10). Lee, A., W. F. Harvey, L. L. Price, X. Han, J. B. Driban, M. D. Iversen, R. R. Bannuru and C. Wang (2017). "Dose-response effects of tai chi and physical therapy exercise interventions in symptomatic knee osteoarthritis." Arthritis and Rheumatology. Conference: American College of Rheumatology/Association of Rheumatology Health Professionals Annual Scientific Meeting, ACR/ARHP 69(Supplement 10).		
Study design	RCT	Prospective cohort	Psudeorandom numbers generated using R statistical package
Author affiliation	Authors are affiliated with an American academic institution.		
Source of funds	National Center for Complementary and Integrative Health of the National Institutes of Health		
Declared interests of study authors	Three of the authors report fees and grants from various pharmaceutical companies and research institutes. These fees and grants are reported as being "outside the submitted work."		
Setting / provider	University medical center		
Country(s) / region	USA		
Enrolment period	Study dates: March 2011 to September 2014		
Length of treatment/ followup	12 months (52 weeks)		
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*	
participants	204	Osteoarthritis (knee, 40+ yrs)	

Characteristics of included studies	Arthropathies	
Study ID	**Wang 2015a**	
details	*Inclusion Criteria:* -Age 40 years and older -American College of Rheumatology criteria for symptomatic Knee OA: Pain on more than half the days of the past month during at least one of the following activities: walking, going up or down stairs, standing upright, or lying in bed at night;101 radiographic evidence of grade I-III tibiofemoral or patellofemoral OA: defined as the presence of osteophytes in the tibiofemoral compartment and /or the patellofemoral compartment, as assessed on standing anterior/posterior and lateral views101 WOMAC pain subscale score >= 40 (visual analog version) on at least 1 of 5 questions (range 0 to 100 each) -Clinical examination confirming knee pain or discomfort or instability referable to the knee joint -Physically able to participate in both the Tai Chi and Standard PT programs -Willing to undergo testing and intervention procedures and 1 willing to abstain from Tai Chi until completion of the program	*Exclusion Criteria:* -Prior experience with physical therapy, Tai Chi or other similar types of Complementary and Alternative Medicine in the past 1 year such as Qi gong and yoga since these share some of the principles of Tai Chi. -Serious medical conditions limiting the ability and safety to participate in either the Tai Chi or Standard PT regimen programs as determined by primary care physicians; these include dementia, neurological disease, symptomatic heart or vascular disease (angina, peripheral vascular disease, congestive heart failure), severe hypertension, recent stroke, severe insulin-dependent diabetes mellitus, psychiatric disease, renal disease, liver disease, active cancer and anemia -Any intra-articular steroid injections in the previous 3 months or reconstructive surgery on the affected knee -Any intra-articular Synvisc or Hyalgan injections in the previous 6 months -Inability to pass the Mini-Mental Status examination (with a score below 24)102 -Inability to walk without a cane or other assistive device 100% of the time during the baseline assessments -Enrollment in any other clinical trial within the last 30 days -Plan to permanently relocate from the region during the trial period -Positive pregnancy test or planning pregnancy within the study period -Not English-Speaking
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	106	Tai chi (Yang style). 60min, 2x/week, 12 weeks. Sessions involved warm-up, review of tai chi principles and movement, breathing techniques, and relaxation methods. Participants encouraged to practice tai chi at home for 20min per day. After the 12-week period, participants were encouraged to integrate at least 30min tai chi for 52 weeks.
Comparator #1 (control)	--	--

Characteristics of included studies	Arthropathies					
Study ID	**Wang 2015a**					
Comparator #2 (other)	98	Physical therapy (according to US guidelines for knee OA treatment). 30min, 2x/week, 6 weeks. After 6 weeks, participants were instructed to continue exercises for 30min 4x/week for 6 weeks.				
Comparator #3 (other)	--	--				
Co-interventions	Education about importance of physical activity, routine medications (i.e. NSAIDs), usual physician visits					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	3 experienced tai chi instructors			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Pain	Baseline, end of treatment (12 wks), followup (24, 52 wks)	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)	indicates the level of difficulty associated with overall functional activities due to OA.	
2	Secondary	Functional limitations	Baseline, end of treatment (12 wks), followup (24, 52 wks)	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)	indicates the level of difficulty associated with overall functional activities due to OA.	

Characteristics of included studies	Arthropathies					
Study ID	**Wang 2015a**					
3	Secondary	Stiffness	Baseline, end of treatment (12 wks), followup (24, 52 wks)	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)	indicates the level of difficulty associated with overall functional activities due to OA.	
4	Secondary	Patient global assessment score	Baseline, end of treatment (12 wks), followup (24, 52 wks)	Visual analogue scale (VAS) - 10cm	range 0 to 10,with higher scores indicating poorer health	
5	Secondary	Depression	Baseline, end of treatment (12 wks), followup (24, 52 wks)	Beck II Depression Inventory (BDI)	0-13=minimal depressive symptoms; 14-19 = mild; 20-28 = moderate; 29-63 = severe	Total scores range from 0-63. Higher scores reflect greater depressive symptoms.
6	Secondary	Physical health	Baseline, end of treatment (12 wks), followup (24, 52 wks)	SF-36 - Physical Component Summary (PCS)	scale 0-100	
7	Secondary	Mental health	Baseline, end of treatment (12 wks), followup (24, 52 wks)	SF-36 - Mental component summary (MCS)	scale 0-100	

Characteristics of included studies	Arthropathies				
Study ID	**Wang 2015a**				
8	Secondary	Self efficacy	Baseline, end of treatment (12 wks), followup (24, 52 wks)	Arthritis self-efficacy scale score	Range 1 to 10, higher score indicates greater self-efficacy
9	Secondary	Functional fitness	Baseline, end of treatment (12 wks), followup (24, 52 wks)	6-minute walk test (6MWT)	Walk as far as possible for 6 minute period; distance covered is noted.
10	Secondary	Functional mobility	Baseline, end of treatment (12 wks), followup (24, 52 wks)	20-meter walk test	Higher m/s score indicates faster gait speed and better performance
11	Secondary	Participant expectations of interventions	Baseline	Outcome Expectations for Exercise Scale	Range 1-5; higher score indicates higher expectations
12	Secondary	Mobility activity modifications	Baseline and 52 weeks	Pre-Clinical Disability Questionnaire **	12-item PRO instrument assessing method of performing daily mobility activities.

Characteristics of included studies	Arthropathies				
Study ID	**Wang 2015a**				
13	Secondary	Functional capacity, muscle strength	Baseline and 52 weeks	Chair stand test (s) **	Rise from chair and sit back down (10-repetitions). Measures lower body strength and power. Lower score indicates better performance.
14	Secondary	Balance	Baseline and 52 weeks	Berg Balance Test **	
15	Secondary	Muscle strength	Baseline and 52 weeks	leg extensor muscle strength **	1-repetition maximum (1RM)
16	Secondary	Muscle contraction velocity	Baseline and 52 weeks	Muscle contraction velocity (m/s, 70% of 1RM) **	
17	Secondary	Muscle power	Baseline and 52 weeks	Muscle power **	40% & 70% of 1RM
18	Secondary	Mindfulness	Baseline, end of treatment (12 wks), followup (24 wks)	Five Facet Mindfulness Questionnaire (FFMQ) ***	

Characteristics of included studies	Arthropathies			
Study ID	**Wang 2015a**			
19	Secondary	Observing	Baseline, end of treatment (12 wks), followup (24 wks)	FFMQ ***
20	Secondary	Describing	Baseline, end of treatment (12 wks), followup (24 wks)	FFMQ ***
21	Secondary	Acting with awareness	Baseline, end of treatment (12 wks), followup (24 wks)	FFMQ ***
22	Secondary	Non-judging	Baseline, end of treatment (12 wks), followup (24 wks)	FFMQ ***
23	Secondary	Non-reacting	Baseline, end of treatment (12 wks), followup (24 wks)	FFMQ ***
24	--			
25	--			
26	--			

Characteristics of included studies	Arthropathies	
Study ID	**Wang 2015a**	
27	--	
28	--	
29	--	
30	--	
Method of analysis		
Statistics	Sample size was chosen to be able to show an effect in the primary outcome (WOMAC pain). For all outcomes, we fit longitudinal models incorporating all values recorded for each patient at baseline and 12, 24, and 52 weeks with a term for the interaction between treatment and each time point to assess differences in the effect of treatment over time. For continuous outcomes, we assumed normally distributed errors with an unstructured covariance matrix and used restricted maximum likelihood estimation. For binary outcomes, we used a generalized linear mixed model with random intercepts. 2-sided tests were used for primary efficacy and interaction analyses.	
Population analysed	Intent-to-treat	Modified - there was missing data
Missing data	Yes	One hundred sixty-seven (82%) participants completed their evaluation at 12 weeks, 153 (75%) completed their evaluation at 24 weeks, and 141 (69%) completed their evaluation at 52 weeks. Analyses were conducted to evaluate the impact of missing data, especially because the participants with missing data had worse outcomes than those remaining in the study. ** only 121 out of 206 total patients included in Lee 2018c analysis (based on availability of activity modification data). Outcomes for both groups reported together in aggregated (cannot tell the effect of tai chi alone) *** only 86 out of 206 total patients in inlucded (based on availability of data on mindfulness outcomes)

Characteristics of included studies	Arthropathies		
Study ID	**Wortley 2013**		
Study reference	Wortley, M., S. Zhang, M. Paquette, E. Byrd, L. Baumgartner, G. Klipple, J. Krusenklaus and L. Brown (2013). "Effects of resistance and Tai Ji training on mobility and symptoms in knee osteoarthritis patients." Journal of Sport and Health Science 2(4): 209-214.		
Study design	RCT	pseudorandomised	Assigned pseudorandomly based on gender and pain score on WOMAC
Author affiliation	Authors are affilicated with American academic institutions.		
Source of funds	This study was supported in part by funds from UTK Office of Research, College of Education, Health and Human Sciences, and University of Tennessee Medical Center, The University of Tennessee		
Declared interests of study authors	Not reported		
Setting / provider	University medical centre		
Country(s) / region	USA		
Enrolment period	Not reported		
Length of treatment/ followup	2.5 months (10 weeks)		
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*	
participants	39	Osteoarthritis (knee, 60-85 yrs)	

Characteristics of included studies	Arthropathies		
Study ID	**Wortley 2013**		
details	*Inclusion criteria:* -met the clinical inclusion critiera based on Classification Criteria for Knee OA -K/L grade between 1 and 4	*Exclusion criteria:* -arthroscopic surgery or an intra-articular injection within the past 3 months -neurological disorders -participated in a resistance training or Tai Ji in the past 6 months	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	15	Tai chi (Yang style). 60min, 2x/week, 10 weeks. Added new movements each week up to the fifth, then practiced all the movements for the remaining 5 weeks.	
Comparator #1 (control)	9	Control (no intervention)	

Characteristics of included studies	Arthropathies					
Study ID	**Wortley 2013**					
Comparator #2 (other)	15	Resistance training. 60min, 2x/weeks, 10 weeks. Open-kinetic chain resistance training program designed for knee OA patients. Included: seated leg extension, standing hamstring curl, straight leg raise, standing hip abduction, standing hip adduction, standing hip flexion, standing calf raise.				
Comparator #3 (other)	--	--				
Co-interventions	Usual pain medications (if applicable)					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Tai ji master with 35 years experience			
Is there an inactive comparator?	Yes	Comparison=control	Two control groups, one active and one inactive			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Cardiorespiratory fitness	Baseline and post-intervention	6-minute walk test (6MWT)	Walk as far as possible for 6 minute period; distance covered is noted.	
2	Not specified	Funcional mobility/falls risk	Baseline and post-intervention	Timed up and go test (TUG)	Standing up from chair, walking 3m, returning to chair to sit down. Measured three times and results averaged.	

Characteristics of included studies	Arthropathies					
Study ID	**Wortley 2013**					
3	Not specified	Funcional mobility/falls risk	Baseline and post-intervention	Timed stair climb and descent (SCD)	Climb 11 stairs, turn around, descend the same flight of stairs as quickly as possible.	
4	Not specified	Pain	Baseline and post-intervention	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)	indicates the level of difficulty associated with overall functional activities due to OA.	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)
5	Not specified	Stiffness	Baseline and post-intervention	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)	indicates the level of difficulty associated with overall functional activities due to OA	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)
6	Not specified	Function	Baseline and post-intervention	Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)	indicates the level of difficulty associated with overall functional activities due to OA	Uses a scale from 26 (no difficulty) to 130 (extreme difficulty)
7	Not specified	Level of activity	Baseline and post-intervention	Physical Activity Scale for the Elderly (PASE)		

Characteristics of included studies	Arthropathies
Study ID	**Wortley 2013**
8	--
9	--
10	--
11	--
12	--

Characteristics of included studies	Arthropathies
Study ID	**Wortley 2013**
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18	--

Characteristics of included studies	Arthropathies
Study ID	**Wortley 2013**
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Characteristics of included studies	Arthropathies	
Study ID	**Wortley 2013**	
27	--	
28	--	
29	--	
30	--	
Method of analysis		
Statistics	Baseline and post-intercention values were compared using a 3x2 mixed model ANOVA with time as a repeated factor. Paired sample t-tests were performed if the group x time interaction or the time main effect were significant. K/L grades (scored on an ordinal scale) were analysed using non-parametric Kruskal-Wallis test.	
Population analysed	Intent-to-treat	Not specified, assumed that modified ITT was used with no attempt to fill in missing data
Missing data	Yes	31/39 completed the study. Participants who dropped out did not differ significantly from those who remained in the study.

Characteristics of included studies	Low back pain
Study ID	**Cho 2014**
Study reference	Cho Y. Effects of tai chi on pain and muscle activity in young males with acute low back pain. Journal of Physical Therapy Science. 2014;26(5):679-81.
Study design	NRSI pseudorandomised
Author affiliation	The author is affiliated with Daegu Haany University
Source of funds	Source of funds is undeclared
Declared interests of study authors	No financial supports or any other benefit, which could create a potential conflict of interest with regard to the work, are declared.
Setting / provider	Not reported
Country(s) / region	Korea
Enrolment period	Not reported
Length of treatment/ followup	12 weeks

Characteristics of included studies	Low back pain	
Study ID	**Cho 2014**	
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*
participants	40	Lower back pain, acute (males)
details	*Inclusion criteria:* Male, in their 20s, diagnosed with **acute lower back** pain by specialists *Exclusion criteria:* Disorders other than lower back pain	
Description of intervention/comparato	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	20 (assumed)	Tai Chi - 3 x 60 minute sessions a week for 4 weeks 10 minutes were cool down and 10 were warm up, the remaining 40 minutes consisted of 20 minutes of Tai Chi motions performed twice.
Comparator #1 (control)	--	--
Comparator #2 (other)	20 (assumed)	Stretching - 3 x 60 minute sessions for 4 weeks 10 minutes were cool down and 10 were warm up, the remaining 40 minutes consisted orepeated stretching of the lower extemities, trunk joints, and upper extremity joints.
Comparator #3 (other)	--	--

Characteristics of included studies	Low back pain					
Study ID	**Cho 2014**					
Comparator #4 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C				
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Low back pain	Baseline, end of treatment (4 wks)	Visual Analogue Scale (0-10)	degree of pain was measured by subjects indicating on a 100m stick with numbers 0-10	
2	Not specified	Muscle activity	Baseline, end of treatment (4 wks)	Maximal voluntary isometric contraction (MVIC)	Wireless surface electromyography - electrodes were attached 2cm away from the L5 spinous process	Measurements were taken during 10 seconds of walking, with the first 2 and last 2 seconds excluded.
3	--					
4	--					

Characteristics of included studies	Low back pain
Study ID	**Cho 2014**
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Characteristics of included studies	Low back pain
Study ID	**Cho 2014**
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17	--

Characteristics of included studies	Low back pain	
Study ID	**Cho 2014**	
18	--	
19	--	
20	--	
21	--	
22	--	
Method of analysis		
Statistics	SPSS was used for statistical analysis. To examine differences between the two groups in accordance with the interventions, a paired t-test was carried out. An independent t-test was performed to compare the groups. The significance level was set at 0.05.	
Population analysed	Other (provide details)	Not enough information is reported to determine the population analysed

Characteristics of included studies	Low back pain	
Study ID	**Cho 2014**	
Missing data	Yes	No information regarding losses of study participants and data imputation is reported.

Characteristics of included studies	Low back pain
Study ID	**Hall 2009**
Study reference	Hall AM, Kamper SJ, Emsley R, Maher CG. Does pain-catastrophising mediate the effect of tai chi on treatment outcomes for people with low back pain? Complementary Therapies in Medicine. 2016;25:61-6. Hall AM, Maher CG, Lam P, Ferreira M, Latimer J. Tai chi exercise for treatment of pain and disability in people with persistent low back pain: a randomized controlled trial. Arthritis care & research. 2011;63(11):1576-83. Hall AM, Maher CG, Latimer J, Ferreira ML, Lam P. A randomized controlled trial of tai chi for long-term low back pain (TAI CHI): study rationale, design, and methods. BMC Musculoskeletal Disorders. 2009;10:55.
Study design	RCT The allocation sequence was generated via blocked random number sequence (block size of 8)
Author affiliation	The authors are affiliated with two tertiary Australian institutions and by the George Institute.
Source of funds	No grant funting was used to support this project.
Declared interests of study authors	The authors declared no conflicts of interest but acknowledge different bodies for supporting the research. The Arthritis Foundation of Australia, Arthritis Care of the UK, and the Arthritis Foundation of the US supported the Tai Chi for Health program. One author declared PhD funding support from the Australian Government's Endeavour International Post-Graduate Research Scholarship during the time of the trial and later funding from the Canadian Institute for Health Research. On author declared research fellowship support from the NMHRC, and another declared support from the Australian Research Council. Dr. Lam also declared recieving royalties for the DVD Tai Chi for Back Pain
Setting / provider	Participating community venues within the Sydney metropolitan area (The George Institute for Global Health, The University of Sydney, and The City of Sydney Ultimo Community Centre)
Country(s) / region	Sydney region, Australia
Enrolment period	July 2008 to September 2010
Length of treatment/ followup	10 weeks

Characteristics of included studies	Low back pain	
Study ID	**Hall 2009**	
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*
participants	160	Low back pain
details		*Inclusion criteria:* Adults from age 18 to 70 with non-specific low back pain for 3 months duration, with or without additional leg pain, a score of moderate or higher on items 7 or 8 on the SF-36, not currently receiving new treatments in the last 4 weeks for low back pain, agreed not to seek new treatments for back pain for the duration of the trial, English speaking and literate, continued residence in Sydney for the trial duration *Exclusion criteria:* Suspected or confirmed serious spinal pathology, suspected or confirmed pregnancy, non-english speaking, nerve root compromise, spinal surgery or scheduled major surgery during treatment or follow-up period, any contraindictions to exercise given in ACSM guidelines, participation in tai chi within the past 6 months, If participant is receiving workers compensation, all relevant treatment parties need to agree to Tai Chi treatment.
Description of intervention/comparato	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	80	Tai Chi (Sun style) - 2 x 40 minute group sessions for 8 weeks then 1 x 40 min group session for 2 weeks The intervention group practiced a Tai Chi Exercise Program containing 21 moves in total. Participants were permitted to continute their usual care, however asked not to seek new forms of treatment in the 10 weeks. Participants recieved weekly text or email reminders for classes and follow up emails for missed classed. They also recieved emails at weeks 5 and 9 to update them regarding their follow-up assessment
Comparator #1 (control)	80	Control - No intervention Participants are permitted to continute their usual care, however are asked not to seek new forms of treatment in the 10 weeks.
Comparator #2 (other)	--	--
Comparator #3 (other)	--	--

Characteristics of included studies	Low back pain					
Study ID	**Hall 2009**					
Comparator #4 (other)	--	--				
Co-interventions	Usual care					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	The Tai Chi instructor was certfied thrugh the Tai Chi for Health Program created by author Paul Lam			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Bothersomeness of back symptoms	Baseline, end of treatment (10 wks)	Numerical Rating Scale (0-10)	Scored 0-10, where 0 is “not at all bothersome” and 10 is “extremely bothersome"	
2	Secondary	Pain related disability	Baseline, end of treatment (10 wks)	Pain Disabilty Index (7-items)	measurse the degree to which aspects of your life are disrupted by chronic pain.	0 = no disability at all, 10 = worst disability
3	Secondary	Pain intensity	Baseline, end of treatment (10 wks)	Numeric rating scale	average pain intensity during the past week with an 11-point numerical rating scale	0 is“no pain” and 10 is “worst pain ever"
4	Secondary	Pain related disability	Baseline, end of treatment (10 wks)	Quebec Back Pain Disability Scale	20 items scored on a 6 point scale from 0-6	

Characteristics of included studies	Low back pain					
Study ID	**Hall 2009**					
5	Secondary	Patient-specific pain related disability	Baseline, end of treatment (10 wks)	Patient Specific Functional Scale	11 point rating scale scored 0-10	Patient nominates 5 activites and reports measure of function
6	Secondary	Coping Strategies	Baseline, end of treatment (10 wks)	Coping Strategies Questionnaire (6-items)	Sum of all 6 items with possible score ranging from 0 to 36.	
7	Secondary	Global perceived effect of treatment	Baseline, end of treatment (10 wks)	Global Perceived Effect Numerical Rating Scale	(-5 to +5)	
8	Secondary	Pain related disability	Baseline, end of treatment (10 wks)	Roland Morris Disability Questionnaire	24-item Yes/No questionnaire with a possibletotal score of 0–24 with	higher score represents greater disability
9	Secondary	Catastrophising	Baseline, end of treatment (10 wks)	Coping Strategies Questionnaire, catastrophising subscale	6-item subscale with scores ranging from 0 (never do) to 6 (always do when in pain).	Items all relate to past week.
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Characteristics of included studies	Low back pain
Study ID	**Hall 2009**
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Characteristics of included studies	Low back pain	
Study ID	**Hall 2009**	
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Method of analysis		
Statistics	For the primary analysis, data were analyzed using linear mixed models in SPSS version 18.0. For the secondary analysis, a series of linear regressions were conducted to determine the strength of of of relationsips between random allocation to the intervention groups, the mediator, and the outcome. The total, indirect, and direct effects were calculated and bootstrapping was used to generate 95% confidence intervals for the the indirect effect. This was conducted with SPSS 20 using a bootstrapping approach involving 1000 resamples was performed using the INDI-RECT macro.	
Population analysed	Other (provide details)	For the primary analysis, all 160 participants were analysed in the groups they were randomised to on an ITT basis. The secondary analysis was used mITT and only included the first 102 paticipants in the study.

Characteristics of included studies		Low back pain
Study ID		**Hall 2009**
Missing data	Yes	6% of participants (9/160) were lost to follow-up. This was balanced between treatment groups. Additionally, two participants in the intervention group did not recieve the intervention and were uncontactable after first no show. a mid-way data quality check indicated thatthere was missing data on several secondary outcomes and toreduce patient assessment burden, non-clinical outcomes were removed from the study assessment booklet, data imputation was not used and missing outcomes were assumed to be missing at random.

Characteristics of included studies	Low back pain
Study ID	**Jang 2015**
Study reference	Jang JH, Cho TY & Cho YH. The effects of t'ai chi on muscle activity, pain, and balance in females in their 20s with acute low back pain. The Journal of Phsyical Therapy and Science. 2015; 27: 725-727.
Study design	RCT pseudorandomised
Author affiliation	All authors affiliated with tertiary institutions
Source of funds	Approved by Reseach Ethics committee of Kyungbook University
Declared interests of study authors	Not reported
Setting / provider	Not reported
Country(s) / region	Korea
Enrolment period	Not reported
Length of treatment/ followup	2

Characteristics of included studies	Low back pain	
Study ID	**Jang 2015**	
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*
participants	30	Females with **acute low back pain**
details	*Inclusion criteria:* females in their 20's; **acute low back pain** lasting three weeks or less; orthopedist diagnosed *Exclusion criteria:* abnormalities other than low back pain	
Description of intervention/comparato	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	15	Tai Chi: 60 minutes session, three times per week for 8 weeks. Included 10 minute warm up, 40-minutes exercise, and 10-minute cool down. A series of motions including yamabunjong, bongrian, baekhakyangsi, suhuibipa, nuseulyobo, jesusangse, and yeobongsapei were conducted in a flow mode for 20 min. The motions were carried out twice.
Comparator #1 (control)	--	--
Comparator #2 (other)	15	Stretching: 60 minute session, three times per week for 8 weeks. Included 10 minute warm up, 40-minutes exercise, and 10-minute cool down. The subjects repetitively performed lower limb, trunk, and upper limb exercises in a sequential manner
Comparator #3 (other)	--	--

Characteristics of included studies	Low back pain					
Study ID	**Jang 2015**					
Comparator #4 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C	Not specified			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Pain	Baseline, end of treatment (8 wks)	Visual Analogue Scale (0-10)	degree of pain was measured by subjects indicating on a 100m stick with numbers 0-10	
2	Not specified	Muscle activity	Baseline, end of treatment (8 wks)	Maximal voluntary isometric contraction (MVIC)	Wireless surface electromyography - electrodes were attached 2cm away from the L3 spinous process	Measurements were taken during sit to stand maneuver
3	Not specified	Balance	Baseline, end of treatment (8 wks)	Left and right side movement distance	The shorter the distance the better the ability to remain in a position using balance	
4	Not specified	Balance	Baseline, end of treatment (8 wks)	Forward and backward movement distance	The shorter the distance the better the ability to remain in a position using balance	

Characteristics of included studies	Low back pain
Study ID	**Jang 2015**
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Characteristics of included studies	Low back pain
Study ID	**Jang 2015**
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Characteristics of included studies	Low back pain	
Study ID	**Jang 2015**	
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Method of analysis		
Statistics	SPSS used for statistical processing. Paired t-test carried out to examine changes according to the intervention. Independent t-test carried out to compare the two groups. Significance set at p<0.05	
Population analysed	Intent-to-treat	No details provided

Characteristics of included studies	Low back pain	
Study ID	**Jang 2015**	
Missing data	Uncertain	No details provided

Characteristics of included studies	Low back pain
Study ID	**Liu 2019b**
Study reference	Liu J, Yeung A, Xiao T, Tian X, Kong Z, Zou L, et al. Chen-style tai chi in individuals (aged 50 years old or above) with chronic non-specific low back pain: a randomized controlled trial. International Journals of Environmental Research and Publich Health. 2019; 16: 517. Zou L, Zhang Y, Liu Y, Tian X, Xiao T, Liu X, et al. The effects of tai chi chuan versus core stability training on lower-limb neuromuscular function in aging individuals with non-specific chronic lower back pain. Medicina. 2019; 55: 60. Chinese Clinical Trial Registry: ChiCTR-TRC-12002244
Study design	RCT Random number generator
Author affiliation	All authors affiliated with tertiary institutes.
Source of funds	Supported by the Natural Science Foundation of Shanghai, China (Grant 07ZR14103) and the capacity construction project of Shanghai, China (Grant 180805030200)
Declared interests of study authors	Authors declare no conflict of interest
Setting / provider	Orthopaedic Rehabilitation Center
Country(s) / region	China
Enrolment period	Not available
Length of treatment/ followup	3

Characteristics of included studies	Low back pain	
Study ID	**Liu 2019b**	
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*
participants	43	Adults with **chronic nonspecific low back pain**
details		*Inclusion criteria:* adults aged 50 or above; diagnosed with chronic nonspecific low back pain for a minimum of 3 months; capability to independently ambulate and participate in tai chi training *Exclusion criteria:* low back pain caused by tumour, rheumatoid arthritis, or infection; score ≥8 on VAS; history of psychiatric disorder and cerebrovascular disease, neurological disroders or musculoskeletal disorders; tai chi training in the past 3 months
Description of intervention/comparato	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	15	Tai Chi (Chen style): 60 minute sessions three times per week for 12 weeks 16 Chen-style movements delivered in three different phases.
Comparator #1 (control)	13	Control: Usual activities.
Comparator #2 (other)	15	Core stabilisation: 60 minute sessions three times per week for 12 weeks. Exercises performed using Swiss ball with emphasis on strengthening deep muscles of the abdomen. 6 movements in total. Training delivered by certified physical therapist.
Comparator #3 (other)	--	--

Characteristics of included studies	Low back pain					
Study ID	**Liu 2019b**					
Comparator #4 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Taught tai chi for more than 30 years			
Is there an inactive comparator?	Yes	Comparison=control	Details on usual activities not provided.			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Pain	Baseline, end of treatment (12 wks)	Visual Analogue Scale (0-10)	Higher score indicates greater levels of pain	
2	Not specified	Proprioception	Baseline, end of treatment (12 wks)	Knee Joint Position Test	BiodexSystem 3 isokinetic dynamometer	
3	Not specified	Proprioception	Baseline, end of treatment (12 wks)	Ankle Joint Position Test	BiodexSystem 3 isokinetic dynamometer	
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Characteristics of included studies	Low back pain
Study ID	**Liu 2019b**
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Characteristics of included studies	Low back pain
Study ID	**Liu 2019b**
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Characteristics of included studies	Low back pain	
Study ID	**Liu 2019b**	
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Method of analysis		
Statistics	Regression analysis using as the dependednt value the difference value obtained by subtracting preintervention measure from postintervention measure for each of the participants from the three groups.	
Population analysed	Intent-to-treat	No details provided

Characteristics of included studies	Low back pain	
Study ID	**Liu 2019b**	
Missing data	Uncertain	No details provided

Characteristics of included studies	Low back pain	
Study ID	**Weifen 2013**	
Study reference	Weifen W, Muheremu A, Chaohui C, Wenge L & Lei S. Effectiveness of tai chi practice for non-specific chronic low back pain on retired athletes: a randomized controlled study. Journal of Musculoskeletal Pain. 2013; 21(1): 37-45.	
Study design	RCT	Random number table
Author affiliation	All authors affiliated with tertiary institutes	
Source of funds	Not reported	
Declared interests of study authors	The authors declare no conflicts of interest	
Setting / provider	Outpatient	
Country(s) / region	China	
Enrolment period	Not reported	
Length of treatment/ followup	6 months	

Characteristics of included studies	Low back pain	
Study ID	**Weifen 2013**	
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*
participants	320	Retired athletes with **nonspecific chronic low back pain**
details		*Inclusion criteria:* aged between 25 and 45 years; nonspecific chronic low back pain confined to the lumbar vertebrae with a duration of one to five years; intensity of the average low back pain over the last 7 days exceeds 40 mm on a 100-mm VAS; not invovled in any physcial treatment during the last three months *Exclusion criteria:* none reported
Description of intervention/comparato	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	141	Tai Chi (24 step Chen style) - 45 minute sessions five times a week for 6 months Participants were asked to complete four cycles of the 24- step Chen style tai chi exercises in the 45 minutes.
Comparator #1 (control)	47	Control: no intervention
Comparator #2 (other)	38	Swimming: 30 minutes, five days a week for 6 months With a 15 minute warm up exercise routine
Comparator #3 (other)	47	Jogging: 30 minutes, five days a week for 6 months with a 15 minute warm up exercise routine

Characteristics of included studies	Low back pain					
Study ID	**Weifen 2013**					
Comparator #4 (other)	47	Backward walking: 30 minutes, five days a week for 6 months with a 15 minute warm up exercise routine				
Co-interventions	Physcial therapy including massage, traditional Chinese manipulation, traction and electrotherapy, acupuncture, suggestions on healthy living					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A				
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Pain	Baseline , mid (3 mos), end of treatment (6 mos)	Visual Analogue Scale (0-10)	0 to 100-mm scale. Higher scores represent high levels of pain	
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Characteristics of included studies	Low back pain
Study ID	**Weifen 2013**
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Characteristics of included studies	Low back pain
Study ID	**Weifen 2013**
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Characteristics of included studies	Low back pain	
Study ID	**Weifen 2013**	
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Method of analysis		
Statistics	Independent t-tests and separate one-way analsyes of variance used to compare differences of scores between groups. Data analyses performed using SPSS 17.0 statistical software	
Population analysed	Intent-to-treat	No details provided

Characteristics of included studies	Low back pain	
Study ID	**Weifen 2013**	
Missing data	Uncertain	No details provided

Characteristics of included studies	Low back pain
Study ID	**Zou 2019**
Study reference	Liye Zou , Yanjie Zhang , Yang Liu, Xiaopei Tian, Tao Xiao, Xiaolei Liu, Albert S. Yeung, Jing Liu, Xueqiang Wang and Qing Yang; "The Effects of Tai Chi Chuan Versus Core Stability Training on Lower-Limb Neuromuscular Function in Aging Individuals with Non-Specific Chronic Lower Back Pain," Medicina 2019, 55, 60; doi:10.3390
Study design	RCT Computer-generated random-number sequence
Author affiliation	All authors affiliated with tertiary institutes in China or the US
Source of funds	This project was supported by the Natural Science Foundation of Shanghai, China (Grant no.07ZR14103) and the capacity construction project of Shanghai, China (Grant no.18080503200)
Declared interests of study authors	The authors declare no conflicts of interest
Setting / provider	Community
Country(s) / region	China
Enrolment period	Not reported
Length of treatment/ followup	12 weeks

Characteristics of included studies	Low back pain	
Study ID	**Zou 2019**	
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*
participants	43	Nonspecific chronic low back pain
details		*Inclusion criteria:* (1) 55+ years old; (2) officially defined as NLBP; (3) able to move freely without any assistive technology; and (4) not involved in any TCC training program in the past three months. *Exclusion criteria:* (1) had scores above 8 on the Visual Analogue Scale (VAS); (2) had any pathology (e.g., infections, tumors or rheumatoid arthritis) causing lower back pain; (3) had serious liver, heart, lung, renal insufficiency or tumor; (4) had history of mental illness or cerebrovascular disease; (5) had neurological disease or skeletal muscle degenerative disease; or (6) had been exercising regularly
Description of intervention/comparato	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	15	Tai Chi Chuan (Chen style) - 60 minute sessions, 3 times a week for 12 weeks Comprised 16 Chen-style Tai Chi movements There were three phases within 12-week intervention: (1) TC standing posture and individual movement practice in the first stage (four weeks); (2) individual movement training and combination in weeks 5 to 8; and (3) entire routine practice in weeks 9 to 12.
Comparator #1 (control)	13	Control: Usual activities
Comparator #2 (other)	15	Core Stability Training - 60 minute sessions, 3 times a week for 12 weeks Comprised a Core Stabalisation Exercise program on a Swiss ball that had an emphasis on strengthening deep muscles of the abdomen. The CSE routine consisted of six movements There were two phases throughout this intervention period: (1) learning individual movements in the first four weeks; and (2) individual movement training in a repetitive manner.
Comparator #3 (other)	--	--

Characteristics of included studies	Low back pain					
Study ID	**Zou 2019**					
Comparator #4 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Tai Chi was taught by a 30 yr Tai Chi master and the Core Stability program by a trained physical therapist			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Pain	Baseline, and end of treatment (12 weeks)	Visual Analogue Scale (0-10)	Each patient was asked to mark the location on the 10-cm line that corresponds to the intensity of pain he or she experienced; higher scores indicate greater levels of pain.	
2	Secondary	Knee joint position sense	Baseline, and end of treatment (12 weeks)	BiodexSystem 3 isokinetic dynamometer	Passive and active knee joint position sense tested three times	
3	Secondary	Ankle joint position sense	Baseline, and end of treatment (12 weeks)	BiodexSystem 3 isokinetic dynamometer	Passive and active ankle joint position sense tested three times	
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Characteristics of included studies	Low back pain
Study ID	**Zou 2019**
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Characteristics of included studies	Low back pain
Study ID	**Zou 2019**
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Characteristics of included studies	Low back pain	
Study ID	**Zou 2019**	
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Method of analysis		
Statistics	A regression analysis using as the dependent value the difference value obtained by subtracting pre-intervention measure from post-intervention measure for each of the 43 patients from three groups was used. The significance level was pre-set as 0.05.	
Population analysed	Intent-to-treat	All participants randomised were analysed post-intervention

Characteristics of included studies	Low back pain
Study ID	**Zou 2019**
Missing data	No

Characteristics of included studies	Neck pain (chronic, nonspecific)
Study ID	**Lauche 2016**
Study reference	Romy Lauche, Christoph Stumpe, Johannes Fehr, Holger Cramer, Ying Wu Cheng, Peter M. Wayne, Thomas Rampp, Jost Langhorst and Gustav Dobos. The Effects of Tai Chi and Neck Exercises in the Treatment of Chronic Nonspecific Neck Pain: A Randomized Controlled Trial. The Journal of Pain, Vol 17, No 9. 2016: pp 1013-1027 Romy Lauche, Christoph Stumpe, Johannes Fehr, Holger Cramer, Ying Wu Cheng, Peter Wayne, Thomas Rampp, Jost Langhorst, Gustav Dobos. THE EFFECTS OF TAI CHI AND NECK EXERCISES IN THE TREATMENT OF CHRONIC NON-SPECIFIC NECK PAIN – A RANDOMIZED CONTROLLED TRIAL. THE JOURNAL OF ALTERNATIVE AND COMPLEMENTARY MEDICINE Volume 0, Number 0, 2016, pp. A15. Lauche, Romy; Wayne, Peter M; Fehr, Johannes; Stumpe, Christoph; Dobos, Gustav; Cramer, Holger (2017). Does postural awareness contribute to exercise-induced improvements in neck pain intensity? A secondary analysis of a randomized controlled trial evaluating Tai Chi and neck exercises. Spine, 42(16):1195-1200.
Study design	RCT
Author affiliation	All authors affiliated with tertiary institutions across Germnay, Australia, China and the United States
Source of funds	None reported
Declared interests of study authors	None reported
Setting / provider	University Hospital, Essen and Community
Country(s) / region	Germany
Enrolment period	September 2014 and March 2015
Length of treatment/ followup	3 weeks (no follow up)

Characteristics of included studies	Neck pain (chronic, nonspecific)	
Study ID	**Lauche 2016**	
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*
participants	114	Neck pain (chronic, non specific)
details		*Inclusion:* 18 years of age and to have chronic nonspecific neck pain for at least 3 consecutive months for at least 5 days a week. They also had to report moderate pain of 45 mm or higher on a visual analogue scale (VAS) ranging from 0 to 100 mm,31 with 100 mm described as 'worst neck pain imaginable.' *Exclusion:* patients with neck pain caused by trauma, disc protrusion,whiplash, congenital deformity of the spine, spinal stenosis, neoplasm, inflammatory rheumatic disease, neurological disorder, active oncologic disease, severe affective disorder, addiction, and psychosis. In addition, subjects who were pregnant or who had had invasive treatment of the spine within the previous 4 weeks (eg, acupuncture, injections), or spinal surgery within the previous year, or had initiated or modified their drug regimen recently or were taking opiates were excluded.
Description of intervention/comparato	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	38	Tai Chi (Yang style) - 75-90 minute sessions, once per week for 12 weeks Each session included a warm-up of 5 to 10 minutes, the Tai Chi form practice, and 5 to 10 minutes of relaxation at the end. Tai Chi forms followed explicit protocols outlined in a training manual, as required during teacher training certification. Participants were also asked to practice Tai Chi outside of classes for at least 15 minutes each day
Comparator #1 (control)	37	Control (waitlist) - advised to continue usual activities
Comparator #2 (other)	39	Neck Exercises - 60-75 minute sessions, once per week for 12 weeks Classes contained basic training of ergonomic principles (bodily alignment while standing), proprioceptive exercises, and isometric and dynamic mobilization, stretching, and strengthening neck and core exercises Participants also received illustrated and written information that covered the most important exercises, and they were asked to execute the exercises for at least 15minutes eachday.
Comparator #3 (other)	--	--

Characteristics of included studies	Neck pain (chronic, nonspecific)					
Study ID	**Lauche 2016**					
Comparator #4 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Not specified					
Is there an inactive comparator?	Yes					
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Pain	Baseline, end of treatment (12 wks)	Visual Analogue Scale (0-100mm)	Participants were asked to indicate the level of pain that they would render tolerable in general on a 0- to 100-mm VAS	0 mm indicating 'no neck pain at all' and 100 mm indicating 'worst neck pain imaginable.'
2	Secondary	Pain	Baseline, and follow up (24 weeks)	Visual Analogue Scale (0-100mm)		
3	Secondary	Pain on Movement (POM)	Baseline, end of treatment (12 weeks), and follow up (24 weeks)	Flex, extend, laterally flex, and laterally rotate their necks to the left and right	The evoked pain was measured on a 100-mm VAS, for each direction. An average POM score was then calculated from these data for each participant	
4	Secondary	Functional disability	Baseline, end of treatment (12 weeks), and follow up (24 weeks)	Neck Disability Index (NDI)	10-item questionnaire determines how participants see their neck pain affecting their daily activities. The maximum score is 50.	

Characteristics of included studies	Neck pain (chronic, nonspecific)					
Study ID	**Lauche 2016**					
5	Secondary	Quality of life	Baseline, end of treatment (12 weeks), and follow up (24 weeks)	SF-36	36-item questionnaire yields an 8-scalehealthprofile aswell as 2 component summaries of physical and mental health-related quality of life.	
6	Secondary	Psychological wellbeing	Baseline, end of treatment (12 weeks), and follow up (24 weeks)	Questionnaire on the Assessment of Physical Wellbeing	Four subscales, each containing 4 items: stress resistance, ability to enjoy, vitality, and inner peace.	
7	Secondary	Stress	Baseline, end of treatment (12 weeks), and follow up (24 weeks)	Perceived stress scale (German version)	Participants indicate how often they have found their lives unpredictable, uncontrollable, and overloaded in the past month;	higher scores are indicative of higher perceived stress in life.
8	Secondary	Postural awareness	Baseline, end of treatment (12 weeks), and follow up (24 weeks)	Postural awareness scale	6 items each on 2 scales, which are: Forced Awareness and Detachment and Effortless Awareness and Connectedness	
9	Secondary	Interoceptive awareness	Baseline, end of treatment (12 weeks), and follow up (24 weeks)	Multidimensional Assessment of Interoceptive Awareness	40 items that result in 8 separate dimensions of interoceptive awareness; and higher scores each represent higher awareness.	
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Characteristics of included studies	Neck pain (chronic, nonspecific)
Study ID	**Lauche 2016**
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Characteristics of included studies	Neck pain (chronic, nonspecific)	
Study ID	**Lauche 2016**	
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Method of analysis		
Statistics	The primary outcome was analyzed using a univariate analysis of covariance, which modeled the posttreatment outcome as a function of treatment group (classified factor), and the respective baseline value (linear covariate). Within this model the treatment effect was estimated, accompanied with a 95% confidence interval. The P value was calculated on the basis of a 2-sided t-test within this statistical model.	
Population analysed	Intent-to-treat	All analyses were on the basis of the intention to treat population (ie, each participant providing baseline data was included in the final analysis). Missing data were completed using the Markov chain Monte Carlo multiple imputation method

Characteristics of included studies	Neck pain (chronic, nonspecific)
Study ID	**Lauche 2016**
Missing data	No

Characteristics of included studies	Neck pain (chronic, mechanical)
Study ID	**Rajalaxmi-2018**
Study reference	Rajalaxmi V, Jasim A, Sudhakar S, Mohan Kumar G. To analyse the effectiveness of yoga, pilates and tai chi exercise for chronic mechanical neck pain -a randomized controlled trial. Biomedicine (India). 2018;38(1):147-51.
Study design	RCT
Author affiliation	Department of Physiotherapy, Dr. M.G.R. Educational & Research Institute University, Velappanchavadi, Chennai Meenakshi college of Physiotherapy, Meenakshi University, Chenna
Source of funds	None reported
Declared interests of study authors	None reported
Setting / provider	Outpatient department of Physiotherapy at A.C.S.Medical College and Hospital
Country(s) / region	India
Enrolment period	Not reported
Length of treatment/ followup	3 weeks (no follow up)

Characteristics of included studies	Neck pain (chronic, mechanical)	
Study ID	**Rajalaxmi-2018**	
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*
participants	40	Neck pain (chronic, mechanical)
details	*Inclusion: Painful restriction of cervical spine, neck pain, more than 40% of Tampa scale for kinesiophobia and Northwick pain park questionnaire.* *Exclusion: Patients with Whiplash injury, frozen shoulder syn drome prolapsed or protrusion, invasive treatment within last 6 weeks, spinal stenosis, and herniated vertebral disc*	
Description of intervention/comparato	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	10	Tai-chi (12 x ?min sessions per week, 3 weeks) Tai Chi exercises were given for 5 repetitions,2 session per day for 6 days per week for 3 weeks, progressed to 10 and 15 repetition in 2nd and 3rd week respectively. Exercises inluded 1. Head Roll, 2. Carrying Moon, 3. Picking Fruit, 4. Dancing With Rainbow, 5. Spinning Wheel
Comparator #1 (control)	10	Yoga exercises were given for 5 repetitions,2 session per day for 6 days per week for 3 weeks, progressed to 10 and 15 repetition in 2nd and 3rd week respectively. Excersises included 1. Savasana, 2. Balasana, 3. Bitilasana, 4. Marjaryasana
Comparator #2 (other)	10	Pilates exercises were given for 5 repetitions,2 session per day for 6 days per week for 3 weeks, progressed to 10 and 15 repetition in 2nd and 3rd week respectively. Excersises included 1. Chest Lift, 2. Breast Strokes Arm, 3. Lower Trap Activation, 4. Swan Preparation.
Comparator #3 (other)	10	Control (12 x ?min sessions per week, 3 weeks)

Characteristics of included studies	Neck pain (chronic, mechanical)					
Study ID	**Rajalaxmi-2018**					
Comparator #4 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Not specified					
Is there an inactive comparator?	Yes					
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Neck pain	Baseline, and end of treatment (3 weeks)	Northwick pain park questionnaire	Self reported items measured on a scale from 0-4, where a higher score corresponds to more severe pain	
2	Not specified	Kinesiophobia	Baseline, and end of treatment (3 weeks)	Tampa scale for kinesiophobia	Self reported items measured on a scale from 0-4, where a higher score corresponds to more severe pain	
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Characteristics of included studies	Neck pain (chronic, mechanical)
Study ID	**Rajalaxmi-2018**
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Characteristics of included studies	Neck pain (chronic, mechanical)
Study ID	**Rajalaxmi-2018**
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Characteristics of included studies	Neck pain (chronic, mechanical)
Study ID	**Rajalaxmi-2018**
18	--
19	--
20	--
21	--
22	--
Method of analysis	
Statistics	The collected data were tabulated and analyzed using both descriptive and inferential statistics. All the parameters were assessed using statistical package for social science (SPSS) version 24. One Way ANOVA includes of following tests (Test of Homogeneity of variance, ANOVA, Robust Equality of Means, Post Hoc test Tukey HSD) (multiple comparison) was adopted to find statistical difference between four groups
Population analysed	Intent-to-treat Limited information provided. Likely ITT or mITT. Unclear if any participants were lost to follow up

Characteristics of included studies	Neck pain (chronic, mechanical)
Study ID	**Rajalaxmi-2018**
Missing data	Uncertain

Characteristics of included studies	Chronic widespread pain
Study ID	**Bongi 2016**
Study reference	Maddali Bongi S, Paoletti G, Cala M, Del Rosso A, El Aoufy K, Mikhaylova S. Efficacy of rehabilitation with Tai Ji Quan in an Italian cohort of patients with Fibromyalgia Syndrome. Complementary Therapies in Clinical Practice. 2016;24:109-15.
Study design	NRSI pseudorandomised The randomisation procedure was not described.
Author affiliation	Three authors are affiliated with the Multidisciplinary Association of Rheumatologicn Rehabilitation (AMuRR). Two authors are affiliated with University of Florence, one with the University of Chengdu, and another with the University of Pisa. One author is affiliated with an unnamed pharmaceutical company.
Source of funds	Source of funds is undeclared
Declared interests of study authors	Authors declare there were no financial supports or any other benefit that could create a potential conflict of interest with regard to the work.
Setting / provider	
Country(s) / region	Italy
Enrolment period	Not reported
Length of treatment/ followup	None reported

Characteristics of included studies	Chronic widespread pain	
Study ID	**Bongi 2016**	
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*
participants	50	Fibromyalgia Syndrome (FMS)
details	*Inclusion criteria:* Patients with Fibromyalgia Syndrome (FMS) diagnosed according to the American College of Rheumatology *Exclusion criteria:* Not reported	
Description of intervention/comparato	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	22	Tai Chi Quan style practiced for 60 minutes, twice a week for 16 weeks. Additionally, patients were asked to do 15 minute sessions, twice daily of at home practice in the morning and the afternoon. A DVD was provided with the exercises explained.
Comparator #1 (control)	--	--
Comparator #2 (other)	22	Educational control consisting of 2 educational lessons per week about FMS which gave information about the disease, symptoms, management and the ability to cope with them. This lasted for 16 weeks.
Comparator #3 (other)	--	--

Characteristics of included studies	Chronic widespread pain					
Study ID	**Bongi 2016**					
Comparator #4 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Not specified	Include in subgroup C	No information provided			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Quality of life	Baseline, end of treatment (16 wks)	Fibromyalgia Impact Questionnaire (FIQ) - subscale	10 questions investigating the problems patients may experience every day.	The score ranges from 0 to 100, with the highest scores indicating the worst health condition.
2	Not specified	Function	Baseline, end of treatment (16 wks)	SF-36 - Physical functioning subscale	Physical Functioning (10 items)	
3	Not specified	Function	Baseline, end of treatment (16 wks)	SF-36 - role-physical subscale	Role limitations due to physical problems (4 items)	
4	Not specified	Pain	Baseline, end of treatment (16 wks)	SF-36 - bodily pain subscale	bodily pain (2 items)	

Characteristics of included studies	Chronic widespread pain					
Study ID	**Bongi 2016**					
5	Not specified	General health percpetions	Baseline, end of treatment (16 wks)	SF-36 - general health perceptions subscale	general health (5 items)	
6	Not specified	Psychosocial wellbeing	Baseline, end of treatment (16 wks)	SF-36 - role-emotional subscale	vitality (4 items)	
7	Not specified	Psychosocial wellbeing	Baseline, end of treatment (16 wks)	SF-36 - mental health subscale	social functioning (2 items)	
8	Not specified	Psychosocial wellbeing	Baseline, end of treatment (16 wks)	SF-36 - social functioning subscale	role limitations due to emotional problems (3 items)	
9	Not specified	Psychosocial wellbeing	Baseline, end of treatment (16 wks)	SF-36 - Vitality subscale	mental health (5 items)	
10	Not specified	Disability	Baseline, end of treatment (16 wks)	Health Assessment Questionnaire (20-items)	8 main categories: dressing and bathing, arising, eating, walking, hygiene, reach, grip and daily activities.	Scores ranges from 0 to 3: higher score indicates greater disability.

Characteristics of included studies	Chronic widespread pain					
Study ID	**Bongi 2016**					
11	Not specified	Fatigue	Baseline, end of treatment (16 wks)	Functional Assessment of Chronic Illness-Fatigue (FACIT-fatigue)	13 questions. Total score ranges from 0 (no fatigue) to 52(maximum degree of fatigue)	
12	Not specified	Sleep Quality	Baseline, end of treatment (16 wks)	PSQI - Subjective sleep quality	19 items done by the subject and 5 items answered by partner	Score above 5 indicates the presence of a sleep disorder
13	Not specified	Latency to bed	Baseline, end of treatment (16 wks)	PSQI - Sleep latency		
14	Not specified	Duration	Baseline, end of treatment (16 wks)	PSQI - Sleep duration		
15	Not specified	Sleep efficiency	Baseline, end of treatment (16 wks)	PSQI - Habitual sleep efficiency		
16	Not specified	Sleep disturbance	Baseline, end of treatment (16 wks)	PSQI - Sleep disturbance		
17	Not specified	use of medications	Baseline, end of treatment (16 wks)	PSQI - Sleep medicine use		

Characteristics of included studies	Chronic widespread pain					
Study ID	**Bongi 2016**					
18	Not specified	Daily difficulties	Baseline, end of treatment (16 wks)	PSQI - Daytime dysfunction		
19	Not specified	Anxiety	Baseline, end of treatment (16 wks)	Hospital Anxiety and Depression Scale (HADS-A)	Anxiety subscale- ranges from 0-21 points	higher score means greater psychological distress
20	Not specified	Depression	Baseline, end of treatment (16 wks)	Hospital Anxiety and Depression Scale (HADS-D)	Depression subscale - ranges from 0-21 points	higher score means greater psychological distress
21	Not specified	Extra-articular Pain	Baseline, end of treatment (16 wks)	Widespread Pain Index (WPI)	Assesses the extent of extra-articular pain in patients with FMS.	Lists 12 sites that represent the areas commonly referred as painful by FMS patients. The score ranges from 0 to 19.
22	Not specified	Tenderness	Baseline, end of treatment (16 wks)	Tender Points Evaluation (TPE)	evaluates the tenderness at the pressure on 18 points (9 points assessed bilaterally)	Score ranges from 0 to 18
Method of analysis						
Statistics	To evaluate the between group differencesin test values and clinical characteristics at baseline, Mann-Whitney and the Fisher Exact test were used. For treatment effects, t					
Population analysed	Other (provide details)	mITT - participants who withrew from the study were not included in analysis				

Characteristics of included studies		Chronic widespread pain
Study ID		**Bongi 2016**
Missing data	Yes	16% of participants (8/50) withdrew from the study. This was balanced across treatment groups. No data imputation was used. It is not clear at what point in the study participants withdrew, so it is possible they did not start the intervention. No further missing data was reported.

Characteristics of included studies	Chronic widespread pain
Study ID	**Jones 2011**
Study reference	1. Jones KD, Carson JW, Carson KM. Yoga and Tai Chi in fibromyalgia: multi-symptom effects. Communicating Nursing Research. 2011;44:182-. 2. Jones KD, Sherman CA, Mist SD, Carson JW, Bennett RM, Li F. A randomized controlled trial of 8-form Tai chi improves symptoms and functional mobility in fibromyalgia patients. Clinical Rheumatology. 2012;31(8):1205-14. 3. Mist S, Jones K, Sherman C, Carson J, Bennett R, Li F. OA06.01. A randomized controlled trial of 8-form Tai chi improves symptoms and functional mobility in fibromyalgia patients. BMC Complementary & Alternative Medicine. 2012;12(Suppl 1):1-.
Study design	RCT Subjects were randomised using a computer-generated random number table with blocking in 5 year age intervals
Author affiliation	All authors were either affiliated with a single research institute or with Oregon Health and Science University
Source of funds	National Institutes of Health/NIAMS 5R21; AR053506 NIH/NCCAM1K23AT006392-01
Declared interests of study authors	Authors declare there were no financial supports or any other benefit that could create a potential conflict of interest with regard to the work.
Setting / provider	Not specfied
Country(s) / region	Eugene, Oregon, USA
Enrolment period	January 2006 and July 2008
Length of treatment/ followup	No follow up was reported

Characteristics of included studies	Chronic widespread pain	
Study ID	**Jones 2011**	
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*
participants	101	Adults with fibromyalgia
details		*Inclusion criteria:* adults 40 years of age or older, meeting the 1990 ACR criteria for fibromyalgia, with participation approved by healthcare provider *Exclusion criteria:* had practiced Tai chi within the past 6 months, had exercised>30 min three times weekly for past 3 months, could not independently ambulate without assistive devices, had BPI pain severity or interference scores less than 5, had planned elective surgery during study period, were actively involved in health-related litigation, or were unwilling tokeep all treatments/medications steady throughout the study period
Description of intervention/comparato	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	51	Tai Chi (Yang style) - 90 minute sessions twice a week for 12 weeks Consisted of simplified 8-form Yang style Tai Chi. Sessions consisted of 15-minwarm-up, 45 min of Tai chi training, 15-min break and 15-min cool-down.
Comparator #1 (control)	--	--
Comparator #2 (other)	50	Educational intervention meeting in groups of 8-12, 90 min twice weekly for 12 weeks.
Comparator #3 (other)	--	--

Characteristics of included studies	Chronic widespread pain					
Study ID	**Jones 2011**					
Comparator #4 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	The intervention was conducted by a tai chi master with over 30 years of experience who was easily able to adapt the 8-form practice to accommodate for FM.			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Quality of life	Baseline, end of treatment (12 wks)	Fibromyalgia Impact Questionnaire (FIQ) (21-item)	Self-assessment of pain, fatigue, morning tiredness, stiffness, depression, anxiety, work ability, and physical function	Scores are between 0 and 100 with a higher score indicating poorer function and symptom burden.
2	Primary	Function	Baseline, end of treatment (12 wks)	FIQ-PF	A calculation of the first 10 FIQ items	
3	Primary	Pain	Baseline, end of treatment (12 wks)	FIQ numeric rating scale for pain severity	Minimally clinically significant improvement in pain severity on a NRS is 10–20 %	
4	Secondary	Pain	Baseline, end of treatment (12 wks)	Brief Pain Inventory (short form)	Measures pain severity (sensory dimension) and interference (reactive dimension). MCID is 2 points for severity and 1 point fot intensity	

Characteristics of included studies	Chronic widespread pain						
Study ID	**Jones 2011**						
5	Secondary	Sleep	Baseline, end of treatment (12 wks)	Pittsburgh Sleep Qualty Index			
6	Secondary	Self-efficacy	Baseline, end of treatment (12 wks)	Arthritis Self-Efficacy Questionnaire			
7	Secondary	Functional mobility	Baseline, end of treatment (12 wks)	8-Foot Timed Get up and Go (s)			
8	Secondary	Dynamic balance	Baseline, end of treatment (12 wks)	Maximum reach test (cm)	Subjects stand with feet together; arms extended forward and reach as far in front as possible	Subjuest must maintain heels on the floor.	
9	Secondary	Static Balance	Baseline, end of treatment (12 wks)	Stork test (s)	Timed single leg stance		
10	Secondary	Upper extremity flexibility	Baseline, end of treatment (12 wks)	external and internal rotation of the shoulders	A hand to scapula movement as originally described by Mannerkorpi in FM subjects		

Characteristics of included studies	Chronic widespread pain
Study ID	**Jones 2011**
11	--
12	--
13	--
14	--
15	--
16	--
17	--

Characteristics of included studies	Chronic widespread pain
Study ID	**Jones 2011**
18	--
19	--
20	--
21	--
22	--
Method of analysis	
Statistics	The primary outcome was analyzed using a conditional change model that regressed the group indicator and the FIQ total change score, which was centered on the pre FIQ summary score. Additional analyses were conducted with a Bonferroni-Holm adjustment
Population analysed	Intent-to-treat

Characteristics of included studies	Chronic widespread pain	
Study ID	**Jones 2011**	
Missing data	Yes	<1% of subjects (3/101) withdrew from the study. These withdrawals were localised to the education intervention, but reasons were given for withdrawal and withdrawals were negligible. No information is given regarding data imputation.

Characteristics of included studies	Chronic widespread pain
Study ID	**Wang 2009**
Study reference	Wang C, Schmid C, Kalish R, Yinh J, Goldenberg DL, Rones R, et al. Tai Chi is effective in treating fibromyalgia: A randomized controlled trial. Arthritis and Rheumatism. 2009;10):1406. Wang C, Schmid CH, Lee Y, McAlindon T. Does obesity in patients with fibromyalgia modify response to Tai Chi therapy: Analysis of a randomized controlled trial. Arthritis and Rheumatism. 2010;10):95. Wang C, Schmid CH, Rones R, Kalish R, Yinh J, Goldenberg DL, et al. A randomized trial of tai chi for fibromyalgia. New England Journal of Medicine. 2010;363(8):743-54.
Study design	RCT Patients were allocated in three randomization cycles, using computer-generated numbers
Author affiliation	All authors were either affiliated with Tufts University School of Medicine, Boston; Mind Body Therapies, Boston; or Newton-Wellesley Hospital, Newton, Massachusetts.
Source of funds	Supported by a grant (R21AT003621) from the National Center for Complementary and Alternative Medicine of the National Institutes of Health, the American College of Rheumatology Research and Education Foundation Health Professional Investigator Award, and the Boston Claude D. Pepper Older Americans Independence Center Research Career Development Award.
Declared interests of study authors	Most authors declare there were no financial supports or any other benefit that could create a potential conflict of interest with regard to the work. Don Wang received payment from Pfizer, Lilly & Forest for Board Membership, Consultancy and accommodation expenses [https://www.nejm.org/doi/full/10.1056/nejmoa0912611]
Setting / provider	Tufts Medical Center, a tertiary care academic hospital in Boston
Country(s) / region	Massachusetts, USA
Enrolment period	July 2007 through December 2008
Length of treatment/ followup	3 months

Characteristics of included studies		Chronic widespread pain
Study ID		**Wang 2009**
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*
participants	66	Adults with fibromyalgia
details		*Inclusion criteria:* 21 years of age or older and fulfilled the American College of Rheumatology 1990 diagnostic criteria for fibromyalgia *Exclusion criteria:* persons who had participated in tai chi training within the past 6 months; those with serious medical conditions that might limit their participation; those with other diagnosed medical conditions known to contribute to fibromyalgia symptoms women who had a positive pregnancy test or who were planning to become pregnant during the study period; and persons who were unable to pass the Mini–Mental State Examination
Description of intervention/comparato	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	33	Tai Chi (Yang style) - 60 minute session twice a week for 12 weeks Consisted of 10-form Yang style Tai Chi. At the end of the 12-week intervention,participants were encouraged to maintain their tai chi practice, using an instructional DVD, until the follow-up visit at 24 weeks.
Comparator #1 (control)	--	--
Comparator #2 (other)	33	Wellness education and stretching program - 60-minute sessions twice a week for 12 weeks
Comparator #3 (other)	--	--

Characteristics of included studies	Chronic widespread pain					
Study ID	**Wang 2009**					
Comparator #4 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	TC classes were taught by a tai chi master with more than 20 years of teaching experience			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Percieved physical function	Baseline, end of treatment (12 wks)	Fibromyalgia Impact Questionnaire (FIQ)	10 items scored from 0-10; intensity of pain, physical function, fatigue, morning tiredness, depression, anxiety, job difficulty and overall wellbeing	Scores are between 0 and 100 with a higher score indicating poorer function
2	Secondary	Quality of life	Baseline, end of treatment (12 wks)	Fibromyalgia Impact Questionnaire (FIQ)	total score ranges from 0 to 100, with higher scores indicating more severe symptoms	
3	Secondary	Pain	Baseline, end of treatment (12 wks)	visual-analogue scale (VAS)	range, 0 to 10, with higher scores indicating greater pain	
4	Secondary	Physician assessed global pain status	Baseline, end of treatment (12 wks)	visual-analogue scale (VAS)	range, 0 to 10, with higher scores indicating greater pain	

Characteristics of included studies	Chronic widespread pain					
Study ID	**Wang 2009**					
5	Secondary	physical function	Baseline, end of treatment (12 wks), followup (26+ wks)	6-minute walk test	measuring the time to completion	
6	Secondary	Sleep quality	Baseline, end of treatment (12 wks), followup (26+ wks)	Pittsburgh Sleep Quality Index (PSQI)	range, 0 to 21, with higher scores indicating worse sleep quality	
7	Secondary	depression	Baseline, end of treatment (12 wks), followup (26+ wks)	Center for Epidemiologic Studies - depression (CES-D)	range, 0 to 60, with higher scores indicating more severe depression	
8	Secondary	expectations	Baseline, end of treatment (12 wks), followup (26+ wks)	Outcome Expectations for Exercise Scale	Score 1 indicates no expectations for exercise and 5 the highest expectations for exercise	
9	Secondary	Self efficacy	Baseline, end of treatment (12 wks), followup (26+ wks)	Chronic Pain Self-Efficacy Scale (CPSS)	management of chronic pain (range 1 to 10)	higher scores indicating greater self-efficacy
10	Not specified	HRQoL	Baseline, end of treatment (12 wks), followup (26+ wks)	SF-36 - physical health component	higher scores indicating better health status	

Characteristics of included studies		Chronic widespread pain				
Study ID		**Wang 2009**				
11	Not specified	Psychosocial wellbeing	Baseline, end of treatment (12 wks), followup (26+ wks)	SF-36 - mental health component	higher scores indicating better health status	
12	--					
13	--					
14	--					
15	--					
16	--					
17	--					

Characteristics of included studies	Chronic widespread pain	
Study ID	**Wang 2009**	
18	--	
19	--	
20	--	
21	--	
22	--	
Method of analysis		
Statistics	Between group changes in outcomes were assessed at week 0, 12, and 24 using mixed models, using time and group as categorical fixed factors, interactions between time and group, random intercepts, and an unstructured covariance matrix.	
Population analysed	Intent-to-treat	Participants were analysed on an intention to treat basis.

Characteristics of included studies		Chronic widespread pain
Study ID		**Wang 2009**
Missing data	Yes	Those who dropped out following week 12 but before week 24 were assumed to have no change in values since their last assessment. 1 participant was lost to follow up in the tai chi group and 7 participants dropped out of the study overall.

Characteristics of included studies	Chronic widespread pain
Study ID	**Wang 2015b**
Study reference	Chen V, Harvey WF, Driban JB, Chung M, Price LL, Wang C. A cross-sectional analysis of psychological symptoms, sleep quality, and functional balance in fibromyalgia. Arthritis and Rheumatology. 2014;10):S906-S7. Wang C, Driban JB, Harvey WF, Price LL, McAlindon TE, Schmid CH, et al. Comparative effectiveness of Tai Chi versus aerobic exercise for fibromyalgia: A randomized controlled trial. Global Advances In Health and Medicine. 2018;7:49. Wang C, McAlindon T, Fielding RA, Harvey WF, Driban JB, Price LL, et al. A novel comparative effectiveness study of Tai Chi versus aerobic exercise for fibromyalgia: study protocol for a randomized controlled trial. Trials [Electronic Resource]. 2015;16:34. Wang C, Schmid C, Fielding R, Harvey W, Reid K, Price L, et al. Effect of tai chi versus aerobic exercise for fibromyalgia: comparative effectiveness randomized controlled trial. British Medical Journal. 2018;360(8146):k851. Morgan N, Morgan L, Price LL, Wang C. Mindfulness is associated with psychological symptoms, self-efficacy and quality of life among patients with fibromyalgia. Arthritis and Rheumatism. 2013;10):S52-S3. Wang C, Schmid C, Fielding R, Harvey W, Reid K, Price LL, et al. Comparative effectiveness of tai chi versus aerobic exercise for fibromyalgia: A randomized controlled trial. Annals of the Rheumatic Diseases. 2017;76 (Supplement 2):384. Wang C, Schmid C, Fielding RA, Harvey WF, Price LL, Driban JB, et al. Tai CHI is more effective than aerobic exercise in treating fibromyalgia: A randomized controlled trial. Arthritis and Rheumatology. 2016;68 (Supplement 10):2874-6. Wolcott E, Harvey WF, Price LL, Driban JB, Morgan N, Morgan L, et al. Mindfulness is associated with symptom severity and pain impact in patients with fibromyalgia. Arthritis and Rheumatology. 2014;10):S587-S8.
Study design	RCT
Author affiliation	All authors were either affiliated with Tufts University School of Medicine, Boston; Brown University School of Public Health, Rhode Island; or Centre for Mind-Body Therapies, Boston, Massachusetts
Source of funds	The National Center for Complementary and Integrative Health of the National Institutes of Health (NIH, R01AT006367 and K24AT007323), the National Center for Research Resources, NIH (UL1 RR025752) and the National Center for Advancing Translational Sciences, NIH (UL1TR000073 and UL1TR001064).Two authors are supported in part by supported by the US Department of Agriculture, under agreement No 58-1950-4-003 and the Boston Claude D Pepper Older Americans Independence Center (1P30AG031679).
Declared interests of study authors	No financial supports or any other benefit, which could create a potential conflict of interest with regard to the work, are declared.
Setting / provider	An urban tertiary medical centre
Country(s) / region	Boston, Massachusetts, USA
Enrolment period	March 2012 and September 2014
Length of treatment/ followup	9 months

Characteristics of included studies	Chronic widespread pain	
Study ID	**Wang 2015b**	
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*
participants	224 (151 in tai chi groups)	Adults with Fibromyalgia
details		*Inclusion criteria:* adults aged 21+ who fulfill the American College of Rheumatology (ACR) 1990 classification criteria and 2010 diagnostic criteria for fibromyalgia and are willingin to abstain from the exercise completed by the group they are not randomised to (i.e if randomised to tai chi, are willing to abstrain from aerobic exercise) *Exclusion criteria:* Prior experience with Tai Chi or other similar types of Complementary and Alternative Medicine in the past 1 year, erious medical conditions limiting ability to participate in the Tai Chi or Aerobic Exercise programs as determined by the study physicians, Any other diagnosed medical condition known to contribute to FM symptomatology that is not under adequate control for the study period, Inability to pass the Mini-Mental Status examination (with a score below 24), Enrollment in any other clinical trial within the last 30 days, plans to relocate during the study period, pregnant or plans to become pregnant within the study period, non-english speaking
Description of intervention/comparato	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	151	Tai Chi (Yang style) - once or twice a week for 12 or 24 weeks. (The numbers per the 4 groups are as follows: 39-1x/12w; 37-2x/12w; 39-1x/24w; 36-2x/24w)
Comparator #1 (control)	--	--
Comparator #2 (other)	36	Two Tai Chi sessions a week for 12 or 24 weeks
Comparator #3 (other)	75	Aerobic exercise held twice weekly for 24 weeks

Characteristics of included studies	Chronic widespread pain					
Study ID	**Wang 2015b**					
Comparator #4 (other)	--	--				
Co-interventions	Usual physical activities with the exception of Tai Chi or other new formalized exercise program. Participants also were encouraged to maintain usual care.					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	The TC intervention was taugh by 3 experienced instuctors and the aerobic exercise intervention was taught by exercise physiologists			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Percieved physical function	Baseline, weekly during until week 24, and at 52 weeks	Fibromyalgia Impact Questionnaire (FIQ)	10 items scored from 0-10; intensity of pain, physical function, fatigue, morning tiredness, depression, anxiety, job difficulty and overall wellbeing	Scores are between 0 and 100 with a higher score indicating poorer function
2	Secondary	Symptom severity	Baseline, 12, 24 and 52 weeks	The Patient's Global Assessment (Global Visual Analogue Scale)	10 point scale with 10 being extreme severity and 0 being no severity	
3	Secondary	HRQoL	Baseline, 12, 24 and 52 weeks	SF-36 - mental subscale	range 0-100, with higher scores indicating better health status	
4	Secondary	HRQoL	Baseline, 12, 24 and 52 weeks	SF-36 - physical subscale	range 0-100, with higher scores indicating better health status	

Characteristics of included studies	Chronic widespread pain				
Study ID	**Wang 2015b**				
5	Secondary	Depressive symptoms	Baseline, 12, 24 and 52 weeks	Beck II Depression Inventory (BDI)	21 question survey scored from 0-63, with higher scores indicating greater depressive symptoms
6	Secondary	Sleep Quality	Baseline, 12, 24 and 52 weeks	Pittsburgh Sleep Quality Index	11 item questionnaire. Scores range 0-21, with higher scores indicating worse sleep quality
7	Secondary	Usage of coping strategies	Baseline, 12, 24 and 52 weeks	Coping Strategies Questionnaire	7 Item questionnaire with 6 cognitive and 1 behavioural scale and with scores ranging from 0-36. Higher scores indicate better coping.
8	Secondary	Depression	Baseline, 12, 24 and 52 weeks	Hospital anxiety and depression scale - depression subscale	14 item questionnaire with scores that range from 0-21, with higher scores indicating more severe symptoms
9	Secondary	Anxiety	Baseline, 12, 24 and 52 weeks	Hospital anxiety and depression scale - anxiety subscale	14 item questionnaire with scores that range from 0-21, with higher scores indicating more severe symptoms
10	Secondary	Stress	Baseline, 12, 24 and 52 weeks	Percieved Stress Scale	10 item scale measuring the perceptionof stress and currect levels of experienced stress. Higher scores reflect worse symptom severity.

Characteristics of included studies		Chronic widespread pain				
Study ID	**Wang 2015b**					
11	Secondary	Self Efficacy	Baseline, 12, 24 and 52 weeks	Chronic Pain Self-Efficacy Scale	8 questions divided into 3 subscales: pain coping, physical functioning, and symptom coping. The score ranges from 0-10 and hgiher scored represent greater self efficacy.	
12	Secondary	Social Support	Baseline, 12, 24 and 52 weeks	Medical Outcome Study Social Support Survey	Scores range from 0-5, with higher scores indicating more social support	
13	Secondary	Disability	Baseline, 12, 24 and 52 weeks	Health Assessment Questionnaire	20-item, self-report questionnaire which measures functional status	
14	Secondary	Expectations	Baseline, 12, 24 and 52 weeks	Outcome expectations scale	nine items on physical and mental benefits and are used to assess outcome expectations. Scores can range from 1 to 5	
15	Secondary	Symptom severity	Baseline, 12, 24 and 52 weeks	Symptom severity scale score	range 0-12, with higher scores indicating greater severity	
16	Secondary	Physical function	Baseline, 12, 24 and 52 weeks	6 minute walk test		
17	Secondary	Pain	Baseline, 12, 24 and 52 weeks	PROMIS static short-forms	8 subscales: Pain Impact, Physical Functioning , Emotional Distress-Anxiety, Emotional Distress-Depression, Sleep Disturbance, Health Assessment Questionnaire and Satisfaction with Participation in Social Roles	Participant-Reported Outcomes Measurement InformationSystem

Characteristics of included studies	Chronic widespread pain					
Study ID	**Wang 2015b**					
18	Secondary	Physical activity	Baseline, 12, 24 and 52 weeks	CHAMPS - Physical Activity Questionnaire for Older Adults	40-item questionnaire that measures weekly physical activity levels for older adults	Community Health Activities Model Program for Seniors
19	Secondary	Mindfulness	Baseline, 12, 24 and 52 weeks	Five Facet Mindfulness Questionnaire	39-item questionnaire that measures five facets ofmindfulness: observe, describe, act aware, nonjudge, and nonreact	
20	Secondary	Personality	Baseline, 12, 24 and 52 weeks	NEO Five-Factor Inventory	60-item questionnaire that measures the five domains of personality	
21	--					
22	--					
Method of analysis						
Statistics	A longitudinal fixed-effects model based on the ITT principle was used to determine comparative efficacy of the 5 treatments at baselne, 12, 24, and 52 weeks. Primary analysis focused on three predefined comparisons: aerobicexercise versus average of four tai chi groups, average of 12 week versus 24 week tai chi, and average of once weekly versus twice weekly tai chi. As an exploratory analysis, tai chi twice weekly for 2 4 weeks was compared with aerobic exercise. A generalised linear mixed model with random intercepts and fixed treatments effects was used for binary outcomes. Analyses were performed with SAS version 9.4 and R 3.2.					
Population analysed	Intent-to-treat	All 226 patients were analysed in the groups they were randomised to on an intent to treat basis. All 226 subjects were included in the analysis regardless of missing data.				

Characteristics of included studies		Chronic widespread pain
Study ID		**Wang 2015b**
Missing data	Yes	The study enrolled 151 participants in the tai chi groups and 75 in the aerobic exercise group. 43 patients were lost to follow up in the tai chi groups and 17 patients were lost to follow up in the aerobic exercise group. Missing data were multiply imputed using a set of baseline characteristics as well as the 12, 24, and 52 week outcomes.

Characteristics of included studies	Chronic widespread pain
Study ID	**Wong 2018**
Study reference	Wong A, Figueroa A, Sanchez-Gonzalez MA, Son WM, Chernykh O, Park SY. Effectiveness of Tai Chi on Cardiac Autonomic Function and Symptomatology in Women With Fibromyalgia: A Randomized Controlled Trial. Journal of Aging & Physical Activity. 2018;26(2):214-21.
Study design	RCT Participants were stratified by disease duration (≤5 or >5 years)
Author affiliation	The authors are affiliated with 8 tertiary institutions and one hospital
Source of funds	The study was sponsored by Pusan University, Busan, Korea
Declared interests of study authors	No financial supports or any other benefit, which could create a potential conflict of interest with regard to the work, are declared.
Setting / provider	Unspecified
Country(s) / region	Busan, Korea
Enrolment period	January and May of 2016
Length of treatment/ followup	

Characteristics of included studies	Chronic widespread pain	
Study ID	**Wong 2018**	
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*
participants	37	Adults with fibromyalgia
details		*Inclusion criteria:* women with FM according to the American College of Rheumatology guidelines *Exclusion criteria:* pulmonary, cardiovascular, renal, adrenal, pituitary, severe psychiatric, thyroid diseases and the use of hormone replacement therapy during the 6 months prior the study; medication changes in the previous year; attended psychological or physical therapy; had a history of steady exercise or received exercise training in the last year
Description of intervention/comparato	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	18	Tai Chi (Yang style) - 55 minute sessions, 3 times a week for 12 weeks. The TC sessions lasted approximately 55 minutes and included a 10-minute warm up, 40 minutes of practice and exercise finalizing with a 5-minute cool-down period. During TC practice, the participant's heart rate (HR) was 40-50% of the HR reserve as they imitated the instructor's motion at the same speed.
Comparator #1 (control)	19	Control - Usual activities
Comparator #2 (other)	--	--
Comparator #3 (other)	--	--

Characteristics of included studies	Chronic widespread pain					
Study ID	**Wong 2018**					
Comparator #4 (other)	--	--				
Co-interventions	Usual activities (dietary patterns, exercise, medications)					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	The Tai Chi intervention was taught by an experienced instuctor trained in TC			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Cardiac function	Baseline, end of treatment (12 wks)	Heart rate variability	Measures the domains of low frequency power, high frequency power and the LF/HF power ratio which indicates sympathovagal balance.	Increased LF/HF indicates a predominance of sympathetic activity
2	Secondary	Pain	Baseline, end of treatment (12 wks)	Visual analogue scale (0-10)	10-point graded scale	0 indicated absence of symptoms and 10 indicated the worst symptoms
3	Secondary	Fatigue	Baseline, end of treatment (12 wks)	Visual analogue scale (0-10)	10-point graded scale	0 indicated absence of symptoms and 10 indicated the worst symptoms
4	Secondary	Sleep quality	Baseline, end of treatment (12 wks)	Visual analogue scale (0-10)	10-point graded scale	0 indicated absence of symptoms and 10 indicated the worst symptoms

Characteristics of included studies	Chronic widespread pain					
Study ID	**Wong 2018**					
5	Secondary	Muscle fitness	Baseline, end of treatment (12 wks)	Sit and reach test (cm)	Participants sat on the floor with back and head against a well and had to bend forward and reach as far as possible.	The best of two trials was recorded as the sit and reach score (SRS) at each time point.
6	Secondary	Muscle fitness	Baseline, end of treatment (12 wks)	one repetition maximum test (1RM) using a leg extension machine (kg)	1RM was considered the highest weight lifted using the proper form. Pariticpants were given 5 attempts.	The highest measurement in two days was considered the 1RM. At 12 weeks, the 1RM was performed 48-72 hours after the last exercise session.
7	Secondary	Anthropometrics	Baseline, end of treatment (12 wks)	BMI (kg/m2)		
8	Secondary	Anthropometrics	Baseline, end of treatment (12 wks)	Fat free mass (kg)		
9	Secondary	Anthropometrics	Baseline, end of treatment (12 wks)	Fat mass (kg)		
10	--					

Characteristics of included studies	Chronic widespread pain
Study ID	**Wong 2018**
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Characteristics of included studies	Chronic widespread pain	
Study ID	**Wong 2018**	
18	--	
19	--	
20	--	
21	--	
22	--	
Method of analysis		
Statistics	Student's t-test was used to detect potential differences inparameters between groups at baseline. A two way ANOVA with repeared measures and Bonferroni correction was used to determine the effects of TC over time. In the event of significant main effects, univariate analysis was used for post hoc comparison. Statistical analysis was performed using SPSS version 21.0.	
Population analysed	Other (provide details)	Patients who were randomised and completed th intervention were analysed on a modified intention to treat basis

Characteristics of included studies		Chronic widespread pain
Study ID		**Wong 2018**
Missing data	Yes	No data imputation was reported and patients were excluded if they did not complete the intervention. 1 patient in the TC group and 5 patients in the control group (16%) discontinued the intervention and were excluded.

Characteristics of included studies	Chronic widespread pain
Study ID	**You 2018**
Study reference	You T, Ogawa EF, Cai Y, Shi L, Leveille SG. Effects of Tai Chi on Beta Endorphin and Inflammatory Markers In Older Adults with Chronic Pain: 2496 Board #2 June 1 1:00 PM - 3:00 PM...ACSM 2018 – Medicine & Science in Sports & Exercise. 2018;50:618. You T, Ogawa EF, Thapa S, Cai Y, Yeh GY, Wayne PM, et al. Effects of Tai Chi on beta endorphin and inflammatory markers in older adults with chronic pain: an exploratory study. Aging-Clinical & Experimental Research. 2020;32(7):1389-92.1. You T, Ogawa EF, Thapa S, Cai Y, Zhang H, Nagae S, et al. Tai Chi for older adults with chronic multisite pain: a randomized controlled pilot study. Aging-Clinical & Experimental Research. 2018;30(11):1335-43.
Study design	RCT SAS block randomization procedure according to four groups based on age and sex
Author affiliation	Seven authors were associated with University of Massachusetts Boston, two authors were associated with Beth Israel Deaconess Medical Center, three authors were associated with Harvard Medical School, one author was associated with Brigham and Women's Hospital and one was associated with Huan's Tai Chi
Source of funds	This study was supported by the National Institute of Health (R21 AG043883).
Declared interests of study authors	One research consultant, is the founder and owner of the Tree of Life Tai Chi Center and was consulted on Tai Chi design and manuscript preparation. The authors declare no other conflicts of interest.
Setting / provider	Neighborhood community centers
Country(s) / region	Boston, Massachusetts, US
Enrolment period	Not specified
Length of treatment/ followup	6 months

Characteristics of included studies	Chronic widespread pain	
Study ID	**You 2018**	
Description of intervention/comparator (as per TIDIER checklist)	*N=*	*Description*
participants	54	Older adult (65+) with chronic multisite mulkuloskeletal pain
details		*Inclusion criteria:* 65+, at least 2 sites of reported chronic multisite musculoskeletal pain, an increased fall risk based on 1 or more falls in the past year or current use of a cane or walker, ability to walk 20 feet without personal assistance, and ability to communicate in English *Exclusion criteria:* engaged in moderate to vigorous exercise for more than 40 minutes/week, current Tai Chi practice, or diagnosis of a disease/condition that would interfere with their study participation, moderate to severe cognitive impairment based on the Mini-Mental State Examination (MMSE) score of 18 or lower at baseline
Description of intervention/comparato	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	28	Tai Ch (Yang style) - one hour session held twice weekly for 12 weeks Based on the Yang Style 8-Form. Each session included 10 minutes of warm-up that included joint rotations and balance games, 45 minutes of Tai Chi practice that included Tai Chi walking drills and the 8 forms (with 12–15 minutes of breaks), and 5 minutes of cool down and breathing exercises.
Comparator #1 (control)	--	--
Comparator #2 (other)	26	Light physical exercise - one hour session held twice weekly for 12 weeks Consisted of walking, light resistance exercise, and stretching that included 20 minutes of health related discussion.
Comparator #3 (other)	--	--

Characteristics of included studies	Chronic widespread pain				
Study ID	**You 2018**				
Comparator #4 (other)	--	--			
Co-interventions	--	--			
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	The TC group was taught by an experienced tc instructor and the light exercise group was taught by an exercise physiologist.		
Is there an inactive comparator?	No	Comparison=other			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*
1	Secondary	Multisite pain	Baseline, end of treatment (12 wks)	Joint pain questionnaire (13-items)	Assesses pain in musculoskeletal joint and back sites lasting 3 or more months in the past year and present in the previous month
2	Secondary	Pain severity	Baseline, end of treatment (12 wks)	Brief Pain Inventory (BPI) subscales	Individuals rate their pain according to four conditions: worst pain; least pain; average pain; and pain now, on an 11-point (0–10) rating scale. The pain severity score is the average of the four-item ratings.
3	Secondary	Pain interference	Baseline, end of treatment (12 wks)	Brief Pain Inventory (BPI) subscales	Participants rate how pain has interfered with: general activity; mood; walking ability; normal work; relations with other people; sleep; and enjoyment of life, on an 11-point (0–10) rating scale. The BPI pain interference score is the average of the 7-item ratings for each individual.
4	Secondary	Attention	Baseline, end of treatment (12 wks)	Test of Everyday Attention (TEA)	Four subscales related to attention were used, including: map search (visual selective attention), visual elevator (attentional switching), and telephone search with and without dual task (sustained and divided attention)

Characteristics of included studies	Chronic widespread pain				
Study ID	**You 2018**				
5	Secondary	Executive function	Baseline, end of treatment (12 wks)	Trail Making Tests (TMT) A and B	
6	Secondary	Function	Baseline, end of treatment (12 wks)	Short Physical Performance Battery (SPPB)	three components including standing balance which measures ability to perform 3 stands unassisted for up to 10 seconds each, measured usual-paced 4-meter walk, and time needed for 5 repeated chair stands performed without using arms
7	Secondary	Gait	Baseline, end of treatment (12 wks)	Single task walking with cognitive attentional challenges (serial subtraction by 3 from 100)	Computes spatio-temporal gait parameters including gait speed, stride length, stride time, swing time, and gait asymmetry as a predictor of falls and disability
8	Secondary	Gait	Baseline, end of treatment (12 wks)	Dual task walking with cognitive attentional challenges (serial subtraction by 3 from 100)	Computes spatio-temporal gait parameters including gait speed, stride length, stride time, swing time, and gait asymmetry as a predictor of falls and disability
9	Secondary	Fear of falling	Baseline, end of treatment (12 wks)	Tinetti Falls Efficacy Scale	higher values reflecting greater self-efficacy to avoid a fall
10	Secondary	Falls	Baseline, end of treatment (12 wks)	Falls calendar	Participants recorded the occurrence of falls using monthly fall calendars. At the first exercise class of each month, participants returned their completed fallcalendars to the exercise class

Characteristics of included studies	Chronic widespread pain				
Study ID	**You 2018**				
11	Secondary	Inflammatory biomarkers	Baseline, end of treatment (12 wks)	CRP, IL-6,and TNF-α	Blood samples were taken as post assessment at least 48 hours after the last exercise class.
12	Secondary	Inflammatory biomarkers	Baseline, end of treatment (12 wks)	β-endorphin	
13	--				
14	--				
15	--				
16	--				
17	--				

Characteristics of included studies	Chronic widespread pain	
Study ID	**You 2018**	
18	--	
19	--	
20	--	
21	--	
22	--	
Method of analysis		
Statistics	Analyses were performed using SAS software version 9.4. Differences in baseline characteristics were compared using independent t-tests and chi-square statistics. Paired t-tests were used to compare within group differences in outcome measures . Independent t-tests were used to compare the prepost differences between the treatment groups. Analysis of Covariance (ANCOVA) and multivariable linear regression were performed to compare group differences in outcome variables or pre-post changes in outcome measures, while adjusted for age, gender and education. Negative binominal regression models with an offset variable for log total days of follow-up were used to examine the effect of the exercise programs on rate of falls.	
Population analysed	Intent-to-treat	Comparisons between the treatment groups were performed using both intention-to-treat analyses and “per protocol” analyses in which only participants who adhered to the protocol (defined as attending 80% or more classes) were included.

Characteristics of included studies	Chronic widespread pain	
Study ID	**You 2018**	
Missing data	Yes	No information regarding data imputation is reported. 18% of those in the tai chi group and 12% in the dropped out. 2 in the tai chi group were lost to follow up.

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Aviles 2019**	
Study reference	Aviles J, Allin LJ, Alexander NB, Van Mullekom J, Nussbaum MA, Madigan ML. Comparison of Treadmill Trip-Like Training Versus Tai Chi to Improve Reactive Balance Among Independent Older Adult Residents of Senior Housing: A Pilot Controlled Trial. Journals of Gerontology Series A-Biological Sciences & Medical Sciences. 2019;74(9):1497-503.	
Study design	RCT	
Author affiliation	All authors affiliated with tertiary institutes in the USA	
Source of funds	Research supported by the National Institues of Health (R21 AG045723 to MLM, P30 AG024824 to NBA); National Science Foundation (HRD-1502335); Office of Research and Development of the Department of Veterans Affairs; and the Michigan Institute for Clinical and Health Research (UL1TR000433).	
Declared interests of study authors	None of the authors had any conflict of interest	
Setting / provider	Not reported	
Country(s) / region	USA	
Enrolment period	September 2015 to July 2017	
Length of follow up (months)	12 weeks	
Description of population	*N=*	*Description*
participants	35	Frail older adults (70+ yrs, t-score greater than -2.0) at risk of falls

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Aviles 2019**	
details	*Inclusion criteria:* a) be at least 70 years old and independent **residents of senior housing facilities**; (b) walk without the aid of an assistive device; (c) have a **bone mineral density of the proximal hip of t ≥ −2.0**, obtained from Dual Energy X-ray Absorptiometry (Hologic, Inc., Hologic Discovery W QDR series, Waltham, MA); (d) score at least 24 on the standardized mini-mental state exam (22); (e) pass a medical screening by a physician that excluded individuals with major unstable cardiopulmonary disease, previous or current smokers, or individuals with other progressive or unstable medical conditions that could account for possible imbalance and falls; (f) must not be in physical therapy; (g) must not perform more than 150 min/wk of moderate to vigorous aerobic activity, and (h) not have participated in Tai Chi classes.	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	16	Tai Chi (yang style short form): 12x 30 minute sessions 3 times per week for 4 weeks. Participants needed to have completed at least 9 sessions. used 12 unique sequences from the Yang Short Form, and was conducted in groups of a mean size of 5.3 participants.
Comparator #1 (control)	--	--
Comparator #2 (other)	19	Reactive balance training: 12x 30 minute sessions 3 times per week for 4 weeks. Participants needed to have completed at least 9 sessions. Participants went up to 40 treadmill pertubations with rest breaks every 10 perturbations. Pertubations varyed in speed from 0.5 to 2.4 mph for backward belt movement and 0.5 mph for forward belt movement.
Comparator #3 (other)	--	--

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Aviles 2019**					
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Each Tai Chi session was led by an instructor with experience in leading community- based Tai Chi for older adults			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Torso Angle	1 week, 1 month, 3 months, and 6 months after intervention	Maximum Torso Angle at 0.8 Mph	Maximum torso angle during a simulated trip, and be measures in degrees.	Larger angles indicate worse performance
2	Primary	Torso Angle	1 week, 1 month, 3 months, and 6 months after intervention	Maximum Torso Angle at 1.6 Mph	Maximum torso angle during a simulated trip, and be measures in degrees.	Larger angles indicate worse performance

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Aviles 2019**					
3	Secondary	Reactive Balance Rating	1 week, 1 month, 3 months, and 6 months after intervention	Performance in response to 6 separate tests on a treadmill involving sudden acceleration to elicit a loss of balance from stance.	The administrator scores as 0, 1, or 2: a) the overall effectiveness of the initial stepping response to each treadmill acceleration, and b) the amount of support provided by the harness or spotter next to the participant.	The reactive balance rating is a score on a scale from 0 to 12 where higher scores indicates a better outcome.
4	Secondary	Gait	1 week, 1 month, 3 months, and 6 months after intervention	Step Length at 0.8 Mph	Step length during reactive balance trial.	Not reported.
5	Secondary	Gait	1 week, 1 month, 3 months, and 6 months after intervention	Step Length at 1.6 Mph	Step length during reactive balance trial	Not reported.
6	Secondary	Gait	1 week, 1 month, 3 months, and 6 months after intervention	Maximum Step Length Test	Maximum step length is measured in inches.	Longer maximum step length indicates better performance.

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Aviles 2019**					
7	Secondary	Balance	1 week, 1 month, 3 months, and 6 months after intervention	Unipedal Stance Time Test	The unipedal stance time is measured in seconds, up to a maximum of 30 seconds.	Longer times indicate better performance.
8	Secondary	Mobility	1 week, 1 month, 3 months, and 6 months after intervention	Timed Up and Go (s)	The timed-up-and-go tests is measured in seconds.	Longer times indicate worse performance.
9	Secondary	Balance	1 week, 1 month, 3 months, and 6 months after intervention	Berg Balance Test (14-items)	Evaluates static balance and falls risk using 14 individual sub-tests. It includes static and dynamic activities of varying complexity	Scale from 0 to 56. Larger values indicate better balance.
10	Secondary	Fear of falling	1 week, 1 month, 3 months, and 6 months after intervention	Activities-specific Balance Confidence (ABC) Scale	Activities-specific balance confidence scale ranges from 0 to 100.	Larger values indicate more confidence (i.e. better outcome).

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Aviles 2019**					
11	Secondary	Mobility	1 week, 1 month, 3 months, and 6 months after intervention	Performance-oriented Mobility Assessment (POMA)	9 indivudal tests with an overall score from 0 to 28	Larger values indicate better mobility
12	--					
13	--					
14	--					
15	--					
16	--					
Method of analysis						

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Aviles 2019**	
Statistics	Clinical and reactive balance measures were compared using a mixed model that accounted for fixed and random effects, and within-participant correlation. For the clinical tests, fixed effects of intervention, time, and intervention × time were included, as well as covariates of baseline (preintervention) performance, age, gender, and baseline reactive balance rating score. For the reactive balance measures, fixed effects of intervention, time, speed, and all two-factor interactions were included, along with the same covariates noted above. Hierarchical models were used in analyzing reactive balance measures to account for the two levels of repeated measures (time and speed) and the two replications of each time-speed combination. A priori simple effects investigated differences between intervention groups at each time point to address our hypotheses, and the Tukey–Kramer method was used to adjust for Type I error rate, with a significance level of $p \leq .05$. Differences in categorical variables between groups were evaluated using Fisher's Exact Test.	
Population analysed	Per protocol	Only participants who were adherent to the protocol (completed at least nine of 12 training sessions) were included in the analysis.
Missing data	Yes	11.4% of participants (4/35) were lost to follow-up. 3 participants dropped out in the reactive training group and 1 from the Tai Chi group. Drop out was mostly due to medical conditions (not related to the intervention).

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Chewning 2019**	
Study reference	Betty Chewning, Kristine M. Hallisy, Jane E. Mahoney, Dale Wilson, Nisaratana Sangasubana, Ronald Gangnon. Disseminating Tai Chi in the Community: Promoting Home Practice and Improving Balance; Gerontologist, 2019, Vol. XX, No. XX, 1–11	
Study design	RCT	
Author affiliation	University of Wisconsin	
Source of funds	Supported by the Clinical and Translational Science Award (CTSA) program, through the NIH National Center for Advancing Translational Sciences grant	
Declared interests of study authors	Kristine M Hallisy was a co-author on Tai Chi Fundamentals (TCF) Adapted Program with Optional Side Support, Walker Support, and Seated Versions, published by Uncharted Country Publishing in 2015 used in the study, but does not receive royalties for the work. As a TCF certified instructor, Dr. Hallisy does receive honoraria for teaching TCF courses. The other authors have no financial or personal conflicts to report.	
Setting / provider	Aging Units and Aging and Disability Resource Centers	
Country(s) / region	USA	
Enrolment period	No enrolment dates provided	
Length of follow up (months)	6 weeks	
Description of population	*N=*	*Description*
participants	242	Falls, healthy adults (65+ yrs, with history of falls/fear of falling)

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Chewning 2019**	
details	*Inclusion criteria:* at least 65 years, dwelling **independently** in the community, agreeing to be randomized, r**eporting a fall (to the ground or lower level) in the last year or having a strong fear of falling**. *Exclusion criteria:* using a walker indoors, having a terminal illness, being hospitalized or in a nursing home in the past 2 months, anticipated absence from two tai chi sessions and receiving physical therapy or a community course or balance exercise program for falls prevention in the previous 2 months	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	123	Tai Chi (Yang style short form). 6x 25min sessions per wk for 6 wks
Comparator #1 (control)	119	Control (no intervention).
Comparator #2 (other)	--	--
Comparator #3 (other)	--	--

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Chewning 2019**					
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A				
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Mobility	Baseline, end of treatment (6 wks)	Timed Up and Go (s)	Longer times indicate worse performance.	
2	Primary	Functional capacity	Baseline, end of treatment (6 wks)	30-s Chair Stand	measured in number of times stood	

Characteristics of included studies	Falls preventions (at risk population)				
Study ID	**Chewning 2019**				
3	Primary	Balance	Baseline, end of treatment (6 wks)	4-Stage Balance test (Side-by-side)	measured in seconds
4	Primary	Balance	Baseline, end of treatment (6 wks)	4-Stage Balance test (Staggered tandem)	measured in seconds
5	Primary	Balance	Baseline, end of treatment (6 wks)	4-Stage Balance test (Tandem)	measured in seconds
6	Primary	Balance	Baseline, end of treatment (6 wks)	4-Stage Balance test (Single leg)	measured in seconds

Characteristics of included studies		Falls preventions (at risk population)			
Study ID	**Chewning 2019**				
7	Primary	Fear of falling	Baseline, end of treatment (6 wks)	Activities-specific Balance Confidence (ABC) Scale	Larger values indicate more confidence (i.e. better outcome).
8	Primary	Cognitive function	Baseline, end of treatment (6 wks)	Trail Making Test	
9	--				
10	--				

Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Chewning 2019**
11	--
12	--
13	--
14	--
15	--
16	--
Method of analysis	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Chewning 2019**	
Statistics	Student's t test and chi-square,descriptive analyses	
Population analysed	Intent-to-treat	Modified- Participants lost to follow-up were not included in the analysis.
Missing data	Yes	18% (44/242) were lost to follow up

Characteristics of included studies	Falls preventions (at risk population)		
Study ID	**Choi 2005**		
Study reference	Choi, J. H., et al. (2005). "Effects of Sun-style Tai Chi exercise on physical fitness and fall prevention in fall-prone older adults." J Adv Nurs 51(2): 150-157.		
Study design	Other (specify)	cluster design	Paper describes design as "quasi-experimental design using non-equivalent control." Two aged care facilities were selected and each one was randomly assigned to the experimental or control group by coin toss.
Author affiliation	All three authors are affiliated with nursing departments at universities in South Korea		
Source of funds	Not available		
Declared interests of study authors	Not available		
Setting / provider	Aged care facility		
Country(s) / region	South Korea		
Enrolment period	Study dates not reported		
Length of follow up (months)	None reported, assume no follow-up		
Description of population	*N=*	*Description*	
participants	68	Fall-prone older adults	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Choi 2005**	
details	*Inclusion criteria:* Age >60, ambulatory, **at least one of the following fall-related risk factors**: 1) impaired gait, 2) impaired balance, 3) history of falling in the previous year, 4) postural hypotension, 5) use of four or more Rx medications that may affect balance. *Exclusion criteria:* (1) severe dementia (score <20 on the Folstein Mini-Mental State Examination); (2) inability to complete 12 weeks of Tai Chi exercise due to physical illness; and (3) current involvement in any type of regular exercise.	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	34	Tai chi: 3x per week for 12 weeks. Sun-style tai chi. 10 minutes of warming-up, 20 minutes of 12 movements, and 5 minutes of cooling-down. The warming-up comprised walking with moving hands and greeting each other, followed by exercises with two ranges of motion on each joint of the neck, shoulders, trunk, hip, knees, and ankles. The 12 forms of the Tai Chi exercise involved the bending of knees in wide steps. The cycle of 12 movements was repeated for 20 minutes while listening to traditional instrumental music in order to maintain slow and continuous movements, as well as to provide a soothing effect. The exercise session was always completed with a cooling-down exercise involving the stretching of arm and leg muscles and breathing exercises.
Comparator #1 (control)	34	Control: maintained routine activities without participating in any regular exercise classes.
Comparator #2 (other)	--	--
Comparator #3 (other)	--	--

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Choi 2005**					
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	certified tai chi exercise leader			
Is there an inactive comparator?	Yes	Comparison=control	control group was not participating in other physical activity			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Muscle strength	Baseline, end of treatment (12 wks)	Manual muscle tester (EG-230, Sakai 2000, Japan) - knee and ankle muscle strength		
2	Not specified	Balance	Baseline, end of treatment (12 wks)	Time standing on one foot with eyes closed/eyes open - balance		

Characteristics of included studies	Falls preventions (at risk population)				
Study ID	**Choi 2005**				
3	Not specified	Falls	Baseline, end of treatment (12 wks)	Patient-reported fall episodes	defined as: sudden and unintentional change in position from upright posture with or without loss of consciousness that caused the person to land on the ground
4	Not specified	Fear of falling	Baseline, end of treatment (12 wks)	Fall avoidance efficacy scale	perceived confidence that the person would be able to avoid falling
5	--				
6	--				

Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Choi 2005**
7	--
8	--
9	--
10	--

Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Choi 2005**
11	--
12	--
13	--
14	--
15	--
16	--
Method of analysis	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Choi 2005**	
Statistics	independent t-tests used to measure group differences	
Population analysed	Per protocol	only those who completed post-test measures were included in the analysis
Missing data	Yes	30 control group participants and 29 tai chi group participants completed post-test measures

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Day 2012**	
Study reference	Day L, Hill KD, Jolley D, Cicuttini F, Flicker L, Segal L. Impact of tai chi on impairment, functional limitation, and disability among preclinically disabled older people: a randomised controlled trial. Arch Phys Med Rehabil 2012;93:1400-7.	
Study design	RCT	Multisite parallel group individually randomised controlled trial
Author affiliation	The authors were associated with a number of universities and hospitals in Australia	
Source of funds	Supported by the Australian National Health and Medical Research Council	
Declared interests of study authors	No commercial party having a direct financial interest in the results of the research supporting this article has or will confer a benefit on the authors or on any organization with which the authors are associated.	
Setting / provider	General community: retirement villages or in community venues	
Country(s) / region	Melbourne, Australia	
Enrolment period	May 2006 to February 2008	
Length of follow up (months)	24 weeks	
Description of population	*N=*	*Description*
participants	503	Preclincally disabled community-dwelling people older than 70 years

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Day 2012**	
details	*Inclusion criteria:* Age >60, ambulatory, **at least one of the following fall-related risk factors**: 1) impaired gait, 2) impaired balance, 3) history of falling in the previous year, 4) postural hypotension, 5) use of four or more Rx medications that may affect balance. *Exclusion criteria:* We excluded participants if they were already participating in tai chi or a vigorous exercise program (other physical activity was allowed), had an adjusted score greater than 4 on the Short Portable Mental Status Questionnaire,16 had major unstable cardiopulmonary disease, had a life-threatening illness, had a major psychiatric illness unless stable on treatment, or	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	250	Tai Chi: 60 minutes twice weekly for 24 weeks Modified Sun style tai chi (46 forms—a series of whole-body movements performed continuously) and covered agility, mobility, balance, breathing, and relaxation. The curriculum covered the 6 basic (and reverse) and the 6 advanced (and reverse) movements of part I and 1 side of the 11 movements of part II (35 of the 46 forms). Classes were delivered by qualified leaders who practiced together prior to commencement to ensure consistency. All sessions included a warm up and cool down.
Comparator #1 (control)	253	Control: flexibility and stretching program, conducted primarily in the seated position
Comparator #2 (other)	--	--
Comparator #3 (other)	--	--

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Day 2012**					
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A				
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Physical Function and Disability	Baseline, end of treatment (24 wks)	Late - Life Function and Disability Instrument (LLFDI)	Function compoonent evaluates difficulty in performing 32 physical activities in 3 dimensions— upper extremity and basic and advanced lower extremity.	The disability component evaluates limitations in, and frequency of, performing 16 major life tasks.
2	Secondary	Musculoskeletal Impairments	Baseline, end of treatment (24 wks)	(1) Spring gauge test amd (2) Western Ontario and McMaster Universities Arthritis Index Osteoarthritis Index	(1) Quadriceps strength and (2) Joint Pain and Stiffness	Records self-rated pain and stiffness on a 100-mm visual analog scale. Pain score for 5 activities (0 –500), Stiffness score for 2 time points (0 –200).

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Day 2012**					
3	Secondary	Neurologic Impairements	Baseline, end of treatment (24 wks)	Lord Swaymeter	(1) Postural Sway under 2 conditions (eyes open and eyes closed) in bare feet and (2) Single Leg Stand	Single Leg stand is time able to stand on 1 leg without holding onto anything).
4	Secondary	Cardiovascular Impairments	Baseline, end of treatment (24 wks)	HRV	Heart rate and blood pressure before and after a 6-minute walk.	
5	Secondary	Mobility	Baseline, end of treatment (24 wks)	Timed-up-and-go	(1) ambulation, (2) stair climbing, (3) turning movements, (4) physical activity difficulty	The function score is the summed ratings (0 –1700)
6	Secondary	Mobility	Baseline, end of treatment (24 wks)	Step test, timed chair stands, and distance covered in a 6-minute walk		

Characteristics of included studies	Falls preventions (at risk population)			
Study ID	**Day 2012**			
7	Secondary	Balance	Baseline, end of treatment (24 wks)	Berg Balance Scale
8	Secondary	Quality of life	Baseline, end of treatment (24 wks)	Western Ontario and McMaster Universities Arthritis Index Osteoarthritis Index
9	Not specified	Depression	Baseline, end of treatment (24 wks)	Beck Depression Inventory
10	Not specified	Fall episodes	End of treatment (24 wks)	Monthly post-card calendar system

Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Day 2012**
11	--
12	--
13	--
14	--
15	--
16	--
Method of analysis	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Day 2012**	
Statistics	The effect of Tai chi was estimated by weighted linear regression, adjusting for baseline LLFDI scores and stratified by type of residence (retirement village or community. 2-sided significance level of P=.05 and 90% power	
Population analysed	Intent-to-treat	Modified- Participants lost to follow-up were not included in the analysis.
Missing data	Yes	63 of control group and 79 of intervention group were excluded from analysis at 24 weeks

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Gatts-2007**	
Study reference	Strawberry Gatts, Marjorie Hines Woollacott. How Tai Chi improves balance: Biomechanics of recovery to a walking slip in impaired seniors; Gait & Posture 25 (2007) 205–214	
Study design	RCT	
Author affiliation	University of Oregon	
Source of funds	No information provided	
Declared interests of study authors	No information provided	
Setting / provider	No information provided	
Country(s) / region	USA	
Enrolment period	No information provided	
Length of follow up (months)	No information provided, assumed no follow up	
Description of population	*N=*	*Description*
participants	22	Falls, healthy adults (65+ yrs, with history of falls/fear of falling)

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Gatts-2007**	
details	*Inclusion criteria: a* ge of 65 or older, **designated by their doctor or physical therapist as balance deficient,** no diagnosed central nervous system disorder and, able to stand without support and follow verbal instructions *Exclusion criteria:* People with arthritis, back, knee, or hip surgery	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	11	Tai Chi (Yang style short form). 5 x 90min sessions per wk for 3 wks
Comparator #1 (control)	8	Control (waitlist)
Comparator #2 (other)	--	--
Comparator #3 (other)	--	--

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Gatts-2007**					
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A				
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Gait speed	Baseline, end of treatment (3 wks)	Center of mass (COM) velocity (m/s) *anterior/posterior *vertical *medial/lateral	Kinematic data were collected using six cameras (3D Motion Analysis System, PEAK Performance Technologies, Englewood, CO).	All measures are from right heel strike (RHS) to right toe off (RTO)
2	Not specified	Gait distance	Baseline, end of treatment (3 wks)	Center of mass (COM) path distance (m) *anterior/posterior *vertical *medial/lateral		All measures are from right heel strike (RHS) to right toe off (RTO)

Characteristics of included studies	Falls preventions (at risk population)				
Study ID	**Gatts-2007**				
3	Not specified	Gait position	Baseline, end of treatment (3 wks)	Center of mass (COM) position *anterior/posterior *vertical *medial/lateral	All measures are from right heel strike (RHS) to right toe off (RTO)
4	Not specified	Gait speed	Baseline, end of treatment (3 wks)	Center of pressure (COP) max velocity (m/s) *anterior/posterior *medial/lateral	All data from last 250 ms of right leg single stance preceding left foot strike
5	Not specified	Gait	Baseline, end of treatment (3 wks)	Center of pressure (COP) path (m) *anterior/posterior *medial/lateral	All data from last 250 ms of right leg single stance preceding left foot strike
6	Not specified	Gait	Baseline, end of treatment (3 wks)	Center of pressure (COP) postion *anterior/posterior *vertical *medial/lateral	All data from last 250 ms of right leg single stance preceding left foot strike

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Gatts-2007**					
7	Not specified	Gait	Baseline, end of treatment (3 wks)	COM-COP separation angle right heel strike *anterior/posterior *medial/lateral		COM-COP separation angle is measured relative to vertical
8	Not specified	Gait	Baseline, end of treatment (3 wks)	COM-COP separation right toe off *anterior/posterior *medial/lateral		COM-COP separation angle is measured relative to vertical
9	Not specified	Falls risk	Baseline, end of treatment (3 wks)	Trip or not	Measured with two outcomes: yes (event occurred)/no (event did not occur).	Trip occurrence was defined as early termination of swing leg and subsequent touchdown.
10	Not specified	Gait	Baseline, end of treatment (3 wks)	Swing leg heel-strike versus toe or flat-foot	Measured with two outcomes: yes (event occurred)/no (event did not occur).	A swing leg heel-strike versus toe or flat foot strike was defined by the left swing leg foot position used to step off the plate.

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Gatts-2007**					
11	Not specified	Gait	Baseline, end of treatment (3 wks)	Swing leg cross-step (m)	Measured with two outcomes: yes (event occurred)/no (event did not occur). Medial position difference of left ankle marker at final left toe-off and left foot strike used to step off the plate.	A swing leg crossstep occurred if a subject placed the left swing leg foot medially when stepping off the plate compared to their previous toe-off position and was calculated using ankle marker data.
12	Not specified	Gait	Baseline, end of treatment (3 wks)	Right shoulder angle (range)	Right shoulder angle (range)	
13	Not specified	Gait	Baseline, end of treatment (3 wks)	Right trunk angle (at right heel strike (RHS))	Right trunk angle (at right heel strike (RHS))	
14	Not specified	Balance	Baseline, end of treatment (3 wks)	Berg Balance Scale	Berg Balance Scale	
15	Not specified	Balance	Baseline, end of treatment (3 wks)	Functional Reach	Functional Reach	
16	Not specified	Mobility	Baseline, end of treatment (3 wks)	Timed Up and Go (TUG)	Timed Up and Go (TUG)	
Method of analysis						

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Gatts-2007**	
Statistics		
Population analysed	Intent-to-treat	Modified- Participants lost to follow-up were not included in the analysis.
Missing data	Yes	Pretest lab data for subject 11 was lost due to equipment error

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Hall 2009**	
Study reference	Courtney D. Hall, PhD, PT, Tanya Miszko, EdD, Lic Ac, Steven L. Wolf, PhD, PT. Effects of Tai Chi Intervention on Dual-Task Ability in Older Adults: A Pilot Study	
Study design	RCT	pseudorandomised
Author affiliation	Atlanta Veterans Administration, Rehabilitation Research and Development; Department of Rehabilitation Medicine, Emory University; Prescriptive Health Inc, Watertown, MA	
Source of funds	Supported by the Department of Veterans Affairs, Veterans Health Administration, Office of Research and Development, Career Development Award (grant no. C3249V) and Associate Investigator Award (grant no. E3133-H); and Rehabilitation Research and Development Center of Excellence, Atlanta Veterans Administration Medical Center.	
Declared interests of study authors	No commercial party having a direct financial interest in the results of the research supporting this article has or will confer a benefit on the authors or on any organization with which the authors are associated.	
Setting / provider	No information provided	
Country(s) / region	USA	
Enrolment period	No information provided	
Length of follow up (months)	No information provided, assumed no follow up	
Description of population	*N=*	*Description*
participants	15	Falls, healthy adults (60+ yrs, with balance impairment)

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Hall 2009**	
details	*Inclusion criteria:* participants were at least 60 years old, community dwelling, **at risk for falls indicated by a dynamic gait index score 9 or had experienced a fall,** and with visual acuity of 20/50 or better. *Exclusion criteria:* a score of less than 24 on Mini-Mental State Examination,10 the inability to hear both tones used for the dual-task condition, excessive medication, and the inability to walk without assistance.	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	8	Tai Chi. 2x1.5hr session per week for 12 wks
Comparator #1 (control)	--	--
Comparator #2 (other)	7	Wellness Education Programme (class on health-related topics): 2x1hr session per week for 12 wks
Comparator #3 (other)	--	--

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Hall 2009**					
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A				
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Falls risk	Baseline, end of treatment (12 wks)	Sensory Organization Test + Two cognitive tasks	Two cognitive tasks (responding to auditory or visual stimulus as quickly as possible) performed concurrently while maintaining static balance during the Sensory Organization Test (SOT)	
2	Not specified	Falls risk	Baseline, end of treatment (12 wks)	Obstacle Course + Two cognitive tasks	Two cognitive tasks (responding to auditory or visual stimulus as quickly as possible) performed concurrently while maintaining static balance during the Sensory Organization Test (SOT)) PLUS while avoiding obstacles while walking	

Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Hall 2009**
3	--
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6	--

Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Hall 2009**
7	--
8	--
9	--
10	--

Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Hall 2009**
11	--
12	--
13	--
14	--
15	--
16	--
Method of analysis	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Hall 2009**	
Statistics	Repeated-measures MANOVA and repeated-measures ANOVA	
Population analysed	Intent-to-treat	Modified- Participants lost to follow-up were not included in the analysis.
Missing data	Yes	Six participants dropped out before completing testing because of health reasons (n=3) and time constraints (n=3), and data from 1 additional participant were dropped because of excessive use of medication at posttesting.

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Hwang 2016**	
Study reference	Hei-Fen Hwang, Sy-Jou Chen, Jane Lee-Hsieh, Ding-Kuo Chien, Chih-Yi Chen, and Mau-Roung Lin. Effects of Home-Based Tai Chi and Lower Extremity Training and Self-Practice on Falls and Functional Outcomes in Older Fallers from the Emergency Department—A Randomized Controlled Trial	
Study design	RCT	
Author affiliation	All authors affiliated with tertiary institutions: Taipei Medical University; National Taipei University of Nursing and Health Science; and Mackay Memorial Hospital	
Source of funds	This work was funded by the National Health Research Institute and the Ministry of Science Technology, Taiwan.	
Declared interests of study authors	No commercial party having a direct or indirect interest in the subject matter of this research will confer a benefit on the authors or on any organization with which the authors are associated. This material has not previously been presented in any form.	
Setting / provider	Home-based	
Country(s) / region	Taiwan	
Enrolment period	No information provided	
Length of follow up (months)	18 months	
Description of population	*N=*	*Description*
participants	456	Falls, healthy adults (60+ yrs, with history of falls)

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Hwang 2016**	
details	*Inclusion criteria:* People aged 60 and older who **received fall-related medical attention** between January 2011 and December 2012 in the ED of either of the two hospitals at least 6 months before the study (an older person was presumed to have recovered from a fall injury within 6 months15) and who could independently ambulate were invited by telephone to enroll in the study and participate in the baseline assessment. *Exclusion criteria:* Major unstable cardiopulmonary disease (ischemic chest pain or shortness of breath on mild exertion), cognitive impairment (Mini-Mental State Examination (MMSE) score <24), and contraindications to physical exercise (e.g.,severe arthritis that limits exercise capability)	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	228	Tai Chi (Yang style short form). 1x 60min session per wk for 24 weeks.
Comparator #1 (control)	--	--
Comparator #2 (other)	228	Lower extremity training (LET). 1x 60min session per wk for 24 weeks.
Comparator #3 (other)	--	--

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Hwang 2016**					
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	TCC instructors from the Association of Taipei City Yang-style TCC who were invited to participate and each had practiced TCC for more than 10 years.			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Fall episodes	Monthly	Self reported (diary)	Defined as the unintentional loss of balance, with the body hitting the floor or ground from a standing height or lower	number of falls, % fallen/ not fallen, falls per person-month, incident rate ratio
2	Primary	Time to first fall	Monthly	Self reported (diary)		

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Hwang 2016**					
3	Primary	Fallers	Monthly	Self reported (diary)		
4	Primary	Recurrent fallers	Monthly	Self reported (diary)		
5	Secondary	Muscle strength	Baseline, end of treatment (24 wks), followup (18 mos)	handgrip strength (kg)	assessed using a handgrip dynamometer and measured in kilograms of isometric force	the average of two measurements was used
6	Secondary	Balance	Baseline, end of treatment (24 wks), followup (18 mos)	The Tinetti Balance Test	involves 13 maneuvers, with a higher score indicating greater balance ability	

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Hwang 2016**					
7	Secondary	Gait	Baseline, end of treatment (24 wks), followup (18 mos)	The Tinetti Gait Test	Comprises nine components, with a higher score indicating greater mobility	
8	Secondary	Fear of falling	Baseline, end of treatment (24 wks), followup (18 mos)	Falls Efficacy Scale - International	Measures self-efficacy in avoiding falls during seven essential nonhazardous activities of daily living	A higher score indicating greater fear of falling
9	Secondary	Depression	Baseline, end of treatment (24 wks), followup (18 mos)	Geriatric Depression Scale (15-item)	A higher score indicates more depressive symptoms	
10	Secondary	Cognitive function	Baseline, end of treatment (24 wks), followup (18 mos)	MMSE		

Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Hwang 2016**
11	--
12	--
13	--
14	--
15	--
16	--
Method of analysis	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Hwang 2016**	
Statistics	proportional hazards model, negative binomial regression model, logistic regression model,sensitivity analysis, paired t-tests	
Population analysed	Intent-to-treat	modified- Participants lost to follow-up were not included in the analysis.
Missing data	No	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Kim 2009a**	
Study reference	Hyeong-Dong Kim. Effects of Tai Chi Exercise on the Center of Pressure Trace during Obstacle Crossing in Older Adults who are at a Risk of Falling	
Study design	RCT	
Author affiliation	Catholic University of Daegu, College of Health Science, Department of Physical Therapy:330 Geumnak 1-ri, Hayang-eup, Gyeongsan-si, Gyeongbuk, Republic of Korea	
Source of funds	No information provided	
Declared interests of study authors	No information provided	
Setting / provider	No information provided	
Country(s) / region	Korea	
Enrolment period	No information provided	
Length of follow up (months)	No information provided, assumed no follow up	
Description of population	*N=*	*Description*
participants	52	Falls, healthy adults (65-82yrs, with balance impairment)

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Kim 2009a**	
details	*Inclusion criteria:* a **Berg Functional Balance Scale score < 44**, a Frenchay Instrumental Activities of Daily Living Score < 36 and a Physical Function Score < 20. All participants scored greater than 24 on the MMSE. All of the subjects had visual acuity, with correction if needed, of greater than 20/50. The subjects had no neurological ororthopedic problems that prevented them fromparticipation in the study. By self-report, allparticipants reported having one or more falls in theprevious year. *Exclusion criteria:* severe dementia (an MMSE score < 20), inability to complete 12 weeks of Tai Chi exercise due to a physical illness, previous training in any form of Tai Chi or current involvement in any type of regular exercise program, unable to walk	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	25	Tai Chi: 3x weekly for 12 weeks 10 minutes wram up, 40 minues of 12-movements, 10 minutes of cool down. Exercises inclued gentle stretching targeting shoulder, necks, arms, and legs, followed by trunk and coordinated weight shift with trunk rotation and active arm swinging.
Comparator #1 (control)	--	--
Comparator #2 (other)	27	Wellness Education: 60 mins weekly for 12 weeks Health promotion lecture about diet, nutrition, fall prevention, exercise, balance and general health
Comparator #3 (other)	--	--

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Kim 2009a**					
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	A certified Tai Chi grandmaster and threeassistants taught the 12 forms of Tai Chi exercise tothe group throughout the training period			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Gait performance with obstacle	Baseline, end of treatment (12 wks)	Center of Pressure, Force platform *medial-lateral *anterior-posterior	Subjects stood in a predetemined position and then stepped over the obstacle on verbal cue.	Participant completed two practice trials
2	--					

Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Kim 2009a**
3	--
4	--
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Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Kim 2009a**
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8	--
9	--
10	--

Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Kim 2009a**
11	--
12	--
13	--
14	--
15	--
16	--
Method of analysis	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Kim 2009a**	
Statistics		
Population analysed	Intent-to-treat	Not reported
Missing data	No	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Lee 2015**	
Study reference	Ken Y. T. Lee, Christina W. Y. Hui-Chan & William W. N. Tsang (2015) The effects of practicing sitting Tai Chi on balance control and eye-hand coordination in the older adults: a randomized controlled trial, Disability and Rehabilitation, 37:9, 790-794,	
Study design	RCT	Single-blind, randomized and controlled trial. The outcomes assessor was blinded to the intervention assignments. The participants were aware of their group assignments, but they were instructed not to inform the assessor
Author affiliation	All authors affiliated with tertiary institutions: Department of Rehabilitation Sciences, The Hong Kong Polytechnic University, Hong Kong, China and Department of Physical Therapy, College of Applied Health Sciences, University of Illinois at Chicago, Chicago, IL, USA	
Source of funds	No information provided	
Declared interests of study authors	The authors report no declarations of interests	
Setting / provider	Residential care facilities	
Country(s) / region	Hong Kong	
Enrolment period	No information provided	
Length of follow up (months)	3 months	
Description of population	*N=*	*Description*
participants	59	Older adults with poor standing balance

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Lee 2015**	
details	*Inclusion criteria:* Older adults with FAC scores of 3 or 4, which means that they could walk only under supervision and only on level surfaces (FAC score 3) or on uneven surfaces (FAC score 4) *Exclusion criteria:* candidates were excluded if they had (1) a progressive neurological or unstable medical condition; (2) any signs or symptoms consistent with major unstable cardiopulmonary disease; (3) impaired cognition that would make them unable to process the information required for assessment and intervention; (4) any contra-indication for physical exercise such as a serious orthopedic condition; (5) terminal disease; or (6) any physical dysfunction which would hinder their practicing sitting Tai Chi or performing the mobilizing exercises.	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	29	Sitting Tai Chi: 3x weekly for 3 months 10-15 minutes warm up, 3 minutes of 12-movements, 10-15 minutes of cool down with breaks as needed The routine was designed to emphasize controlled weight shifting in different directions and moving the eyes, head, hands and trunk in a smooth and coordinated manner.
Comparator #1 (control)	30	Control: practiced a limbs mobilization exercise program
Comparator #2 (other)	--	--
Comparator #3 (other)	--	--

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Lee 2015**					
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A				
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Sitting balance control	Baseline, end of treatment (12 wks)	Sequential weight shifting test (SWS)	Subjects were asked to shift their center of pressure (COP) as quickly as possible without losing their balance to trace a target on a visual display unit	Performed in a sitting position
2	Primary	Sitting balance control	Baseline, end of treatment (12 wks)	Forward reaching test	The subject reached as far forward as possible without rotating the trunk or losing balance and the reaching distance was defined as the difference between the initial and final positions (third metacarpal placement along tape).	Performed in a sitting position. A total of 3 trials were performed and the average distance was calculated.

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Lee 2015**					
3	Secondary	Eye-hand coordination tests	Baseline, end of treatment (12 wks)	Visual targets on a screen with a force sensing resistor under the dominant thumb	Visual targets in form of a ball appeared on the screen on the left, on the right or in the center in random order. The ball appeared 5 times in each location for a total of 15 targets. The subject was instructed to point to each target as quickly and as accurately as possible.	Each subject's reaction time, movement time and accuracy in each trial were recorded. Each subject performed this test once, but a familiarization trial was given so that subjects could fully understand the testing procedure.
4	--					
5	--					
6	--					

Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Lee 2015**
7	--
8	--
9	--
10	--

Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Lee 2015**
11	--
12	--
13	--
14	--
15	--
16	--
Method of analysis	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Lee 2015**	
Statistics	Independent t-tests and chi-square tests were conducted to compare the two groups in terms of age, sitting height (from the crown of the head to the greater trochanter of the femur), weight, C-MMSE scores, as well as the distribution of genders and functional ambulation classifications. To compare the effects of the two types of training, two-way repeated measures analysis of covariance (ANCOVA) was conducted for the outcome measures before and after the interventions, and effect sizes were estimated using the partial eta squared. The within-subject factor was time and the between-subjects factor was group.	
Population analysed	Intent-to-treat	To handle incomplete data resulting from premature intervention dropouts, data imputation was carried out using the intention-to-treat, with the last observation carried forward principle
Missing data	Yes	8 participants dropped out before assessment because of unwillingness or unavailability and 6 additional subjects dropped out due to refusal to continue (n=4), died from deterioration (n=1) and suffered lower back pain (n=1)

Characteristics of included studies	Falls preventions (at risk population)		
Study ID	**Li 2018**		
Study reference	Fuzhong Li, Peter Harmer, Kathleen Fitzgerald;,Elizabeth Eckstrom, Laura Akers, Li-Shan Chou, Dawna Pidgeon, Jan Voit, Kerri Winters-Stone (2018) Effectiveness of a Therapeutic Tai Ji Quan Intervention vs a Multimodal Exercise Intervention to Prevent Falls Among Older Adults at High Risk of Falling: A randomized controlled trial, Disability and Rehabilitation; JAMA Intern Med. 178(10):1301-1310.		
Study design	RCT	Single-blind, parallel-design, randomizedclinical trial	
Author affiliation	All authors affiliated with tertiary institutions: School of Kinesiology, Shanghai University of Sport; Department of Exercise and Health Science, Willamette University, Salem, Oregon, Knight Cancer Institute and School of Nursing, Oregon Health & Science University, Portland; Department of Rehabilitation, Dartmouth-Hitchcock Medical Center, Lebanon, New Hampshire		
Source of funds	This work was supported by grant AG045094 from the National Institute on Aging. The funder had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.		
Declared interests of study authors	Dr Li, reported that he is the founder and owner of Exercise Alternatives, LLC, a consulting company, and that a licensing fee for Tai Ji Quan:Moving for Better Balance is paid directly to this company. No other disclosures were reported.		
Setting / provider	Home-based: 7 urban and suburban cities		
Country(s) / region	Oregon, USA		
Enrolment period	February 20, 2015, to January 30, 2018		
Length of follow up (months)	24 weeks		
Description of population	*N=*	*Description*	
participants	670	Community-dwelling adults > 70 years who had fallen in the preceding year or had impaired mobility	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Li 2018**	
details	*Inclusion criteria: >* 70 years and have: (1) fallen at least once in the preceding 12 months and having a health care practitioner's referral indicating that the participant was at risk of falls or (2) impaired mobility as evidenced by a Timed Up & Go (TUG). Other inclusion criteria were as follows: (1) abilit yto walk 1 or 2 blocks, with or without the use of an assistive device; (2) ability to exercise safely as determined by a health care practitioner; and (3) willingness to be randomly assigned to and complete a 6-month intervention *Exclusion criteria:* individuals who had (1) participated in daily or structured vigorous physical activity or walking for exercise that lasted 15 minutes or longer or muscle-strengthening activities on 2 or more days a week in the previous 3 months, (2) severe cognitive impairment (Mini-Mental State Examination20 score, ≤20 on a range of 0 to 30), or (3) major medical or physical conditions determined by their health care practitioner to preclude exercise.	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	224	Therapeutic Tai Ji Quan: 60 minute exercise session twice weekly for 24 weeks 10 minute warm-up, 40-45 minutes of Tai Ji Quan and 5 minute cool down At each session, participants practiced 3 to4sets of a tai ji quan form, with 3 to 5 repetitions in each set intermingled with 3 to 5 sets of 3 to 4 selected mini-therapeutic movements (4 to 5 repetitions in each set). After all 8 therapeutic tai ji quan forms had been learned (weeks 11 and 12), each session comprised 5 to 6 sets of variations in the 8-form routine and 3 to 4 mini-therapeutic movements in sets of 4 to 5.
Comparator #1 (control)	223	Stretching Exercise: breathing, stretching, and relaxation activities, with most of them performed in a seated position.
Comparator #2 (other)	223	Multimodal Exercise: 60 minute exercise session twice weekly for 24 weeks 10 minute warm-up, 40-45 minutes of aerobic conditioning, strength, balance and flexibility activities and 5 minute cool down. Aerobic exercises included long strides, heel-toe walking, narrow- and widebased walking, and sidesteps. Strength included exercises for ankle dorsiflexors,knee extensors, and hip abductors. Balance training involved tandem foot- standing, heel-toe and line walking, single-leg standing, alternation of the base of support, weight transfers, and various reaching movements away from the center of gravity. Flexibility exercises included a static stretching routine of major upper- and lower-body muscle groups.
Comparator #3 (other)	--	--

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Li 2018**					
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A				
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Fall episodes	Baseline, midpoint (4 mths), and end of intervention (6 mths)	Daily “fall calendar”	Fall event defined as when you land on the floor or the ground, or fall and hit objects like stairs or pieces of furniture, by accident	Ascertained on amonthly basis
2	Secondary	Functional Reach	Baseline, midpoint (4 mths), and end of intervention (6 mths)	Maximal distance (m)	Maximal distance a participant could reach forward, beyond arm’s length, while maintaining a fixed based of support in a standing position	

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Li 2018**					
3	Secondary	Mobility	Baseline, midpoint (4 mths), and end of intervention (6 mths)	Instrumented Timed Up & Go (APDM, Inc)	Assessed walking duration (s) and 3 subdomain timed-based activities: sit-to-stand, turning, and turn and stand-to-sit during a 14-m walk at normal pace	14 m = 7 m toward a line, turn, and 7 m toward the chair
4	Secondary	Physical Performance Measures	Baseline, midpoint (4 mths), and end of intervention (6 mths)	Short Physical Performance Battery	Measurements of repeated chair stands, 3 increasingly challenging standing balance tasks, and a 4-m speed walk.	Scores on the 3 tasks were combined to create an overall performance score of 0 (worst) to 12 (best)
5	Not specified	Global cognitive function	Baseline, midpoint (4 mths), and end of intervention (6 mths)	30-item Montreal Cognitive Assessment	Assesses cognitive function in multiple domains:memory recall, visuospatial abilities, executive functions, attention, language, and orientation to time and place	Scores range from 0 to 30
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Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Li 2018**
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Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Li 2018**
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16	--
Method of analysis	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Li 2018**	
Statistics	Baseline characteristics and unadjusted study outcome measures (age, sex, health statis, history of falls and cognitive function) were summarised by intervention group using descriptive statistics such as mean (SD) or percentage and used to assess between-group equivalence at baseline. Outcome measures were compared across groups by using analysis of variance for continuous variables and the $\chi 2$ (or Fisher exact) test for categorical variables. In primary analysis of falls count outcome,we used negative binomial regression to estimate absolute differences in IRRs with their corresponding 95% CIs comparing Tai Qi and multimodal exercise with stretching exercise. Analyzed the secondary (continuous) outcomes with estimates and their 95% CIs generated from the linear mixed-effects models. Bonferroni correction was made to control for multiple testing of secondary outcomes, with an adjusted α value of .007. Two-sided Pvalues of less than .05 were considered statistically significant.	
Population analysed	Intent-to-treat	
Missing data	Yes	87 particpants lost to follow up in Tai Ji (n=30), multimodal exercise (n=28) and stretching exercise (n=29)

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Logghe 2009**	
Study reference	Inge H. J. Logghe, Petra E. M. Zeeuwe, Arianne P. Verhagen, Ria M. T. Wijnen-Sponselee, Sten P. Willemsen, Sita M. A. Bierma-Zeinstra, Erik van Rossum, Marjan J. Faber, and Bart W. Koes. Lack of Effect of Tai Chi Chuan in Preventing Falls in Elderly People Living at Home: A Randomized Clinical Trial, JAGS 57:70–75, 2009	
Study design	RCT	Partially blinded clinical trial
Author affiliation	All authors affiliated with tertiary institutions: Erasmus MC University Medical Centre Rotterdam, Rotterdam, the Netherlands; University of Applied Sciences, Breda, the Netherlands; Faculty of Health, Medicine and Life Sciences, Maastricht University, Maastricht, the Netherlands; Professional University Zuyd, Heerlen, the Netherlands; and Radboud University Nijmegen Medical Centre, Nijmegen, the Netherlands.	
Source of funds	The study was funded by the Netherlands Organization for Health Research and Development (ZonMw), the Hague, the Netherlands.	
Declared interests of study authors	No information provided	
Setting / provider	Home-based: two industrial towns	
Country(s) / region	Western part of the Netherlands	
Enrolment period	No information provided	
Length of follow up (months)	12 months	
Description of population	*N=*	*Description*
participants	269	Elderly people (average age 77) living at home with a high risk of falling.

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Logghe 2009**	
details	*Inclusion criteria:* Subjects age 70 and older, living at home, and having a high fall risk. High fall risk was defined as one or more self-reported fall incidents in the year preceding the study or at least two of the following self-reported risk factors for falling: disturbed balance, mobility problems, dizziness, and the use of benzodiazepines or diuretics. Eligible subjects were identified using the patient registration files of participating general practitioners and invited by mail before being screen for eligibility. There was no information regarding exclusion criteria.	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	138	Tai Chi Chuan: 1 hour of training twice a week for 13 weeks Received a brochure explaining how to prevent fall incidents in and around the house. Lesson consisted of 10 positions derived from the Yang style - which have been proved to be successful in preventing falls in prior studies. Chi Kung exercises were used during the warmup and cool-down periods.The group size ranged from 7 - 14 persons. The instructors asked participants to practice the Tai Chi Chuan positions at home at least twice a week for approximately 15 minutes.
Comparator #1 (control)	131	Control: received a brochure explaining how to prevent fall incidents in and around the house. They could use or apply for available srvices in the area as before and receive usual care
Comparator #2 (other)	--	--
Comparator #3 (other)	--	--

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Logghe 2009**					
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Four professional Tai Chi Chuan instructors (experienced with older persons) gave the lessons using a predefined protocol			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Falls	Monthly	Individual fall calendars collected monthly over 12 months	Participants to fill out calendar on a daily basis for 1 year. With response options of "fallen", "nearly fallen", and "not fallen"	A fall was defined as “unintentionally coming to rest on theground, floor, or other lower level"
2	Secondary	Balance	Baseline and after 3, and 12 months	Berg Balance Scale	Performed by a blinded research assistant	

Characteristics of included studies	Falls preventions (at risk population)				
Study ID	**Logghe 2009**				
3	Secondary	Fear of Falling	Baseline and after 3, and 12 months	Falls Efficacy Scale	Performed by a blinded research assistant
4	Secondary	Functional capacity	Baseline and after 3, 6, and 12 months	Blood pressure, Sphygmomanometer during physical examination	Self-administered
5	Secondary	Functional capacity	Baseline and after 3, 6, and 12 months	Heart rate, Sphygmomanometer during physical examination	Self-administered
6	Secondary	Functional capacity	Baseline and after 3, 6, and 12 months	FEV, Spirometer	Self-administered

Characteristics of included studies	Falls preventions (at risk population)				
Study ID	**Logghe 2009**				
7	Secondary	Functional capacity	Baseline and after 3, 6, and 12 months	Peak expiratory flow, Spirometer	Self-administered
8	Secondary	Physical activity	Baseline and after 3, and 12 months	Physical Activity Scale for the Elderly	Performed by a blinded research assistant
9	Secondary	Functional Status	Baseline and after 3, and 12 months	Groningen Activity Restriction Scale	Performed by a blinded research assistant
10	Not specified	Register the use of walking devices, medication, use of healthcare services	Baseline and after 3, 6, and 12 months	Standardised Questionnaire	Self-administered

Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Logghe 2009**
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Method of analysis	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Logghe 2009**	
Statistics	Baseline characteristics are reported as means and standard deviations for continuous variables and as numbers and percentages for categorical data. The primary outcome was dichotomized as fallen or not fallen (not fallen included nearly fallen). The Andersen-Gill model was used to calculate the hazard ratio comparing fall rates between the two groups. Covariates included age, sex, fall in the year preceeding the stidy and mean balance score. Secondary outcome measures were analyzed using the Mann-Whitney or Student t-test depending on the distribution of the variable. P=0.05 was considered significant, and all hypotheses were tested as two-tailed.	
Population analysed	Intent-to-treat	If dropout was higher than 15% or the average adherence was lower than 80% an additional perprotocol analysis for the primary outcome was performed.
Missing data	Yes	25 participants withdrew before first lesson. There were 26 dropouts: 12 (9%) in the intervention group and 14 (11%) in the control group. Reasons for dropout in the intervention group were health problems of participant or spouse (n=7), “not interested anymore” (n=4), and death (n=1). The main reason for dropout in the control group was “not interested anymore” (n=11).

Characteristics of included studies	Falls prevention (dizziness)		
Study ID	**Maciaszek 2012**		
Study reference	Maciaszek, J. and W. Osinski (2012). "Effect of Tai Chi on body balance: randomized controlled trial in elderly men with dizziness." American Journal of Chinese Medicine 40(2): 245-253.		
Study design	RCT	pseudorandomised	No mention of the method of randomisation
Author affiliation	The authors were associated with a university in Poland		
Source of funds	Not reported		
Declared interests of study authors	Not reported		
Setting / provider	Community		
Country(s) / region	Not reported, assume Poland		
Enrolment period	Not reported		
Length of follow up (months)	18 weeks		
Description of population	*N=*	*Description*	
participants	40	Elderly men with dizziness	

Characteristics of included studies	Falls prevention (dizziness)	
Study ID	**Maciaszek 2012**	
details	*Inclusion criteria:* 60 to 80 years old, history of dizziness *Exclusion criteria:* previous Tai Chi practice, history of significant cardiovascular, pulmonary, metabolic, or musculoskeletal disease, or neurological disease	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	20	Tai Chi - 2x 45min sessions per week for 18 weeks. The Tai Chi intervention consisted of 5 sequences of movement from the simplified 24-form of Tai Chi, with 10 mins of warm up, 30 mins of Tai Chi practise and 5 mins of cool down.
Comparator #1 (control)	20	Control (not defined) - assumed no intervention
Comparator #2 (other)	--	--
Comparator #3 (other)	--	--

Characteristics of included studies	Falls prevention (dizziness)					
Study ID	**Maciaszek 2012**					
Co-interventions						
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Classes led by a certified Tai Chi instructor			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Functional mobility	Baseline, 18 weeks (post-intervention)	8 foot up and go		
2	Not specified	Balance	Baseline, 18 weeks (post-intervention)	Limits of stability-Forward sway	Participants stood on a measured platform and instructeed to lean slowly in each direction.	Each subject performed two trials, and the second one was used for analysis.

Characteristics of included studies	Falls prevention (dizziness)					
Study ID	**Maciaszek 2012**					
3	Not specified	Balance	Baseline, 18 weeks (post-intervention)	Limits of stability-Backward sway	Participants stood on a measured platform and instructeed to lean slowly in each direction.	Each subject performed two trials, and the second one was used for analysis.
4	Not specified	Balance	Baseline, 18 weeks (post-intervention)	Limits of stability-Leftward sway	Participants stood on a measured platform and instructeed to lean slowly in each direction.	Each subject performed two trials, and the second one was used for analysis.
5	Not specified	Balance	Baseline, 18 weeks (post-intervention)	Limits of stability-Rightward sway	Participants stood on a measured platform and instructeed to lean slowly in each direction.	Each subject performed two trials, and the second one was used for analysis.
6	Not specified	Balance	Baseline, 18 weeks (post-intervention)	Limits of stability-Maximum sway area	Participants stood on a measured platform and instructeed to lean slowly in each direction.	Each subject performed two trials, and the second one was used for analysis.

Characteristics of included studies	Falls prevention (dizziness)
Study ID	**Maciaszek 2012**
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Characteristics of included studies	Falls prevention (dizziness)
Study ID	**Maciaszek 2012**
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Method of analysis	--

Characteristics of included studies	Falls prevention (dizziness)	
Study ID	**Maciaszek 2012**	
Statistics	ANOVA was used to determine the significance of differences between experimental groups and for the analysis of variation in pre- and post-tests.	
Population analysed	Intent-to-treat	Not reported, it is interpreted that an intention to treat analysis was used.
Missing data	No drop outs reported	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Ni 2014a**	
Study reference	Meng Ni, Kiersten Mooney, Luca Richards, Anoop Balachandran, Mingwei Sun, Kysha Harriell, Melanie Potiaumpai, Joseph F. Signorile. Comparative Impacts of Tai Chi, Balance Training, and a Specially-Designed Yoga Program on Balance in Older Fallers, Archives of Physical Medicine and Rehabilitation 2014;95:1620-8	
Study design	RCT	
Author affiliation	All authors affiliated with tertiary institutions: Laboratory of Neuromuscular Research and Active Aging, University of Miami, Coral Gables; Center on Aging, Miller School of Medicine, University of Miami, Miami, FL. Some authors also associated with BalaVinyasa Yoga, Naples, FL	
Source of funds	No information provided Suppliers included: AMTI, 176 Waltham St, Watertown, MA 02472 and Perry Dynamics Inc, 2810 N Jasper St, Decatur, IL 62526.	
Declared interests of study authors	No information provided	
Setting / provider	Research laboratory	
Country(s) / region	Miami, FL	
Enrolment period	No information provided	
Length of follow up (months)	12 weeks	
Description of population	*N=*	*Description*
participants	48	A group of older adults (mean age, 74.15 yrs) with a history of falling.

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Ni 2014a**	
details	*Inclusion criteria:* The individual had to be >60 years old, be living independently, require no assistance in performing activities of daily living, and have fallen at least once in the past year. *Exclusion criteria:* **I**ndividuals with neurologic impairment affecting balance; severe musculoskeletal impairment; unstable chronic disease state; significant visual or vestibular impairment; uncontrolled hypertension; simultaneous use of cardiovascular, psychotropic, and antidepressant drugs; and Mini-Mental State Examination score < 18	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	16	Tai Chi: 60 minute classes twice per week for 12 weeks 5-minute warm-up, 50-minute training, and 5-minute cool-down Chen style emphasizing whole-body motion using alternating fast and slow coordinated upper and lower body rotational movements. The form incorporated 18 movements, including knee bends, small and large forward and backward steps, trunk rotation, and weight shifts, focusing on postural alignment and eye-hand coordination.
Comparator #1 (control)	16	Control: Standard Balance Program - activities included maintaining balance on compliant surfaces, picking up objects from the ground; and line, cone, ladder, chair, step, and ball drills.Performed 2/3 drills in session
Comparator #2 (other)	16	Yoga: 60 minute classes twice per week for 12 weeks 5-minute warm-up, 50-minute training, and 5-minute cool-down Vinyasa style with muscles important to balance, including plantar flexors, dorsiflexors, knee flexors and extensors, hip abductors and adductors, and core muscles. Balance yoga incorporated 3 difficulty levels, becoming progressively challenging throughout the study
Comparator #3 (other)	--	--

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Ni 2014a**					
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Tai Chi taught by certified Tai Chi Master and yoga programmed taught by 2 certified yoga instructors.			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Mobility	Baseline, and after 12 weeks	8-foot up-and-go test		tests were performed twice, with the higher value used for statistical analysis
2	Not specified	Balance	Baseline, and after 12 weeks	1-leg stance	performed on both the left and right sides	tests were performed twice, with the higher value used for statistical analysis

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Ni 2014a**					
3	Not specified	Balance	Baseline, and after 12 weeks	Functional reach	performed on both the left and right sides	tests were performed twice, with the higher value used for statistical analysis
4	Not specified	Mobility	Baseline, and after 12 weeks	Usual and maximal walking speed		tests were performed twice, with the higher value used for statistical analysis
5	Not specified	Balance	Baseline, and after 12 weeks	AccuSway force platform	Tests were performed with participants standing on the platform without shoes, with feet 16cm apart and arms at their sides	Each test included three 10 - second repetitions. Measured with eyes open and eyes closed
6	Not specified	Balance	Baseline, and after 12 weeks	Proprio 5000	Data included the sum of the linear displacements; time on the test; linear displment. in the lateral, AP, and up/down directions; and angular displment. For flexion/ extension, lateral flexion, and rotation	Maximum test duration was 120s

Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Ni 2014a**
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Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Ni 2014a**
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Method of analysis	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Ni 2014a**	
Statistics	All values are presented as mean +/- SE with 95% confidence interval. Data were analyzed using separate 3 (group) x 2(time) repeated-measures analysis of variance. Bonferroni post hoc tests were used to determine the sources of significant main effects or interactions. Significance was set at P<.05. Using results for the eyes open area of the 95% confidence ellipse	
Population analysed	Intent-to-treat	
Missing data	Yes	9 particpants lost to follow up in Tai Chi (n=5), standard balance program (n=1) and yoga (n=3)

Characteristics of included studies	Falls preventions (at risk population)		
Study ID	**Nnodim 2006**		
Study reference	Joseph O. Nnodim, Debra Strasburg, Martina Nabozny, Linda Nyquist, Andrzej Galecki, Shu Chen, and Neil B. Alexander. Dynamic Balance and Stepping Versus Tai Chi Training to Improve Balance and Stepping in At-Risk Older Adults, J Am Geriatr Soc (JAGS) 54:1825–1831, 2006.		
Study design	NRSI	Prospective cohort	Prospective intervention trial. Assessors were blinded to group assignment and training.
Author affiliation	All authors affiliated with a number of universities and hospitals in Michigan: Mobility Research Center, Division of Geriatric Medicine, Department of Internal Medicine; Institute of Gerontology, University of Michigan; and Geriatric Research, Education and Clinical Center, VA Ann Arbor Health Care System, Michigan.		
Source of funds	Primary support from the National Institute on Aging Michigan Claude Pepper Older Americans Independence Center and the K24 Mid-Career Investigator Award in Patient-Oriented Research. The authors also acknowledge support of Department of Veterans Affairs (VA) Research and Development.		
Declared interests of study authors	The authors have no conflict of interest to disclose.		
Setting / provider	Local senior centers and congregate housing facilities.		
Country(s) / region	Michigan, USA		Greater Washtenaw County
Enrolment period	No information provided		
Length of follow up (months)	10 weeks		
Description of population	*N=*	*Description*	
participants	213	> 65 with at least mild impairment in the ability to perform unipedal stance and tandem walk	

Characteristics of included studies		Falls preventions (at risk population)
Study ID		**Nnodim 2006**
details		*Inclusion criteria:* Participants who were unable to stand unipedally for more than 25 seconds or had at least one error in a 10-step tandem walk. To perform the stepping outcome tests and to participate in a stepping exercise program, enrollees had to be able to stand and take one step unsupported by a device or person. *Exclusion criteria:* Individuals who engaged in regular, structured physical exercise (>3 times/wk) or were receiving physical therapy for musculoskeletal, neuromuscular, or functional mobility or balance impairments.
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	107	Tai Chi: 1 hr session per week for 10 weeks Each session began and concluded with 5 minutes of warm-up and cool-down stretching exercises Twelve unique sequences selected from the TC Yang Short Form were progressively practiced, including three variations of unipedal stance. Based on a series of standard movements and positions that focused on body alignment (including upright and rotated trunk), weight shifts (up to and including unipedal stance), and reciprocal arm movements. The movements and positions included typical TC forms: weight shifts in multiple directions; hip and ankle rotations; ankle and knee flexion; trunk rotation; and stepping motions forward, backward, and laterally. Emphasis was on awareness of body alignment, distribution of weight, and relaxation.
Comparator #1 (control)	--	--
Comparator #2 (other)	106	Combined Balance and Stepping Training: 1 hr session per week for 10 weeks Each session began and concluded with 5 minutes of warm-up and cool-down stretching exercises Motor-skill training approach - worked on dynamic balance and stepping responses through structured practice with a focus on speed of step initiation and appropriate toe clearance and step length. Carried out through a circuit of progressive challenges in upright static and dynamic balance. The large range of exercises allowed the progressive delivery of diffferent levels of balance and stepping challenge
Comparator #3 (other)	--	--

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Nnodim 2006**					
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A				
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Static Balance: Tandem Stance (TS)	Baseline, and after 10 weeks	Longest duration stance time was taken using handheld stopwatch	Participants placed their preferred foot forward and were timed for up to 60 seconds for three trials	Trials ended at maximum time or if the participant uncrossed their arms, changed foot position, or lost balance.
2	Not specified	Static Balance: Unipedal Stance (US)	Baseline, and after 10 weeks	Longest duration stance time was taken using handheld stopwatch	Participants stood up to 30 seconds on their preferred leg for the first and third trial and their nonpreferred leg for the second trial.	Trials ended at maximum time or if the participant uncrossed their arms, contacted the stance leg with the non-weight bearing foot, or lost balance. Longest stance time was taken.

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Nnodim 2006**					
3	Not specified	Stepping: Maximal Step Length (MSL)	Baseline, and after 10 weeks	Adhesive-backed ruler tapes affixed to the floor measured length for average step length over 5 trials	Participants were instructed to step maximally without moving the stance foot and then return to the initial position in one movement. Tested in the forward, side, and backward directions for each lower extremity.	Three practice trials of submaximal stepping in each test direction. Measurements were normalized according to subject height by using lower extremity length measured from the floor to the greater trochanter
4	Not specified	Stepping: Rapid Step Test (RST)	Baseline, and after 10 weeks	Total time to complete 24 repetitions was analyzed using handheld stopwatch	Participants were instructed to take one step out and return as quickly as possible to the initial starting position in response to a command by the experimenter. Included four steps in each of six leg directions for a total of 24 repetitions	A practice session of a six-step random sequence was performed using the right leg only and then the left leg only for the three directions.
5	Not specified	Mobility	Baseline, and after 10 weeks	Timed Up and Go Test (TUG)	Participants were timed as they rose from a 45-cm-high straight-backed chair, walked 3 meters, turned, and returned to their original sitting position	After one practice trial, the next trial was used for analysis.
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Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Nnodim 2006**
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Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Nnodim 2006**
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16	--
Method of analysis	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Nnodim 2006**	
Statistics	Analysis of covariance was used to test the effect of CBST and TC interventions for dependent variables measured on the continuous scale, including TUG, MSL, and RST. Timed measures (RST, TUG) were logarithmically transformed in order for the residuals to satisfy assumptions of a normal distribution and constant variance and were adjusted for the baseline. Logistic regression was used to test whether there was a significant difference between intervention groups at 10 weeks in the ability to perform TS or US. To address possibly varying effects of CBST and TC interventions in different subgroups, interactions between intervention group and covariates were included in analysis of covariance and logistic models - none of these interactions were statistically significant.	
Population analysed	Intent-to-treat	
Missing data	Yes	51 particpants lost to follow up in CBST (n=25), and Tai Chi (n=26). Reasons for attrition included poor attendance, time commitments, and unrelated medical illness with similar numbers from both groups

Characteristics of included studies	Falls prevention (distal symmetric polyneuropathy)	
Study ID	**Quigley 2014**	
Study reference	Quigley PA, Bulat T, Schulz B, Friedman Y, Hart-Hughes S, Richardson JK, et al. Exercise interventions, gait, and balance in older subjects with distal symmetric polyneuropathy: a three-group randomized clinical trial. Am J Phys Med Rehabil. 2014;93(1):1-12; quiz 3-6. NCT00270842	
Study design	RCT	Computer-generated randomisation schedule with allocation concealment by sealed envelopes.
Author affiliation	The authors were associated with a hospital and university in the USA, and the US Department of Veteran Affairs	
Source of funds	Supported by the Office of Research and Development, Rehabilitation Research and Development Service Study no. O4006RA, Department of Veterans Affairs, James A. Haley VA Hospital, and the VISN 8 Patient Safety Center of Inquiry.	
Declared interests of study authors	The authors declared no conflict of interest	
Setting / provider	Community	
Country(s) / region	USA	
Enrolment period	January 2006 - January 2009	
Length of follow up (months)	10 weeks + 6 month follow up	
Description of population	*N=*	*Description*
participants	101	Distal symmetric polyneuropathy

Characteristics of included studies	Falls prevention (distal symmetric polyneuropathy)	
Study ID	**Quigley 2014**	
details	*Inclusion criteria:* able to read and follow three-step instructions, >18 years old, able to ambulate household distances with or without an assistive device, signs consistent with polyneuropathy *Exclusion criteria:* cognitive impairment (mini mental state score <24), severe disease such as metastatic cancer, central neruologic dysfunction, any lower limb amputation, lower limb motor weakness that was less than antigravity, mobility limitations caused by altered lower extremity skin integrity/ulcer, and medically unstable condition.	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	34	Tai Chi - 2x 60min sessions per week for 10 weeks. The intervention consisted of a 10 minute warm up, and 45 minutes of Tai Chi movements. By the end of the 10 week program, the classes progressed to include 22 TC positions.
Comparator #1 (control)	34	Education control - 2x 60min sessions per week for 10 weeks. Education classes consisted of general health-related course content such as medication safety, nutrition, home safety, injury prevention, health maintenance strategies, osteoporosis prevention, general fitness, what to report to your doctor, and vision and hearing screening and health.
Comparator #2 (other)	34	Balance Training - 2x 60min sessions per week for 10 weeks. Functional balance training included strengthening, coordination, multitasking, hand-eye coordination, visual-perceptual conflict, and compensatory exercises. These elements increased in difficulty throughout the 10 week program.
Comparator #3 (other)	--	--

Characteristics of included studies	Falls prevention (distal symmetric polyneuropathy)					
Study ID	**Quigley 2014**					
Co-interventions	Weekly handout with homework					
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	All intervention gropus led by a trained instructor			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Balance	Baseline, end of treatment (10 wks), followup (3 & 6 mos)	Berg Balance Scale	Evaluates balance in sitting and standing positions and rates various kinds of physical performances from 0 (no performance at all) to 4 (normal performance).	There are 14 items in the scale, with a maximum score of 56.
2	Primary	Mobility	Baseline, end of treatment (10 wks), followup (3 & 6 mos)	8 foot up and go test	Subject to arise from a sitting position, walk 8 ft and turn 180 degrees around a cone, and return to sitting.	Two trials were completed and the faster time used for analysis.

Characteristics of included studies	Falls prevention (distal symmetric polyneuropathy)					
Study ID	**Quigley 2014**					
3	Secondary	Fear of falling	Baseline, end of treatment (10 wks), followup (3 & 6 mos)	Modified falls efficacy scale	Assesses a patient's self-reported ability to perform without falling each of 14 common activities of daily living in a Likert scale format.	10 indoor activities and 4 outdoor activities.
4	Primary	Gait	Baseline, end of treatment (10 wks), followup (3 & 6 mos)	Velocity (m/sec), step time (s), step time variability (s), step width (mm), step witdth variability (mm), stride time (s), stride length (cm)	Subjects were instructed to walk at their usual speed, and performed 10 trials. Subjects were recorded and toe and heel marker kinematics were recorded using force plates. The Plug-in-Gait module was used to calculate gait kinetics.	If no good data had been collected during these trials, additional trials were recorded until subject fatigue or alterations in gait were evident.
5	Primary	Gait	Baseline, end of treatment (10 wks), followup (3 & 6 mos)	Time spent-single limb support	Subjects were instructed to walk at their usual speed, and performed 10 trials. Subjects were recorded and toe and heel marker kinematics were recorded using force plates. The Plug-in-Gait module was used to calculate gait kinetics.	If no good data had been collected during these trials, additional trials were recorded until subject fatigue or alterations in gait were evident.
6	Primary	Gait	Baseline, end of treatment (10 wks), followup (3 & 6 mos)	Peak ankle plantar flexion power (W/kg)	Subjects were instructed to walk at their usual speed, and performed 10 trials. Subjects were recorded and toe and heel marker kinematics were recorded using force plates. The Plug-in-Gait module was used to calculate gait kinetics.	If no good data had been collected during these trials, additional trials were recorded until subject fatigue or alterations in gait were evident.

Characteristics of included studies	Falls prevention (distal symmetric polyneuropathy)					
Study ID	**Quigley 2014**					
7	Primary	Gait	Baseline, end of treatment (10 wks), followup (3 & 6 mos)	Peak ground reaction force-anterior & posterior and vertical	Subjects were instructed to walk at their usual speed, and performed 10 trials. Subjects were recorded and toe and heel marker kinematics were recorded using force plates. The Plug-in-Gait module was used to calculate gait kinetics.	If no good data had been collected during these trials, additional trials were recorded until subject fatigue or alterations in gait were evident.
8	Not specified	Balance, Limits of stability	Baseline, end of treatment (10 wks), followup (3 & 6 mos)	Reaction time	Analysis of ability to voluntarily move centre of gravity to limits of stability in 8 directions.	Calculated as % of theoretical maximum given height. Outcomes are reported as mean across all directions.
9	Not specified	Balance, Limits of stability	Baseline, end of treatment (10 wks), followup (3 & 6 mos)	Sway velocity		
10	Not specified	Balance, Limits of stability	Baseline, end of treatment (10 wks), followup (3 & 6 mos)	Directional control		

Characteristics of included studies	Falls prevention (distal symmetric polyneuropathy)					
Study ID	**Quigley 2014**					
11	Not specified	Balance, Limits of stability	Baseline, end of treatment (10 wks), followup (3 & 6 mos)	Endpoint excursion		
12	Not specified	Balance, Limits of stability	Baseline, end of treatment (10 wks), followup (3 & 6 mos)	Maximum excursion		
13	Not specified	Balance, Limits of stability	Baseline, end of treatment (10 wks), followup (3 & 6 mos)	Sensory organization test	Three sensory systems responsible for balance: vision, somatosenory and vestibular input.	Composite score presented.
14	--					
15	--					
16	--					
Method of analysis						

Characteristics of included studies	Falls prevention (distal symmetric polyneuropathy)	
Study ID	**Quigley 2014**	
Statistics	One-way ANOVA and Pearson Chi-squared test. Post-hoc testing was accomplished via Bonferroni tests for multiple comparisons.	
Population analysed	Intent-to-treat	Modified intention to treat, excluding participants with missing data.
Missing data	Two dropped out of education control prior to intervention commencement. In addition, of 100 study subjects, 47 dropped out by 3 mos; and 68, by 6 mos	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Taylor 2011**	
Study reference	Denise Taylor, Leigh Hale, Philip Schluter, Debra L. Waters, Elizabeth E. Binns, Hamish McCracken, Kathryn McPherson, and Steven L. Wolf. Effectiveness of Tai Chi as a Community-Based Falls Prevention Intervention: A Randomized Controlled Trial, J Am Geriatr Soc (JAGS) 60:841–848, 2012.	
Study design	RCT	
Author affiliation	All authors affiliated with a number of universities and Rehab Centres in New Zealand and Georgia, USA: AUT University, Auckland, NZ; University of Otago, Christchurch, NZ; University of Otago, Dunedin, NZ; Emory Univeristy, Atlanta, Georgia; Veterans Affairs Rehabilitation Research and Development Center, Atlanta, Georgia.	
Source of funds	This study was funded and supported by the ACC, Wellington, New Zealand.	
Declared interests of study authors	The editor in chief has reviewed the conflict of interest checklist provided by the authors and has determined that the authors have no financial or any other kind of personal conflicts with this paper.	
Setting / provider	Eleven sites across New Zealand	
Country(s) / region	New Zealand	
Enrolment period	June 2006 and November 2008	
Length of follow up (months)	17 months	
Description of population	*N=*	*Description*
participants	684	Community residing older adults (mean age 74.5; 73% female) with at least one falls risk factor

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Taylor 2011**	
details	*Inclusion criteria:* Participants who are aged 65 and older (55 years if Maori or Pacific Islander) and had experienced at least one fall in the previous 12 months or were considered to be at risk of falling - identified using the Falls Risk Assessment Tool. *Exclusion criteria:* Individuals who were unable to ambulate independently (with or without walking aid), had a chronic medical condition that would limit participation in low- to moderate-intensity exercise, had severe cognitive limitations (score <23 on the Telephone Mini-Mental State Examination), had participated in tai chi within the last year, or were currently participating in an organized exercise program aimed at improving strength and balance.	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	223	Tai Chi 1 (TC1) : 1 hr session per week for 20 weeks Class included a warm-up and cool-down for 7 minutes Training program was based on a modified 10-form Sun style. The class comprised mainly seated exercises including stretching, low-level strength, and low-level cardiovascular exercise. No exercises that specifically targeted the training of balance were included.
Comparator #1 (control)	231	Low Level Exercise (LLE) - Standardised with same exercises in each week of the program
Comparator #2 (other)	220	Tai Chi 2 (TC2) : 1 hr session TWICE per week for 20 weeks Class included a warm-up and cool-down for 7 minutes Training program was based on a modified 10-form Sun style. The class comprised mainly seated exercises including stretching, low-level strength, and low-level cardiovascular exercise. No exercises that specifically targeted the training of balance were included.
Comparator #3 (other)	--	--

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Taylor 2011**					
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A				
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Fall episodes	Monthly	Fall Calendars	Participants recorded fall incidents as they occurred on provided calendars that they returned by mail. Reminder telephone calls within 2 weeks	A fall was defined as “an unexpected event in which the participant comes to rest on the ground, floor, or lower level
2	Secondary	Mobility	Baseline, post intervention at 5 months, and follow ups after 11 months and 17 months	Timed Up and Go Test (TUG)	Participants were timed as they rose from a 45-cm-high straight-backed chair, walked 3 meters, turned, and returned to their original sitting position	Mean +/- SD was taken for each intervention group

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Taylor 2011**					
3	Secondary	Dynamic Balance	Baseline, post intervention at 5 months, and follow ups after 11 months and 17 months	Step Test	Tested on the right and left leg	Known to have a floor effect with patients who have severe dysfunction.
4	Secondary	Lower Limb Strength	Baseline, post intervention at 5 months, and follow ups after 11 months and 17 months	30-second chair stand test		Mean +/- SD was taken for each intervention group
5	--					
6	--					

Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Taylor 2011**
7	--
8	--
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10	--

Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Taylor 2011**
11	--
12	--
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16	--
Method of analysis	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Taylor 2011**	
Statistics	Crude and adjusted negative binomial regression models were employed to analyze total falls counts between treatment groups. Because the trial was conducted in 11 locations, clustered sandwich estimators of variance were used for the calculation of standard errors and confidence intervals. The covariates included in the adjusted regression analyses were sex, age, the use of walking aids indoors, the use of walking aids outdoors, living alone or not, the presence of medical conditions, and whether a fall had occurred in the previous 12 months. Analyses were performed using STATA version 10.0 and an alpha of 5% defined significance.	
Population analysed	Intent-to-treat	
Missing data	Yes	152 particpants lost to post intervention and follow ups in TC1 (n=49), TC2 (n=41) and LLE (n=62) . Reasons for withdrawl included participant or spouse unwell, didn't like class, too much traveling, died, or unknown.

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Tsousignant 2012**	
Study reference	Michel Tousignant, Hélène Corriveau, Pierre-Michel Roy, Johanne Desrosiers, Nicole Dubuc, Réjean Hébert, Valérie Tremblay-Boudreault & Audrée-Jeanne Beaudoin (2012) The effect of supervised Tai Chi intervention compared to a physiotherapy program on fall-related clinical outcomes: a randomized clinical trial, Disability and Rehabilitation, 34:3, 196-201	
Study design	RCT	
Author affiliation	All authors affiliated with the Research Centre on Aging, Sherbrooke Geriatric University Institute, Faculty of Medicine and Health Sciences, University of Sherbrooke, Sherbrooke, Canada	
Source of funds	This research was supported in part by a grant received from the Canadian Institutes of Health Research	
Declared interests of study authors	No information provided	
Setting / provider	Sherbrooke Geriatric University Institute (IUGS)	
Country(s) / region	Quebec, Canada	
Enrolment period	No information provided	
Length of follow up (months)	12 months	
Description of population	*N=*	*Description*
participants	152	Older adults (over 65) who were admitted to a geriatric day hospital program

Characteristics of included studies		Falls preventions (at risk population)
Study ID		**Tsousignant 2012**
details		*Inclusion criteria:* Participants who were (i) being at high risk for a fall (Berg balance scale (BBS) score of ≤49/56 and at least one accidental fall in the previous 6 months), (ii) presenting multiple disabilities and (iii) being mentally able to take part in an exercise program (3MS > 65) *Exclusion criteria:* Individuals who were: (i) being declared unfit for physical activities following a medical assessment and (ii) presenting a mental or physical condition incompatible with physical activitiese.
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	76	Tai Chi : 60 minute session twice a week for 15 weeks - program duration of 30 hours Warm-up exercises were done at the beginning of each session. 8-form BADUAN-JIN, a Tai Chi Chuan sequence involving: turning, weight shifting, leg bending and extension, single-leg standing and various arm movements. A personalized approach was taken to adapt the movements to the participants' condition and to ensure their safety.
Comparator #1 (control)	--	--
Comparator #2 (other)	76	Conventional Physiotherapy used in fall prevention programs for seniors 60 minute session twice a week for 15 weeks - program duration of 30 hours Consisted of weight transfer, strengthening and walking exercises. This one-on-one intervention was adapted to the condition of every participant.
Comparator #3 (other)	--	--

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Tsousignant 2012**					
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	Delivered by a Tai Chi Chuan instructor who had 20 years of experience			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Balance	Baseline, post intervention at 15 weeks, and follow up after 12 months	Berg balance scale and the foam and dome test	Ability to maintain the projection of the body's centre of mass within manageable limits of the base of support	
2	Not specified	Mobility	Baseline, post intervention at 15 weeks, and follow up after 12 months	Timed Up and Go Test (TUG) - Speed during several functional menoeuvres	Standing up, walking (3-meter distance), turning and sitting down	Measured with and without a walking aid

Characteristics of included studies	Falls preventions (at risk population)				
Study ID	**Tsousignant 2012**				
3	Not specified	Gait	Baseline, post intervention at 15 weeks, and follow up after 12 months	5-meter walking time with handheld stopwatch	Measured with and without a walking aid
4	Not specified	Fear of Falling	Baseline, post intervention at 15 weeks, and follow up after 12 months	Survey of activities and fear of falling in the elderly (SAFE)	
5	Not specified	Functional autonomy	Baseline, post intervention at 15 weeks, and follow up after 12 months	Functional autonomy measurement system (SMAF)	
6	Not specified	Self-Actualisation	Baseline, post intervention at 15 weeks, and follow up after 12 months	Measure of actualization of potential (MAP)	

Characteristics of included studies	Falls preventions (at risk population)			
Study ID	**Tsousignant 2012**			
7	Not specified	Self-Efficacy	Baseline, post intervention at 15 weeks, and follow up after 12 months	General self-efficacy scale (GSES)
8	--			
9	--			
10	--			

Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Tsousignant 2012**
11	--
12	--
13	--
14	--
15	--
16	--
Method of analysis	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Tsousignant 2012**	
Statistics	To evaluate the treatments' effect upon the clinical variables, analysis of variance for repeated measures was done with a two-level inter-subject factor (i.e. group) and a three-level intra-subject factor (i.e. time). A significant difference was set at a p value <0.05 Analyses were conducted using the SPPS statistical program	
Population analysed	Intent-to-treat	
Missing data	Yes	Participant withdrawl during the intervention period for both the Tai Chi (n=24) and comparison group (n=26), as well as during the 12-month follow up period in Tai Chi (n=7) and comparison (n=4). The main reasons for these losses are drop out, lost of sight, worsening sickness, hospitalization and death.

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Wolf 2001**	
Study reference	Steven L.Wolf, Richard W. Sattin, Michael Kutner, Michael O'Grady, Arlene I. Greenspan, and Robert J. Gregor. Intense Tai Chi Exercise Training and Fall Occurrences in Older, Transitionally Frail Adults: A Randomized, Controlled Trial, J Am Geriatr Soc (JAGS) 51:1693–1701, 2003.	
Study design	RCT	
Author affiliation	All authors affiliated with a number of universities and Rehab Centres in Gerogia: Emory Univeristy School of Medicine, Atlanta, Georgia; National Center for Injury Prevention and Control, Atlanta, Georgia; Rollins School of Public Health, Emory University, Atlanta, Georgia; and Center for Human Movement Studies, School of Applied Physiology, Georgia Institute of Technology, Atlanta, Georgia	
Source of funds	This research was supported by National Institutes of Health Grant AG 14767 from the National Institute on Aging and coupons for redeemable products from the Kroger Corporation and CVS Pharmacies for each participant upon completion of participation.	
Declared interests of study authors	No information provided	
Setting / provider	Twenty congregate living facilities in the greater Atlanta area	
Country(s) / region	Atlanta, Georgia	
Enrolment period	September 1997 and August 2001	
Length of follow up (months)	48 weeks	
Description of population	*N=*	*Description*
participants	311	Men and Women aged 70 to 97

Characteristics of included studies		Falls preventions (at risk population)
Study ID		**Wolf 2001**
details		*Inclusion criteria:* Participants aged 70 and older and transitioning to frailty. Ten attributes based upon age, gait/ balance, walking activity for exercise, other physical activity for exercise, presence or absence of depression, use of sedatives, near-vision status, upper and lower extremity strength, and lower extremity disability are used to define this transition. All potential participants had to have fallen at least once in the past year. *Exclusion criteria:* Individuals who revealed any symptoms or signs consistent with major unstable cardiopulmonary diseases or cognitive impairment (MMSE score of less than 24) in the the health survey or physical examination; contraindications to physical exercise, such as major orthopedic conditions; restricted to a wheelchair; terminal cancer; or evidence of any other progressive or unstable neurological or medical condition.
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention		Intense Tai Chi (TC) Exercise Program: two sessions a week at increasing durations starting at 60 minutes contact time and progressing to 90 minutes over the course of 48 weeks. The actual "work" time, exclusive of warm up and cool down, progressed from approximately 10 minutes to 50 minutes. Slow, rhythmic movements that emphasize trunk rotation, weight shifting, coordination, and a gradual narrowing of lower extremity stance.
Comparator #1 (control)	--	--
Comparator #2 (other)	--	Wellness Education (WE) Program: 1 hour each week for 48 weeks The program consisted of instruction about falls prevention; exercise and balance; diet and nutrition; pharmacological management; legal issues relevant to health; changes in body function; and mental health issues such as stress, depression, and life changes Interactive handout materials were provided, but there was no formal instruction in exercise.
Comparator #3 (other)	--	--

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Wolf 2001**					
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A	One instructor was a TC grand master, and the other was his student			
Is there an inactive comparator?	No	Comparison=other				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Primary	Fall events	Submitted to instructor weekly and reviewed monthly	Two fall forms	First form: identify the day in which one or more falls occurred Second form: checklist for the type(s) of fall(s) and circumstances	Fall was defined as defined as events in which the participant unintentionally came to rest on an object
2	Not specified	Balance	Baseline, and every four months	Functional Reach test, elements from Berg Balance test, single limb support with eyes open and closed, three consecutive chair stands and time to complete a 10-meter walk	Functional reach test included the distance participants could reach the arm forward at 90 deg shoulder flexion without moving their feet. Berg balance test included a 360 deg turn and picking up an object from the floor	

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Wolf 2001**					
3	Not specified	Fear of falling	Baseline, and every four months	Falls Efficacy Scale and the Activities-specific Balance Confidence Scale		
4	Not specified	Health-related quality of life	Baseline, and 1 year follow up	Sickness Impact Profile (SIP)	136-item test divided into 12 categories. Categories can be scored independently or combined to produce an overall summary score	Three of the 12 categories were summed to form a physical score, and four categories were grouped to provide a psychosocial score.
5	Not specified	Depression	Baseline, and every four months	Centers for Epidemiologic Studies - Depression Scale	Consists of 20 items measuring four domains of depressive symptoms, including depressive affect, positive affect, somatic symptoms, and interpersonal relationships.	Scores of 16 or greater are indicative of depression
6	Not specified	Cognitive Impairment	Baseline, and 1 year follow up	MMSE		

Characteristics of included studies	Falls preventions (at risk population)			
Study ID	**Wolf 2001**			
7	Not specified	Physical Measurements	Baseline, and every four months	Height, weight, range of active joint motion in all limbs, vital signs, sensation and visual acuity.
8	Not specified	Muscle Testing	Baseline, and every four months	Manual muscle testing
9	Not specified	Grip Strength	Baseline, and every four months	Handheld dynamometry
10	--			

Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Wolf 2001**
11	--
12	--
13	--
14	--
15	--
16	--
Method of analysis	

Characteristics of included studies		Falls preventions (at risk population)
Study ID		**Wolf 2001**
Statistics		Univariate and multivariate statistical methods were used to estimate the risk ratio for falling for TC compared with WE participants. Baseline measurements of TC and WE participants were compared using a permutation test in which the unit of randomization is the center pair. The primary analyses compared the frequency of falls in the two groups using the Wei, Lin, and Weissfeld (WLW) extension of the Cox proportional hazards model. To assess whether subgroup variation in risk ratios was significant, the relevant interaction terms between the intervention group and the covariate were entered into the WLW model using the .05 level of significance. Ninety-five percent confidence intervals (CIs) were calculated for the RRs comparing the TC group with the WE group.
Population analysed	Intent-to-treat	All participants were analyzed as randomized.
Missing data	Yes	From 311 subjects, 286 participants were included in the analysis with missing data from both Tai Chi (n=13) and Wellness (n=12)

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Zhang 2006**	
Study reference	Jian-Guo Zhang, Kazuko Ishikawa-Takata, Hideo Yamazaki, Takae Morita, Toshiki Ohta.The effects of Tai Chi Chuan on physiological function and fear of falling in the less robust elderly: An intervention study for preventing falls, Archives of Gerontology and Geriatrics 42 (2006) 107–11	
Study design	RCT	
Author affiliation	The authors were associated with a number of universities and hospitals in China and Japan: Normal University, China; National Institute of Health Promotion and Exercise, Japan; University School of Medicine, Japan; and National Hospital for Geriatric Medicine, Japan	
Source of funds	This study was partly supported by the Health and Labour Science Research Grant forthe Research on Dementia and Fracture from Ministry of Health, Labour and Welfare,Japan.	
Declared interests of study authors	No information provided	
Setting / provider	Park or Home-based	
Country(s) / region	Nanjing, China	
Enrolment period	August 2001 to September 2001	
Length of follow up (months)	8 weeks	
Description of population	*N=*	*Description*
participants	49	Community-dwelling elderly, aged 60 or older

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Zhang 2006**	
details	*Inclusion criteria:* Participants adhering to (1) a lower ability for maintaining balance, (2) the ability to go out alone, and (3) no prior experience of Tai Chi Chuan (TCC). A lower ability for maintaining balance was defined as having a one leg stance (OLS) test time less than 20s. *Exclusion criteria:* Individuals with an OLS time less than 5s. They were considered at risk to practice TCC. In the process of the assignment, the 49 subjects were divided into 25 pairs according to sex, experience of falling, and exercise habits. One subject from each pair was then randomly assigned to the TCC training group by tossing a coin.	
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	25	Tai Chi Chuan (TCC) Program: 1 h exercise session seven times per week for 8 weeks. Each practice session included 10 min of warm-up exercise, 40 min of TCC practice,and 10 min of cool-down exercise. Simplified TCC with 24 forms which emphasized multidirectional weight shifting, awareness of body alignment, and multisegmental movement coordination. In addition, regulated breathing was emphasized as part of the exercise. TCC at home consisted of 11 of the 24 forms (30 minutes) which subjects were asked to practice when they could not participate in a practice session or whenever they wished.
Comparator #1 (control)	24	Control: continue their current level of physical activity
Comparator #2 (other)	--	--
Comparator #3 (other)	--	--

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Zhang 2006**					
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A				
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Personalised Questionnaire	Baseline, and after 8 weeks	Face-to-face 10 minute interview	Questions relating to age, sex, years of education, family members living with them, whether he/she could go out alone for daily shopping, current health problems, experience of falling, and exercise habits.	Asked all subjects if they had changed their lifestyle or participated in any events that might have affected the results
2	Not specified	Fall related self-efficacy	Baseline, and after 8 weeks	Falls Efficacy Scale (FES)	10-question scale that assesses the impact of fear of falling on a person's confidence to perform everyday tasks	Scores were summed to give a total score between 0 (low fall-related self-efficacy) and 100 (high fall-related self-efficacy).

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Zhang 2006**					
3	Not specified	Balance	Baseline, and after 8 weeks	Timed OLS Test	Subjects were asked to balance on one leg (with eyes open) for as long as possible, up to a maximum of 60 s	
4	Not specified	Physical Performance: Trunk Flexion Test	Baseline, and after 8 weeks	distance from the top of the platform to the tip of the middle finger (cm)	With positive value for a position reaching lower than the top of the platform	From a standing position, subjects were askedto stand on a platform bend their upper body forward slowly while keeping their legs straight.
5	Not specified	Mobility	Baseline, and after 8 weeks	10m walking test	Subjects were instructed to walk from a standing still position as quickly as possible	Each test was repeated twice, and the highest score was recorded
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Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Zhang 2006**
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Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Zhang 2006**
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16	--
Method of analysis	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Zhang 2006**	
Statistics	Bivariate analysis was conducted to compare demographic variables, history of falling, and exercise habits between the TCC training group and the control group. Baseline characteristics of the TCC training and control groups were compared by X^2-test (proportional differences) or unpaired t-test (differences between means). Differences inthe changes in time between TCC training and control groups were compared using two-way ANOVA (analysis of variance) with repeated measurements. All results were analyzed using the SPSS software package (version 10.0). The 0.05 alpha level was chosen to indicate statistical significance.	
Population analysed	Per protocol	
Missing data	Yes	During the intervention period, one subject in the TCC group and one subject in the control group dropped out when they moved away from the community under study.

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Zhao 2017**	
Study reference	Yanan Zhao, Pak-Kwong Chung, Tom K. Tong. Effectiveness of a balance-focused exercise program for enhancing functional fitness of older adults at risk of falling: A randomised controlled trials, Geriatric Nursing 38 (2017) 491-497	
Study design	RCT	
Author affiliation	All authors are associated with tertiary institutions: Department of Physical Education, Nanjing Normal University, Nanjing, China; and Department of Physical Education, Hong Kong Baptist University, Hong Kong, China	
Source of funds	This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors	
Declared interests of study authors	Conflicts of interest declared as none	
Setting / provider	Local senior centre	
Country(s) / region	Sha Tin, Hong Kong	
Enrolment period	December 2013 to August 2014.	
Length of follow up (months)	8 weeks	
Description of population	*N=*	*Description*
participants	61	Independent older adults, aged 65-74 years, from a local community senior centre

Characteristics of included studies		Falls preventions (at risk population)
Study ID		**Zhao 2017**
details		*Inclusion criteria:* Participants who had not experienced a fall within the prior 12 months but who were at risk of falling. The risk of falling was assessed using a fall risk test and participants were identified to be at risk of falling if they performed outside of the age-dependent normal stability scores. Participants should also have no experience in balance-related physical training (including TC) in the prior year. Exclusion criteria: Individuals who had taken more than three types of medicine daily and those with cognitive or physical diseases that may prohibit them from exercising.
Description of intervention/comparator	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	20	Exercise for Balance Improvement Program (ExBP): 90-min training sessions, with 3 sessions per week, for 16 weeks Each training session consisted of a 15-min warm up, 25-min practise, 10-min break, another 25-min practise, and a 15-min cool down Focused on training: 1) control of centre of mass; 2) muscle strength and power in the lower limbs; 3) range of motion; 4) plantar tactile sensitivity and joint proprioception around the knee and ankle; 5) gait pattern, agility, and response time; 6) balance control with compromised sensation; 7) distribution of attention; and 8) confidence in performing balance-requiring tasks.
Comparator #1 (control)	21	Control: Received no treatment - asked to maintain usual lifestyles
Comparator #2 (other)	20	Tai Chi (TC) Program: 90-min training sessions, with 3 sessions per week, for 16 weeks Each training session consisted of a 15-min warm up, 25-min practise, 10-min break, another 25-min practise, and a 15-min cool down 10-form Yang-style which focused on continuous and slow movement, different degrees of motion, progressive knees flexion, straight and extended head and trunk positioning, whole body rotations, symmetrical and diagonal extremities, and constant shifting of body mass between right and left legs
Comparator #3 (other)	--	--

Characteristics of included studies	Falls preventions (at risk population)					
Study ID	**Zhao 2017**					
Co-interventions	--	--				
Is practitioner/instructor certified or experienced?	Yes	Include in subgroup A				
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*other*
1	Not specified	Falling Risk Status	Baseline	Fall Risk Test (FRT)	Measures the postural control abilities of participants standing on a movable platform	Three trials with two practise trials were performed with a 10s rest period.
2	Primary	Functional fitness of older adults measured through the Senior Fitness Test (SFT) battery SFT: Test for lower extremity muscle strength	Baseline, midtest (after 12 weeks of training), posttest (after 16 week intervention) and follow up test at 8 weeks	30-s chair stand (CS) test		

Characteristics of included studies	Falls preventions (at risk population)			
Study ID	**Zhao 2017**			
3	Primary	SFT: Test for upper extremity muscle strength	Baseline, mid (12 wks), end of treatment (16 wks), followup(+8 wks)	30s arm curl test
4	Primary	SFT: Aerobic Endurance	Baseline, mid (12 wks), end of treatment (16 wks), followup(+8 wks)	2 minute step test
5	Primary	SFT: Test for lower body flexibility	Baseline, mid (12 wks), end of treatment (16 wks), followup(+8 wks)	Chair sit-and-reach test
6	Primary	SFT: Test for upper body flexibility	Baseline, mid (12 wks), end of treatment (16 wks), followup(+8 wks)	Back scratch test

Characteristics of included studies		Falls preventions (at risk population)		
Study ID	**Zhao 2017**			
7	Primary	SFT: Agility and dynamic balance	Baseline, mid (12 wks), end of treatment (16 wks), followup(+8 wks)	8 ft timed up-and-go test
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Characteristics of included studies	Falls preventions (at risk population)
Study ID	**Zhao 2017**
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Method of analysis	

Characteristics of included studies	Falls preventions (at risk population)	
Study ID	**Zhao 2017**	
Statistics	One-way analysis of covariance (ANCOVA) with the baseline value as a covariate was conducted during the midtest, posttest, and follow-up test. The differences between the groups were analysed through planned contrasts. The statistically significant p value was adjusted to .025. To determine the time effect under each treatment condition, a one-way analysis of variance (ANOVA) with repeated measure was applied to each group to show the change(s) of each testing outcome across the four test time points. A post hoc analysis with the Bofferoni correctionwas performed to explore the differences between the pretest and midtest, pretest and posttest, and posttest and follow-up test. Mean differences with a 95% confidence interval (CI) are reported. Except for the planned contrast in ANCOVA, statistical significance was set at $p < .05$.	
Population analysed	Intent-to-treat	
Missing data	No	Missing values were replaced using the last-observation-carried- forward method