Characteristics of included studies	Breast cancer, survivors	
Study ID	**Alpozgen 2017**	
Study Reference	Alpozgen AZ, Razak Ozdincler A, Karanlik H, Yaman Agaoglu F, Narin AN. Effectiveness of Pilates-based exercises on upper extremity disorders related with breast cancer treatment. European Journal of Cancer Care. 2017;26(6).	
Study design	RCT	
Author affiliation	All authors affiliated with tertiary institutions in Turkey.	
Source of funds	Not reported	
Declared interests of study authors	Conflicts of interest not reported	
Setting / provider	Istanbul University, Health Sciences Faculty, Division of Physiotherapy and Rehabilitation	
Country(s) / region	Turkey	Istanbul
Enrolment period	Not reported	
Length of treatment / followup	8 weeks	
Description of population	*N=*	*Description*
# participants	57	Breast cancer survivors, female (with upper extremity limitations secondary to breast cancer treatment)
details	*Inclusion criteria:* A diagnosis of breast cancer (Stages I-III) and development of shoulder ROM limitation (limitation of 20 ≥ ROM in shoulder flexion, abduction, external or internal rotation) secondary due to breast cancer treatment. *Exclusion criteria* : severe cardiac disease, uncontrolled hypertension and UE problems started before treatment of breast cancer. Patients with lymphoedema (with intact limb difference >2 cm), neurological disease, rheumatological disease, communication problems, recurrent infections, open wounds or incision presence in the region and patients continuing chemotherapy (CT) or radiotherapy (RT)	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	19	Pilates sessions 40-45 minutes long 3 days a week for 8 weeks. Included mat-based Pilates and Pilates-based theraband exercise.
Comparator #1 (control)	--	--
Comparator #2 (other)	19	Combined exercise sessions 40-45 minutes long 3 days a week for 8 weeks. Exercise programme consisting of stretching, ROM, strengthening exercises of shoulder and breathing exercise.

Characteristics of included studies	Breast cancer, survivors					
Study ID	**Alpozgen 2017**					
Comparator #3 (other)	19	Patients were recommended to exercise at home for 3 days per week for 8 weeks. Appropriate exercise programme for patients arranged and each exercise was taught by physiotherapist as practical in the clinic, until the exercise was performed properly. Exercises selected were similar to combined exercise. Since there is no chance for patients to be interviewed face to face, a phone call made in every 7–10 days on a regular basis to increase compliance of the patients.				
Co-interventions	--	--				
Is practitioner/instructor certified?	Not specified	Include in subgroup C	Exercises performed in clinic under the supervision of a physiotherapist.			
Is there an inactive comparator?	No	Comparison=other	Combined exercise or home exercise+phone calls every 7-10 days			
Outcomes	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Pain	baseline, end of treatment (8 weeks)	VAS (0-10)	higher score means worse pain	measured at rest and when in motion
2	Not specified	Functional status, upper extremity	baseline, end of treatment (8 weeks)	Shoulder range of movement (flexion, abduction, rotation)	lower score means more disability and severity	digital goniometer
3	Not specified	Functional status, upper extremity	baseline, end of treatment (8 weeks)	Disabilities of the Arm, Shoulder and Hand scale (DASH, 0-100)	higher score means more disability and severity	measures symptoms (pain, ADL, tingling, stiffness, weakness) and function (social, work, sleep, self-confidence)
4	Not specified	Shoulder function, overall	baseline, end of treatment (8 weeks)	Constant–Murley scale (0-100)	lower score means more pain and disability	4 subscales: pain, ADL, active ROM, and strength
5	Not specified	Muscular endurance	baseline, end of treatment (8 weeks)	Hand grip strength (kg)	higher score means better maximum isometric strength of the hand and forearm	

Characteristics of included studies	Breast cancer, survivors
Study ID	**Alpozgen 2017**
6	--
7	--
8	--
9	--
10	--
Method of analysis	
Statistics	One-way ANOVA was used for the quantitative measurement of the normal distribution of groups to compare subjects' onset characteristics in different groups. Kruskal–Wallis test was used to compare abnormal score-type parameters. To determine the difference between the two groups post hoc Tukey's HSD test (highly significant difference) was used. Before and after intervention, values were compared using paired samples t-test in each group, and group comparisons regarding the differences in the parameters evaluated were made using Kruskal–Wallis test with Bonferroni adjusted significance. In all analyses, $p \leq .05$ (two-sided) was considered statistically significant.
Population analysed	Intent-to-treat Modified. Two participants without final assessment data were not included in the final analysis
Missing data	No imputations for missing data were made. PP analysis not conducted.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Concerns of bias arising from the randomisation process (details on allocation concealment missing).

Characteristics of included studies	Breast cancer, survivors		
Study ID	**Eyigor 2010**		
Study Reference	Eyigor S, Karapolat H, Yesil H, Uslu R, Durmaz B. Effects of pilates exercises on functional capacity, flexibility, fatigue, depression and quality of life in female breast cancer patients: a randomized controlled study. European journal of physical & rehabilitation medicine. 2010;46(4):481-7.		
Study design	RCT		
Author affiliation	All authors are affliated with a tertiary institution in Turkey		
Source of funds	The authors received no financial support for this study.		
Declared interests of study authors	not specified		
Setting / provider	University hospital outpatient clinic	University hospital outpatient clinic is affiliated with the Ege University	
Country(s) / region	Turkey	Izmir	
Enrolment period	Not reported		
Length of treatment / followup	8 weeks		
Description of population	*N=*	*Description*	
# participants	52	Breast cancer survivors, female	
details	*Inclusion criteria* : female with breast cancer with no evidence of recurrent or progressive disease; completion of treatment with surgery, radiotherapy or chemotherapy with or without current hormone treatment, cognitive functions good enough to understand the questions. *Exclusion criteria* : lymphoedema, cardiac disease, uncontrolled hypertension, acute or chronic respiratory disease, uncontrolled diabetes mellitus, mental illness, infection, uncontrolled immune or endocrine abnormality, severe muscoloskeletal impairment (inability to participate in the training program), engaging in a regular exercise program during the past 6 months.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	27	Pilates group performed pilates exercise for an hour a day, 3 times a week for 8 weeks, under the supervision of a pilates exercise specialist physiotherapist in the rehabilitation unit. Before the pilates exercise, patients performed warmup exercise followed by the exercises and then cool down and relaxation exercises. Also patients were given a 30-minute information about the breast cancer, lymphoedema, prevention of lymphoedema and daily living activities and a booklet showing the pictures of the exercise program. Patients were instructed to perform these exercises once everyday at home	
Comparator #1 (control)	25	Control, no intervention	
Comparator #2 (other)	--	--	

Characteristics of included studies	Breast cancer, survivors					
Study ID	**Eyigor 2010**					
Comparator #3 (other)	--	--				
Co-interventions	52	All patients were given a 30-minute information about the breast cancer, lymphoedema, prevention of lymphoedema and daily living activities and a booklet showing the pictures of the exercise program. Patients were instructed to perform these exercises once everyday at home. All patients were recommended walking exercises of 20-30 minutes a day, 3 days a week for 8 weeks.				
Is practitioner/instructor certified?	Yes	Include in subgroup A	pilates exercise specialist physiotherapist in the rehabilitation unit of the hospital			
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Functional capacity	baseline, end of treatment (8 wks)	Six-minute walk test (m)	Participants walk up and down 20-m hallway for 6 minutes.	Distance walked is recorded. Tests walking endurance
2	Not specified	Flexibility	baseline, end of treatment (8 wks)	modified sit and reach test (cm)		best of the three trials was used as the final score
3	Not specified	Fatigue	baseline, end of treatment (8 wks)	Brief Fatigue Inventory (0-10)	0=no fatigue; 1-3=mild; 4-6= moderate; 7-10=severe	
4	Not specified	Depression	baseline, end of treatment (8 wks)	Beck Depression Index (21 items)	4-point Likert scale (0-3)	higher score means worse symptoms
5	Not specified	QoL, functional	baseline, end of treatment (8 wks)	EORTC QLQC30 - functional scales	high functional score means high level of functioning	incorporates physical, emotional, role, social & cognitive functioning

Characteristics of included studies	Breast cancer, survivors					
Study ID	**Eyigor 2010**					
6	Not specified	QoL, symptoms	baseline, end of treatment (8 wks)	EORTC QLQC30 - symptoms scale	higher score means worse symptoms	Fatigue, Nausea and vomiting, Pain, Dyspnoea, Insomnia, Appetite loss, Constipation, Diarrhoea, Financial difficulties
7	Not specified	QoL, global	baseline, end of treatment (8 wks)	EORTC QLQC30 - QoL scale	higher score means better quality of life	
8	Not specified	QoL, functioning - breast cancer	baseline, end of treatment (8 wks)	EORTC QLQ BR23- functional scale	high functional score means high level of functioning	Body image, sexual functiong, sexual enjoyment, furture perspective
9	Not specified	QoL, symptoms - breast cancer	baseline, end of treatment (8 wks)	EORTC QLQ BR23- symptoms scale	higher score means worse symptoms	breast symptoms, arm symptoms, side effects, hair loss
10	--					
Method of analysis						
Statistics	Descriptive statistics were used to characterize the sample. A P-value below 0.05 was considered to be indicative of statistical significance. Baseline demographics and clinical characteristics were compared using the Mann Whitney U Test for numeric data and Fisher's Exact or Chi-Square Tests for nominal data. The non-parametric Wilcoxon test was used to compare groups with regard to parameters obtained before and after rehabilitation. Mann Whitney U test was also used to compare the differences between pre- and post-treatment in both groups.					
Population analysed	Intent-to-treat	Modified. All participants in the intervention group (27/27) had final assessment data but 10/25 participants in the control group without final assessment data were not included in the analysis.				
Missing data	No imputations for missing data were made. PP analysis not conducted.					
INTERNAL VALIDITY						
Overall risk of bias (select from list)	High risk of bias in one or more key domains					
Summary (descriptive)	The study has plausible bias that seriously weakens confidence in the results. This study has certain limitations including the number of drop-outs in the control group, researchers not being blind to the group of the subjects, short duration of the exercise program and not being able to assess the effect on posture objectively are the constraints of the study. It is possible that a significant difference was not observed because a home exercise program was also recommended to the control group.					

Characteristics of included studies	Breast cancer, survivors	
Study ID	**Martin 2013**	
Study Reference	Martin E, Battaglini C, Groff D, Naumann F. Improving muscular endurance with the MVe Fitness Chair in breast cancer survivors: Afeasibility and efficacy study. Journal of Science and Medicine in Sport. 2011;1):e116. Martin E, Battaglini C, Groff D, Naumann F. Improving muscular endurance with the MVe Fitness Chair TM in breast cancer survivors: a feasibility and efficacy study. Journal of Science & Medicine in Sport. 2013;16(4):372-6.	
Study design	RCT	pseudorandomised
Author affiliation	Two authors affiliates with tertiary institutions in Australia and two authors affiliated with tertiary institutions in USA.	
Source of funds	Mve Fitness Chairs donated by the manufacturer (Peak Pilates)	
Declared interests of study authors	Not reported	
Setting / provider	University of North Carolina at Chapel Hill	
Country(s) / region	USA	Chapel Hill, North Carolina
Enrolment period	January to December 2009	
Length of treatment / followup	8 weeks	
Description of population	*N=*	*Description*
# participants	26	Breast cancer survivors, female
details	*Inclusion criteria* : Women with Stage I-III Breast cancer, who had completed all treatments within 6 months, had consent from their oncologist to participate, underwent strict health screening, and signed an informed consent form approved by the Biomedical Institutional Review Board for Human Subjects Research at UNC-CH prior to participating in the study. *Exclusion criteria* : cardiorespiratory disease; bone, joint, or muscle pain or abnormalities that would compromise the participant's ability to complete the exercise training protocol; or already enrolled in a formal exercise program.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	8	Pilates using Mve Fitness Chair - 50 minute sessions 3 times a week for 8 weeks. 15 minutes of aerobic exercise, 5 minutes of total body stretching, 25 minutes of resistance training with the chair, then 5 minutes of cool down.
Comparator #1 (control)	10	Control group asked not to exercise
Comparator #2 (other)	8	Resistance training - 50 minute sessions 3 times a week for 8 weeks. 15 minutes of aerobic exercise, 5 minutes of total body stretching, 25 minutes of resistance training, then 5 minutes of cool down.

Characteristics of included studies	Breast cancer, survivors						
Study ID	**Martin 2013**						
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	Not specified	Include in subgroup C	Exercise delivered by trainers from who were enrolled in a Bachelors or Masters of Exercise and Sport Science and had been trained in exercise principles with breast cancer survivors by the program director				
Is there an inactive comparator?	Yes	Comparison=control					
Outcomes	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***	
1	Secondary	Muscular endurance	baseline, end of treatment (8 weeks)	Dynamic Muscular Endurance Test Battery for Cancer Patients of Various Ages	higher score means increased endurance	The summed total repetitions performed on push ups, partial curl ups, both biceps curls, lateral pull-downs, leg extension, and hamstring curls created a composite score used in the analysis of muscular endurance.	
2	Secondary	Muscular endurance	baseline, end of treatment (8 weeks)	Push up, curl up	higher score means increased endurance		
3	Secondary	Exercise intensity	baseline, end of treatment (8 weeks)	Borg Rating of Perceived Exertion scale (6-20)	higher score means increased exertion		
4	Primary	Feasability	baseline, end of treatment (8 weeks)	Adherence rate (%)			
5	--						

Characteristics of included studies	Breast cancer, survivors
Study ID	**Martin 2013**
6	--
7	--
8	--
9	--
10	--
Method of analysis	
Statistics	The efficacy of the MFC for improving muscular endurance was analyzed using a repeated measures ANOVA, comparing all groups from pre-test to post-test to see if their muscular endurance changed throughout the study period. Change scores in muscular endurance were calculated from baseline to post test for each group and analyzed using a univariate ANOVA.
Population analysed	Intent-to-treat All randomised participants include in the analysis.
Missing data	All data available. PP analysis not conducted.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	All domains are considered low risk except for bias arising from the randomisation process which was high risk.

Characteristics of included studies	Breast cancer, survivors	
Study ID	**Odynets 2018**	
Study Reference	Odynets T, Briskin Y, Perederiy A, Pityn M, Svistelnyk I. Effect of water physical therapy on quality of life in breast cancer survivors. Physiotherapy Quarterly. 2018;26(4):11-6. Odynets T, Briskin Y, Yefremova A, Goncharenko I. The effectiveness of two individualized physical interventions on the upper limb condition after radical mastectomy. Physiotherapy Quarterly. 2019;27(1):12-7. Odynets T, Briskin Y, Zakharina I, Yefremova A. Impact of a 12-week water program on the respiratory function in breast cancer survivors. Postepy Rehabilitacji. 2019;33(2):5-11. Odynets T, Briskin Y, Zakharina I, Yefremova A. Influence of a water physical rehabilitation program on the hemodynamic parameters in breast cancer survivors. Physiotherapy Quarterly. 2019;27(2):6-10.	
Study design	RCT	
Author affiliation	All authors affiliated with tertiary institutions in Ukraine.	
Source of funds	Authors declare no financial support was received.	
Declared interests of study authors	All authors declared they have no conflicts of interest.	
Setting / provider	Not reported	
Country(s) / region	Ukraine	Lviv
Enrolment period	Not reported	
Length of treatment / followup	12 weeks	
Description of population	*N=*	*Description*
# participants	71	Breast cancer survivors, female
details	*Inclusion criteria* : Breast cancer survivors aged 50–60 years with I-II cancer stage, recent history of radical mastectomy, tumour stage 1–2, time after surgery not exceeding 6 months, treatment-related lymphedema, poor quality of life, absence of metastases, and no contraindications to physical activity *Exclusion criteria* : bilateral mastectomy, time after surgery more than 6 months, metastases, congestive heart failure, tumour stage 3, or any contraindications limiting activity.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	35	Pilates - 60 minute sessions 3 times a week for 12 weeks. Mat-based Pilates with flexibility and resistance exercises directed at the muscles of the scapular waist, lower llimbs, back and abdomen.
Comparator #1 (control)	--	--
Comparator #2 (other)	36	Water physical therapy program - 60 minute sessions 3 times a week for 12 weeks.

Characteristics of included studies	Breast cancer, survivors					
Study ID	**Odynets 2018**					
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Not specified	Include in subgroup C				
Is there an inactive comparator?	No	Comparison=other	Water physical therapy program			
Outcomes	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	QoL, functional	baseline, end of treatment (12 weeks)	EORTC QLQ-C30	high means better functioning; measures reported separately	physical, emotional, role, social & cognitive functioning
2	Not specified	QoL, symptoms	baseline, end of treatment (12 weeks)	EORTC QLQ-C30	higher score means worse symptoms; measures reported separately	Fatigue, Nausea and vomiting, Pain, Dyspnoea, Insomnia, Appetite loss, Constipation, Diarrhoea, Financial difficulties
3	Not specified	QoL, global	baseline, end of treatment (12 weeks)	EORTC QLQ-C30	higher score means better QoL	
4	Not specified	QoL, breast cancer symptoms	baseline, end of treatment (12 weeks)	EORTC QLQ-BR23	higher score means worse symptoms; measures reported separately	breast symptoms, arm symptoms, side effects, hair loss
5	Not specified	QoL, breast cancer functional	baseline, end of treatment (12 weeks)	EORTC QLQ-BR23	high means better functioning; measures reported separately	Body image, sexual functiong, sexual enjoyment, future perspective

Characteristics of included studies	Breast cancer, survivors				
Study ID	**Odynets 2018**				
6	Not specified	Pulmonary function	baseline, end of treatment (12 weeks)	spirometry (vital capacity, forced vital capacity, maximal voluntary ventilation, forced expiratory volume, respiratory minute volume)	higher score means increased function
7	Not specified	Functional status, upper extremity	baseline, end of treatment (12 weeks)	Shoulder range of movement (flexion, abduction, rotation)	higher score means increased function
8	Not specified	Haemodynamic parameters	baseline, end of treatment (12 weeks)	stroke volume, cardiac output, stroke index,	
9	Not specified	Haemodynamic parameters	baseline, end of treatment (12 weeks)	systemic vascular resistance, left ventricular work, left ventricular power	
10	--				
Method of analysis					
Statistics	Dependent sample t-test was used to analyse life quality changes in one group from baseline to post-intervention. Independent sample t-test served to compare life quality between the women of the experimental group and active control group.				
Population analysed	Intent-to-treat	Modified. Participants who discontinued intervention were not included in the analysis (3/71).			
Missing data	No imputations for missing data were made. PP analysis not conducted.				
INTERNAL VALIDITY					
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias				
Summary (descriptive)	Some concerns related to subjective outcomes, and participants aware of the interventions. The bias may be against Pilates (as this was the active control group) in the trial.				

Characteristics of included studies	Breast cancer, survivors	
Study ID	**Odynets 2019**	
Study Reference	Odynets T, Briskin Y, Todorova V. Effects of Different Exercise Interventions on Quality of Life in Breast Cancer Patients: A Randomized Controlled Trial. Integrative Cancer Therapies. 2019;18:1534735419880598. Odynets T, Briskin Y, Todorova V, Bondarenko O. Impact of different exercise interventions on anxiety and depression in breast cancer patients. Physiotherapy Quarterly. 2019;27(4):31-6. Odynets T, Briskin Y, Todorova V, Tyshchenko V, Bondarenko O. Effect of yoga in the modulation of heart rate variability in patients with breast cancer. Postepy Rehabilitacji [Advances in Rehabilitation] 2019;33(4):5-11. 2019.	
Study design	RCT	
Author affiliation	All authors affiliated with tertiary institutions in Ukraine.	
Source of funds	Authors declare no financial support was received.	
Declared interests of study authors	All authors declared they have no conflicts of interest.	
Setting / provider	Zaporizhzhya Regional Cancer Center	
Country(s) / region	Ukraine	
Enrolment period	Not reported	
Length of treatment / followup	48 weeks (1 year)	
Description of population	*N=*	*Description*
# participants	124	Breast cancer survivors, female
details	*Inclusion criteria* : age ranged between 50 and 60 years, average time after breast cancer surgery ranged between 5 and 6 months, and women had to have completed adjuvant chemotherapy and radiotherapy. *Exclusion criteria* : women with bilateral mastectomy, metastases, stage III tumor, or any contraindications limiting activity.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	44	Pilates - 60 minute sessions 3 times a week for 48 weeks. Pilates exercises were performed on the floor and included warmup, a main part using a resistance band, and cool-down.
Comparator #1 (control)	--	--
Comparator #2 (other)	50	Water exercise - 3 sessions a week for 48 weeks. Water exercises consisted of a wide range of breathing exercises (static and dynamic) and physical (active, active-passive, special, combined developing, and sports-applied) exercises that helped solve current tasks.

Characteristics of included studies	Breast cancer, survivors					
Study ID	**Odynets 2019**					
Comparator #3 (other)	30	Hatha yoga - 60 minute sessions 3 times a week for 48 weeks. The training of yoga physical exercises began with the study of the asana techniques, breathing exercises, and after successful assimilation, static and motor activity gradually proceeded to the implementation of integral dynamic asana complexes that were performed without pause.				
Co-interventions	--	--				
Is practitioner/instructor certified?	Not specified	Include in subgroup C				
Is there an inactive comparator?	No	Comparison=other				
Outcomes	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	QoL - breast cancer specific	baseline, mid (24 weeks), end of treatment (48 weeks)	Functional Assessment of Cancer Therapy- Breast cancer instrument (FACT-B)	higher score means better QoL	Total score
2	Not specified	Physical well being	baseline, mid (24 weeks), end of treatment (48 weeks)	FACT-B subscale (0-28)	higher score means better outcome	
3	Not specified	Functional well being	baseline, mid (24 weeks), end of treatment (48 weeks)	FACT-B subscale (0-28)	higher score means better outcome	
4	Not specified	Social/family well-being	baseline, mid (24 weeks), end of treatment (48 weeks)	FACT-B subscale (0-28)	higher score means better outcome	
5	Not specified	Emotional well-being	baseline, mid (24 weeks), end of treatment (48 weeks)	FACT-B subscale (0-24)	higher score means better outcome	

Characteristics of included studies	Breast cancer, survivors				
Study ID	**Odynets 2019**				
6	Not specified	Breast cancer symptons	baseline, mid (24 weeks), end of treatment (48 weeks)	FACT-B subscale (0-36)	higher score means better outcome
7	Not specified	Arms symptoms	baseline, mid (24 weeks), end of treatment (48 weeks)	FACT-B subscale (0-20)	higher score means better outcome
8	Not specified	Anxiety	baseline, mid (24 weeks), end of treatment (48 weeks)	Hospital Anxiety and Depression Scale	higher score means greater anxiety
9	Not specified	Depression	baseline, mid (24 weeks), end of treatment (48 weeks)	Hospital Anxiety and Depression Scale	higher score means greater depression
10	Not specified	Cardiorespiratory fitness	baseline, mid (24 weeks), end of treatment (48 weeks)	beat to beat interval (electrocardiography)	higher score means improvement in outcome
Method of analysis					
Statistics	Dependent samples t test was used to analyze life quality changes in one group between baseline and postintervention. Independent sample t tests were used to compare postintervention life quality parameters between the women of the 3 groups. Sample size was based on detection of meaningful differences in primary end points with 80% power and a 2-sided 5% significance level.				
Population analysed	Intent-to-treat	Modified. Participants with missing information were excluded from the analysis (9/124).			
Missing data	No imputations for missing data were made. PP analysis not conducted.				
INTERNAL VALIDITY					
Overall risk of bias (select from list)	High risk of bias in one or more key domains				
Summary (descriptive)	High risk of bias due to differing proportions of missing data in the intervention groups.				

Characteristics of included studies	Breast cancer, survivors	
Study ID	**Sener 2017**	
Study Reference	Sener HO, Malkoc M, Ergin G, Karadibak D, Yavuzsen T. Effects of Clinical Pilates Exercises on Patients Developing Lymphedema after Breast Cancer Treatment: A Randomized Clinical Trial. Meme Saglg Dergisi. 2017;13(1):16-22. Sener HO, Malkoc M, Karadibak D, Ergin G, Yavuzsen T. The effect of clinical pilates exercises on lymphedema secondary to breast cancer treatments. Fizyoterapi Rehabilitasyon. 2015;26 (2):S161-S2.	
Study design	RCT	pseudorandomised
Author affiliation	All authors affiliated with tertiary institutions in Turkey.	
Source of funds	Authors declare no financial support was received.	
Declared interests of study authors	All authors declared they have no conflicts of interest.	
Setting / provider	Dokuz Eylül University School of Physical Therapy and Rehabilitation	
Country(s) / region	Turkey	Izmir
Enrolment period	April 2012 to March 2014	
Length of treatment / followup	8 weeks	
Description of population	*N=*	*Description*
# participants	62	Breast cancer survivors, female (with lymphedema secondary to breast cancer treatment)
details	*Inclusion criteria* : patients over 18 years of age with presence of mild, moderate or severe lymphedema in upper extremities after breast cancer treatment *Exclusion criteria* : metastatic breast cancer, diagnosis of severe heart failure and / or arrhythmia, infection in the affected limb, severe psychological disorders, severe pain of unknown cause in the axillary region, musculoskeletal problems in the upper extremity before the treatment of breast cancer, or other health problems that would prevent participation in the evaluation and treatment program	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	32	Pilates - 60 minute sessions 3 times a week for 8 weeks, performed in gorups of 5-8 + recommended to maintain home exercise program of manual lymphatic drainage, exercised to improve shoulder flexibility and skin care training
Comparator #1 (control)	--	--
Comparator #2 (other)	30	Control group - Taught to do core stabilisation during daily activities + recommended to maintain home exercise program of manual lymphatic drainage, exercised to improve shoulder flexibility and skin care training

Characteristics of included studies	Breast cancer, survivors					
Study ID	**Sener 2017**					
Comparator #3 (other)	--	--				
Co-interventions	Yes	recommended to maintain home exercise program of manual lymphatic drainage, exercises to improve shoulder flexibility (wall extensions, head & neck, Wand exercises, shoulder girdle stability), skin care training, walking 1hr per day				
Is practitioner/instructor certified?	Not specified	Include in subgroup C	Pilates exercise supervised by physiotherapists			
Is there an inactive comparator?	No	Comparison=other	Taught to do core stabilisation during daily activities			
Outcomes	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Muscular endurance	baseline, end of treatment (8 weeks)	Grip strength (kg)	higher score means more strength	
2	Not specified	Lymphedema	baseline, end of treatment (8 weeks)	Sum of arm circumference (cm)	lower score means reduction in swelling	
3	Not specified	Functional status, upper extremity	baseline, end of treatment (8 weeks)	Shoulder range of movement (flexion, abduction, rotation)	higher score means better function	
4	Not specified	Body image after breast cancer	baseline, end of treatment (8 weeks)	Social Appearance Anxiety Scale	lower score means improvement in body image	
5	Not specified	QoL - general	baseline, end of treatment (8 weeks)	EORTC QLQ-BR23	assess challenges of daily life - including difficulties in performing daily living activities, functional activities, and reduction in QOL	higher score means worse QoL

Characteristics of included studies	Breast cancer, survivors				
Study ID	**Sener 2017**				
6	Not specified	Functional status, upper extremity	baseline, end of treatment (8 weeks)	Disabilities of the Arm, Shoulder and Hand scale (DASH)	higher score means more disability
7	Not specified	Pain	baseline, end of treatment (8 weeks)	0-10 visual analogue scale	higher score means worse pain
8	--				
9	--				
10	--				
Method of analysis					
Statistics	The anthropometric data are presented as means and standard deviation. The numerically determined data are expressed in numbers and percentages. To compare the difference between the two groups, the independent samples t-test was used. For the analysis of the intra-group pre- and post-treatment results, the dependent samples t-test was used. In addition, for the analysis of survey results calculated at certain periods and rates, the Wilcoxon test was used, which is the non-parametric counterpart of the t-test. A p value of <0.05 was considered statistically significant.				
Population analysed	Intent-to-treat	Modified. 2 participants in Pilates group did not complete the study and were not included in the final analysis			
Missing data	No imputations for missing data were made. PP analysis not conducted.				
INTERNAL VALIDITY					
Overall risk of bias (select from list)	High risk of bias in one or more key domains				
Summary (descriptive)	High risk due to bias arising from randomisation process (pseudoRCT)				

Characteristics of included studies	Breast cancer, on treatment	
Study ID	**Gajbhiye 2013**	
Study Reference	Gajbhiye PP, Deshpande L. To compare the effects of Pilates exercises and Conventional therapy on Upper Extremity Function and Quality of Life in women with breast cancer. Indian Journal of Occupational Therapy (Indian Journal of Occupational Therapy). 2013;45(1):3-9.	
Study design	RCT	
Author affiliation	Both authors affiliated with a Medical College in India.	
Source of funds	Not reported	
Declared interests of study authors	Not reported	
Setting / provider	Occupational therapy centre in Medical college	
Country(s) / region	India	Nagpur
Enrolment period	Not reported	
Length of treatment / followup	3 weeks	
Description of population	*N=*	*Description*
# participants	30	Breast cancer, female (with upper extremity limitations secondary to breast cancer treatment)
details	*Inclusion criteria:* married women with unilateral breast cancer (Stage I to IV) aged between 25 to 65yrs, who had undergone Axillary dissection or Modified Radical Mastectomy AND were undergoing radiation or chemotherapy. *Exclusion criteria* : history of bilateral breast cancer, patients who were taking Psychological Counseling and therapeutic management or patients who had previous Shoulder injuries or other health problems.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	15	Pilates - 2 sessions per day for 3 weeks (21 days) using mat, 1 or 2 pound toning balls, band or towel. Morning Pilates session assisted by therapist and evening Pilates session at home, same set of exercises for both sessions.
Comparator #1 (control)	--	--
Comparator #2 (other)	15	Conventional therapy of 10 to 15 exercises (described as biomechanical physiological type) - 2 sessions per day for 3 weeks (21 days). Morning conventional therapy session assisted by therapist and evening conventional therapy session at home, same set of exercises for both sessions. Also given counseling.

Characteristics of included studies	Breast cancer, on treatment					
Study ID	**Gajbhiye 2013**					
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Not specified	Include in subgroup C	assisted by therapist			
Is there an inactive comparator?	No	Comparison=other	Conventional therapy + counseling			
Outcomes	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Primary	Functional status, upper extremity	baseline, end of treatment (3 weeks)	Wingate upper extremity functional assessment questionnaire	higher score means better outcome	
2	Secondary	QoL, functional	baseline, end of treatment (3 weeks)	PCASEE quality of life scale	higher score means better functioning	P=physical, C=cognitive, A=affective, S=social, E=economic-social, and E=ego functions
3	--					
4	--					
5	--					

Characteristics of included studies	Breast cancer, on treatment
Study ID	**Gajbhiye 2013**
6	--
7	--
8	--
9	--
10	--
Method of analysis	
Statistics	Paired t-test was used for comparing Pre and Post exercise therapy outcome in Experimental and Control Group (within the group comparison). Unpaired t-test was used for between the group comparisons.
Population analysed	Intent-to-treat All randomised participants included in the analysis.
Missing data	All data available. PP analysis not conducted.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	All domains are considered low risk except for bias arising from the randomisation process which was high risk.

Characteristics of included studies	Prostate cancer	
Study ID	**Gomes 2018**	
Study Reference	Gomes CS, Pedriali FR, Urbano MR, Moreira EH, Averbeck MA, Almeida SHM. The effects of Pilates method on pelvic floor muscle strength in patients with post-prostatectomy urinary incontinence: A randomized clinical trial. Neurourology & Urodynamics. 2018;37(1):346-53. Nct. The Effects of Pilates in Muscle Strength of the Pelvic Floor as Treatment of Post Prostatectomy Urinary Incontinence. https://clinicaltrialsgov/show/NCT02645136. 2015.	
Study design	RCT	
Author affiliation	All authors affiliated with tertiary institutions in Brazil.	
Source of funds	Not reported	
Declared interests of study authors	Not reported	
Setting / provider	single teaching hospital	
Country(s) / region	Brazil	Londrina
Enrolment period	March 2012 to March 2015	
Length of treatment / followup	10 weeks	
Description of population	*N=*	*Description*
# participants	110	Prostate cancer patients with post-prostatectomy urinary incontinence
details	*Inclusion criteria* : Male patients aged between 50 and 75 years, who underwent radical prostatectomy (RP) and had complaint of post-prostatectomy urinary incontinence (PPUI) (defined as usage of one or more pads a day). *Exclusion criteria* : Patients reporting previous treatments for UI, cardiac pacemaker implant, cognitive impairment, neurological diseases, limiting or acute musculoskeletal disorders, and those unable to attend the weekly sessions.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	36	Pilates - 45 minute sessions of mat Pilates in pairs for 10 weeks. Also received written guidelines to perform daily Pilates exercises at home
Comparator #1 (control)	36	Control - Received no instruction to perform pelvic floor muscle training at home. After final evaluation they were invited to start treatment in the university physiotherapy service.
Comparator #2 (other)	38	Pelvic floor muscle exercises combined with anal electrical stimulation - 45 minute sessions for 10 weeks. Patients received written guidelines to do the same protocol of voluntary contractions every day at home.

Characteristics of included studies	Prostate cancer					
Study ID	**Gomes 2018**					
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Not specified	Include in subgroup C		A single Pilates instructor guided Pilates exercises		
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Primary	Pelvic floor muscle strength	baseline, end of treatment (10 weeks)	Maximum strength (hPa)	higher score means more strength	
2	Primary	Pelvic floor muscle strength	baseline, end of treatment (10 weeks)	Endurance (hPa)	higher score means more strength	
3	Primary	Pelvic floor muscle strength	baseline, end of treatment (10 weeks)	Muscle Power (hPa)	higher score means more strength	
4	Secondary	Urinary incontinence	baseline, end of treatment (10 weeks)	Reduction in daily incontinence (24-hr pad test)	Lower score means better outcome	
5	Secondary	Urinary incontinence	baseline, end of treatment (10 weeks)	Reduction in daily pads	Lower score means better outcome	

Characteristics of included studies	Prostate cancer						
Study ID	**Gomes 2018**						
6	Secondary	Quality of life, specific	baseline, end of treatment (10 weeks)	International Consultation on Incontinence Questionnaire Short Form (0-21)	higher score means worse outcomes	Frequency, severity and impact on quality of life (QoL) of urinary incontinence	
7	--						
8	--						
9	--						
10	--						
Method of analysis							
Statistics	Wilcoxon test was used to compare quantitative variables before and after treatment in each group. Analysis of variance followed by Tukey's test was carried out in order to verify differences in quantitative variables between groups. When assumptions were not met, we used the Kruskal-Wallis test followed by a post-hoc analysis. Comparisons between the proportions in table four were performed using 95% confidence intervals with Bonferroni correction. Pearson correlation coefficients were calculated to correlate the variables. The significance level was set at 95% (P < 0.05).						
Population analysed	Intent-to-treat	Modified. Participants with missing data were not included in the final analysis (6/110).					
Missing data	No imputations for missing data were made. PP analysis not conducted.						
INTERNAL VALIDITY							
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias						
Summary (descriptive)	Some concerns due to lack of allocation sequence concealment						

Characteristics of included studies	Prostate cancer	
Study ID	**Pedriali 2014**	
Study Reference	Pedriali F, Gomes C, Soares L, Urbano M, Moreira E, De Almeida S. The efficacy of pilates compared to pelvic floor muscle training associated with electrical stimulation in the recovery of post-prostatectomy urinary incontinence: A randomized controlled trial. Neurourology and Urodynamics. 2014;33 (6):742-3. Pedriali FR, Gomes CS, Soares L, Urbano MR, Moreira ECH, Averbeck MA, et al. Is pilates as effective as conventional pelvic floor muscle exercises in the conservative treatment of post-prostatectomy urinary incontinence? A randomised controlled trial. Neurourology and Urodynamics. 2016;35(5):615-21. Nct, Pedriali FR. The Efficacy of Pilates Compared to Pelvic Floor Muscle Training Associated With Electrical Stimulation in the Recovery of Post-prostatectomy Urinary Incontinence: a Randomized Clinical Trial. Http://clinicaltrialsgov/show/nct02086266. 2012.	
Study design	RCT	
Author affiliation	All authors affiliated with tertiary institutions in Brazil.	
Source of funds	Authors declare no financial support was received.	
Declared interests of study authors	All authors declared they have no conflicts of interest.	
Setting / provider	single teaching hospital	
Country(s) / region	Brazil	Londrina
Enrolment period	March 2012 to March 2013	
Length of treatment / followup	10 weeks	
Description of population	*N=*	*Description*
# participants	90	Prostate cancer patients with post-prostatectomy urinary incontinence
details	*Inclusion criteria* : Male patients aged between 50 and 75 years, who underwent radical prostatectomy (RP) and had complaint of post-prostatectomy urinary incontinence (PPUI) (defined as usage of one or more pads a day). *Exclusion criteria:* preoperatively urinary incontinence, previous transurethral resection of the prostate (TURP), diagnosis of neurological or cognitive impairment, urinary tract infection, and inability to attend treatment sessions due to distance or physical limitations. None of the patients was taking medications that could influence bladder function (e.g., antimuscarinics, duloxetine,and tricyclic antidepressants).	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	28	Pilates - 45 minute sessions of mat Pilates once a week in pairs for 10 weeks. Also received written guidelines to perform three (pelvic floor exercises??) and two Pilates sessions at home every day
Comparator #1 (control)	31	Control - Received no instruction to perform pelvic floor muscle training at home. All subjects with persistent urinary incontinence in the end of the RCT were invited to start supervized
Comparator #2 (other)	31	Pelvic floor muscle exercises combined with anal electrical stimulation - 45 minute sessions for 10 weeks. Patients received written guidelines to do the same protocol of pelvic floor muscle exercises every day at home.

Characteristics of included studies	Prostate cancer					
Study ID	**Pedriali 2014**					
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Yes	Include in subgroup A		Pilates exercises guided by a Pilates certified physiotherapist.		
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Primary	Quality of life, specific	baseline, end of treatment (10 weeks)	International Consultation on Incontinence Questionnaire Short Form (0-21)	higher score means worse outcomes	Frequency, severity and impact on quality of life (QoL) of urinary incontinence
2	Primary	Urinary incontinence	baseline, end of treatment (10 weeks)	Reduction in daily pads	Lower score means better outcome	
3	Secondary	Urinary incontinence	baseline, end of treatment (10 weeks)	Reduction in daily incontinence (24-hr pad test)	Lower score means better outcome	
4	--					
5	--					

Characteristics of included studies	Prostate cancer
Study ID	**Pedriali 2014**
6	--
7	--
8	--
9	--
10	--
Method of analysis	
Statistics	Baseline characteristics of symptoms, comorbidities, and surgical techniques of the study volunteers were compared by means of the chi-square test. Wilcoxon test was used to compare quantitative variables before and after treatment in each group. The Kruskal-Wallis test was used to verify if there was difference in quantitative variables between groups at the end of the treatment, followed by a post-hoc test. Z-tests with P-values adjusted by the Bonferroni method was used to analyze qualitative variables. Significance level was set at P<0.05.
Population analysed	Intent-to-treat Modified. Participants with missing data were not included in the final analysis (5/90).
Missing data	No imputations for missing data were made. PP analysis not conducted.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Some concerns due to lack of allocation sequence concealment

Characteristics of included studies	Diabetes, type 2		
Study ID	**Melo 2020**		
Study Reference	Melo KCB, Araujo FS, Cordeiro Junior CCM, de Andrade KTP, Moreira SR. Pilates Method Training: Functional and Blood Glucose Responses of Older Women With Type 2 Diabetes. Journal of Strength & Conditioning Research. 2020;34(4):1001-7.		
Study design	RCT	pseudorandomised	No mention of randomisation tables or other methods
Author affiliation	Five authors are affliated with tertiary institutions in Brazil.		
Source of funds	Not specified		The research was approved by Ethics and Deontology in Studies and Research of the Federal University of Vale do São Francisco (number 1.687.293).
Declared interests of study authors	The authors have no conflicts of interest to disclose.		
Setting / provider	Not specified		
Country(s) / region	Brazil		
Enrolment period	Not specified		
Length of treatment / followup	3 months		
Description of population	*N=*	*Description*	
# participants	22	Women with Type 2 Diabetes	
details	*Inclusion criteria:* older women with type 2 diabetes *Exclusion criteria:* (a) severe or decompensated heart disease, (b) limited coronary artery disease, (c) peripheral neuropathy and ulcers in the extremities, (d) severe skin lesions, (e) proliferative retinopathy, (f) insulin therapy, and (g) any health condition that makes it impossible the realisation of the sessions.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	12	12 weeks of intervention with PILATES at moderate intensity, being 3 times a week with 60 minutes of duration for each session. The intensity of the exercise sessions was quantified from the rating of perceived exertion (RPE) by the Borg scale. The exercises were modified every 3 weeks. During the program, a set of Swiss balls of 45, 55, and 65 cm in size and elastic bands (TheraBand) of very moderate resistance were used. Each exercise session was divided into 3 stages, (a) global initial static and dynamic stretching (10 minutes), (b) general conditioning (45 minutes), and (c) relaxation (5 minutes).	
Comparator #1 (control)	12	No intervention.	
Comparator #2 (other)	--	--	
Comparator #3 (other)	--	--	

Characteristics of included studies	Diabetes, type 2					
Study ID	**Melo 2020**					
Co-interventions	24	Both groups received guidance for maintenance of medication prescribed by the doctor. Both groups received orientation to maintain the nutritional intake of foods consumed in the diet, which was quantified by a nutritionist trained through 24-hour food records before and 4, 8, and 12 weeks after the intervention. In the mornings of the evaluation day of the study, a standardized breakfast was served containing 285 kcal, being 45 g (180 kcal) of carbohydrates, 6 g (24 kcal) of proteins, and 9 g (81 kcal) of fats.				
Is practitioner/instructor certified?	Yes	Include in subgroup A	A certified instructor with experience in PILATES was responsible for the entire training program.			
Is there an inactive comparator?	Yes	Comparison=control		See Comparator #1		
Outcomes	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Glycaemic control*	baseline, mid (4&8 wks), end of treatment (12 wks)	Glycated haemoglobin (HbA1c)	Higher score means greater blood glucose levels	
2	Not specified	Glycaemic control*	baseline, mid (4&8 wks), end of treatment (12 wks)	Fasting glycaemia (blood glucose)		
3	Not specified	Glycaemic control*	baseline, mid (4&8 wks), end of treatment (12 wks)	Postprandial glycaemia (blood glucose)		
4	Not specified	Activities of daily living	baseline, mid (4&8 wks), end of treatment (12 wks)	Group of Latin American Development to Maturity test battery - Composite score	Higher score means worse functional autonomy	Includes: 10m walk, rise from sitting, raise-stand, rise from chair and around, dress and take off
5	--					
6	--					
7	--					
8	--					
9	--					
10	--					
Method of analysis						

Characteristics of included studies	Diabetes, type 2
Study ID	**Melo 2020**
Statistics	The results obtained were treated as mean +/- SD. The data normality distribution was tested by the Shapiro-Wilk test and the homogeneity of variance between the groups by the Levene test. The Student t test for independent samples was used in the comparison of the general characteristics between PILATES and CONTROL. Two-way analysis of variance for repeated measures was used to test the main effect of time (before and 4, 8, and 12 weeks of the intervention) and interaction time 3 group, reporting the F and p values. The Mauchly test was adopted to analyze the data sphericity. In case of sphericity violation, the degrees of freedom were adjusted using the Greenhouse-Geisser correction. Partial eta was used to determine the size of the effect of treatment. When necessary, the Bonferroni post hoc test was used to determine where the significant differences occurred. The Spearman correlation was applied between postprandial glycemia and the GIFC. The level of significance adopted in this study was $p \leq 0.05$, and the analyses were performed using SPSS version 22.0 for Windows (SPSS, Inc., Chicago, IL).
Population analysed	Per protocol 2/24 participants were excluded after randomisation "because of the health condition". Not clear from which group.
Missing data	No imputations for missing data were made. Data not available for the excluded participants to conduct ITT analysis.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Some concerns with allocation concealment and bias due to measurment/reporting of subjective outcomes.

Characteristics of included studies	Diabetes, type 2	
Study ID	**Torabian 2013**	
Study Reference	Torabian M, Taghadosi M, Ajorpaz NM, Khorasanifar L. The effect of Pilates exercises on general health in women with type 2 diabetes. Life Science Journal. 2013; 10(s): 283-88	
Study design	RCT	
Author affiliation	Four authors are affiliated with tertiary institutions in Iran.	
Source of funds	Funding for this study was provided by the Kashan University of Medical Sciences.	
Declared interests of study authors	Not specified.	
Setting / provider		
Country(s) / region	Kashan, Iran	
Enrolment period	Not specified	
Length of treatment / followup	2 months	
Description of population	*N=*	*Description*
# participants	70	Women with chronic Type 2 diabetes mellitus
details	*Inclusion criteria* : female adults aged 30-70, "blood sugar diagnosis" by an endocrinologist, diagnosed with type 2 diabetes for 1 year or more, permission to undertake physical activity by patients' general practitioner. *Exclusion criteria* : spinal column structural disorder, psychiatric disease, dementia, mental retardation, diabetic complications preventing patients from performing exercise, absence from 2 Pilates sessions and withdrawal of consent to participate.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	35	A modified program of Pilates exercises twice a week over 8 weeks. Each session lasted 60 minutes. In the first session, basic principles of Pilates exercises were explained and general information on them was provided to the experimental group. In the beginning of each session, class preliminaries such as checking body state (pelvis and spinal column), controlling breath, and standing posture in Pilates classes were taught. Then, stretching exercises (about 5 minutes), Pilates exercises (about 50 minutes), and cooling down and returning to the initial state (about 5 minutes) were carried out. Number of exercises began with 10 repetitions in first sessions and in last sessions they reached 70-80 repetitions.
Comparator #1 (control)	35	No intervention.
Comparator #2 (other)	--	--
Comparator #3 (other)	--	--

Characteristics of included studies	Diabetes, type 2					
Study ID	**Torabian 2013**					
Co-interventions	70	Standard medical care.				
Is practitioner/instructor certified?	No	Include in subgroup B	Some months before the study, the researcher had counseled with a sports expert and learned and mastered in techniques of Pilates exercise.			
Is there an inactive comparator?	Yes	Comparison=control		See Comparator #1		
Outcomes	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Primary	Somatic symptoms	baseline, end of treatment (8 wks)	General Health Questionnaire-28 (GHQ-28) (Somatic symptoms subscale)	Higher scores means worse symptoms	Four-point Likert scale
2	Primary	Anxiety/insomnia	baseline, end of treatment (8 wks)	GHQ-28 (Anxiety/insomnia subscale)	Higher scores means worse symptoms	Four-point Likert scale
3	Primary	Social dysfunction	baseline, end of treatment (8 wks)	GHQ-28 (Social dysfunction)	Higher scores means worse symptoms	Four-point Likert scale
4	Primary	Depression	baseline, end of treatment (8 wks)	GHQ-28 (depression)	Higher score means more depressed	Four-point Likert scale
5	Primary	General Health	baseline, end of treatment (8 wks)	GHQ-28-total (0-84)	Higher scores indicate a greater possibility of psychological distress	Four-point Likert scale
6	--					
7	--					
8	--					
9	--					
10	--					
Method of analysis						

Characteristics of included studies	Diabetes, type 2	
Study ID	**Torabian 2013**	
Statistics	Collected data were analysed through Independent and Paired samples t-tests and chi-square test using SPSS 16.0 software.	
Population analysed	Intent-to-treat	There is no information suggesting that the investigators failed to analyse participants in the group to which they were randomised.
Missing data	The study does not report any patient drop out or missing data.	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias	
Summary (descriptive)	Some concerns with allocation concealment and bias due to measurment/reporting of subjective outcomes.	

Characteristics of included studies	Diabetes, type 2	
Study ID	**Yucel 2016**	
Study Reference	Yucel H, Uysal O. Pilates-based mat exercises and parameters of quality of life in women with type 2 diabetes. Iranian Red Crescent Medical Journal. 2016;18 (3) (no pagination)(e21919).	
Study design	RCT	
Author affiliation	Two authors are affliated with tertiary institutions in Turkey.	
Source of funds	There was no funding or support for this study.	The department is affiliated with Bezmialem Vakif university in Istanbul, Turkey.
Declared interests of study authors	The authors declare no conflict of interest.	
Setting / provider	Department of endocrinology and metabolism of Bezmialem Vakif university in Istanbul, Tur	
Country(s) / region	Istanbul, Turkey	
Enrolment period	Not specified	
Length of treatment / followup	3 months	
Description of population	*N=*	*Description*
# participants	56	Women with Type 2 diabetes who maintained regular diet and medical follow-ups
details	*Inclusion criteria:* aged 18 - 65 years and were not currently participating in any other regular physical exercise program. *Exclusion criteria:* Those with severe diabetic complications, such as mobility difficulties, visual impairments, major depressive disorders, and medical contra-indications (e.g., risk of heart attack or stroke) Mean age (SD) was 58.5 (7.0) years in the Pilates group and 53.5 (9.0) in the Control group Mean (SD) duration of diabetes in months was 24.29 (131.0) in the Pilates group and 48.0 (24.0) in the Control group	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	28	Pilates group attended 45-70 minute sessions, three times per week for 12 weeks. All of the sessions took place in the hospital's garden. The sessions included a warm-up; stretching; basic aerobic Pilates training for arms, legs, and body; and cool-down. Trialists avoided high-intensity exercises and advanced Pilates exercises because of the concerns of possible hypoglycemic shock and other complications in patients with T2D. Patients self-controlled their blood glucose in the first sessions (before, during, and after the exercise period) and continued exercising if it was 100 - 180 mg/dL. Paitents were monitored during the sessions for any complications (i.e. fatigue, dizziness, headache, feeling faint, difficulty breathing, decreased alertness, numbness in hands/feet, pain, and cold sweats).
Comparator #1 (control)	28	No intervention.
Comparator #2 (other)	--	--
Comparator #3 (other)	--	--

Characteristics of included studies	Diabetes, type 2					
Study ID	**Yucel 2016**					
Co-interventions	56	All participants maintained regular diet and medical follow-ups				
Is practitioner/instructor certified?	Not specified	Include in subgroup C	A trained physiotherapist conducted the Pilates sessions. It is not specified if they were trained in Pilates.			
Is there an inactive comparator?	Yes	Comparison=control		See Comparator #1		
Outcomes	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Primary	Anxiety	Baseline, end of treatment (12 wks)	Hospital Anxiety Depression Scale (HADS) - Anxiety	Higher score means more anxiety	
2	Primary	Depression	Baseline, end of treatment (12 wks)	HADS - Depression	Higher score means more depressed	
3	Primary	Fatigue	Baseline, end of treatment (12 wks)	0-10 visual analogue scale	Higher score means more fatigue	
4	Primary	Pain	Baseline, end of treatment (12 wks)	0-10 visual analogue scale	Higher score means more pain	
5	Primary	QoL, physical	Baseline, end of treatment (12 wks)	SF-36-physical component score	Higher score means better QoL	physical functioning, role-physical, body pain, general health perceptions
6	Primary	QoL, mental	Baseline, end of treatment (12 wks)	SF-36-mental component score	Higher score means better QoL	role-emotional, mental health, social functioning, vitality
7	Primary	Glycaemic control*	Baseline, end of treatment (12 wks)	Glycated haemoglobin (HbA1c)		
8	Primary	Glycaemic control*	Baseline, end of treatment (12 wks)	Fasting glycaemia (blood glucose)		
9	Primary	Glycaemic control*	Baseline, end of treatment (12 wks)	Postprandial glycaemia (blood glucose)		
10	Primary	Body composition	Baseline, end of treatment (12 wks)	BMI (kg/2)		
Method of analysis						

Characteristics of included studies	Diabetes, type 2
Study ID	**Yucel 2016**
Statistics	We checked whether the distribution of data was normal by using the Kolmogorov–Smirnov test. Since this case had non-normal data distribution, descriptive statistics were presented as median and interquartile range (MD± IQR). In the initial calculation of power analysis, SF-36 was used for the row change between groups. In the sample size formula, the "General Health" sub parameter of the SF-36 was chosen, since it was theoretically the widest item in its mean and standard deviation. In the literature, it was found that the lowest level was 5 points of mean±8 points of standard deviation for between-group changes to be significant before and after the intervention; therefore, a minimum sample size of 20 per group was determined to have 80% power and a 95% confidence level. Statistical analysis was performed using IBM SPSS for Windows version 19. Comparisons within groups before and after the program were carried out using the Wilcoxon test instead of paired sample t test, because variables were generally score type, and the differences in standard deviation were higher than the differences of the mean in the groups. Paired binary categorical variables were evaluated using the McNemar test. The Mann-Whitney U test was performed to verify differences between groups.
Population analysed	Per protocol 11/56 (20%) participants excluded rom the analysis. 4 participants in control group excluded after randomisation due to health condiditon.
Missing data	4 participants in the Pilates group dropped out because they did not like the training venue, had difficulties exercising due to headache or hypertension, or did not enjoy the exercises. 4 participants in the control group excluded due to health complications, and additional 3 did not return for followup. No imputations for missing data made. Data not available to conduct ITT analysis.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk of bias associated with method of randomisation/allocation concealment (baseline data not clearly matched) and bias due missing data. Some concenrs with measurment/reporting of subjective outcomes.

Characteristics of included studies	Multiple sclerosis		
Study ID	**Abasiyanik 2018**		
Study Reference	1. Abasiyanik Z, Ertekin O, Kahraman T, Ozakbas S. Effects of clinical Pilates training on walking, balance, and fall risk, respiratory and cognitive function in patients with multiple sclerosis: A randomized controlled trial. Fizyoterapi Rehabilitasyon. 2018;29 (2):S20-S1. 2. Abasiyanik Z, Ertekin O, Kahraman T, Yigit P, Ozakbas S. The effects of Clinical Pilates training on walking, balance, fall risk, respiratory, and cognitive functions in persons with multiple sclerosis: A randomized controlled trial. Explore: The Journal of Science & Healing. 2020;16(1):12-20.		
Study design	RCT		
Author affiliation	Five author affliated with a tertiary institutions in Turkey.		
Source of funds	Not specified		
Declared interests of study authors	Not specified		
Setting / provider	Multiple sclerosis clinic	affiliated with Dokuz Eylul University Hospital.	
Country(s) / region	Turkey	Izmir	
Enrolment period	Not specified		
Length of treatment / followup	8 weeks		
Description of population	*N=*	*Description*	
# participants	42	People with multiple sclerosis	
details	*Inclusion criteria:* a definite MS diagnosis according to the revised McDonald criteria, age over 18 years, walking 100 m independently, and willingness to participate. *Exclusion criteria:* any neurological disease other than MS, relapse within 3 months, orthopedic disorders that could negatively affect gait and balance, cardiopulmonary problems that could affect performing exercises, diagnosed psychiatric problems or cognitive decline that render the patient incapable of performing tests and exercise training, and current or recent (within the prior 6 months) participation in a core stability-based exercise program.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	21	Group exercise sessions of Pilates. One session a week for 8 weeks plus a two-day home exercise program. The duration of each Pilates session was 55-60 min with a 10 minute warm up before the session. The exercise difficulty of the Pilates sessions increased from level 1 to level 3 by changing positions and reducing the base of support and used resistance bands and exercise balls.	

Characteristics of included studies	Multiple sclerosis					
Study ID	**Abasiyanik 2018**					
Comparator #1 (control)	--	--				
Comparator #2 (other)	21	Written standardised home exercises 3 times per week for 8 weeks. Session durations were not specified. Exercises aimed at improving spinal column, upper, and lower extremity flexibility, strehngth, trunk and pelvic stability and balance. Three written brochures given to participants (first 3 weeks, 4-6 weeks, last 2 weeks) and remined via telephone calls.				
Comparator #3 (other)	--	--				
Co-interventions	--	None specified.				
Is practitioner/instructor certified?	Not specified	Include in subgroup C				
Is there an inactive comparator?	No	Comparison=other		home exercises		
Outcomes	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Primary	Functional mobility	Baseline, end of treatment (8 wks)	6-minute Walk Test (m)	longer distance means better functional mobility	
2	Primary	Functional mobility	Baseline, end of treatment (8 wks)	Timed 25-Foot Walk (s)	longer time means worse functional mobility	
3	Primary	Functional mobility	Baseline, end of treatment (8 wks)	Timed Up & Go (s)	higher score means worse mobility	
4	Primary	Balance	Baseline, end of treatment (8 wks)	Limits of stabilty (LOS)	higher score means better outcome	

Characteristics of included studies	Multiple sclerosis					
Study ID	**Abasiyanik 2018**					
5	Primary	Fear of falling	Baseline, end of treatment (8 wks)	Falls efficacy Scale International (FES-I)	higher score means better outcome	
6	Primary	Balance confidence	Baseline, end of treatment (8 wks)	Activities-specific balance confidence (ABC) scale	higher score means better balance confidence	
7	Primary	Core stability	Baseline, end of treatment (8 wks)	Curl-up test	higher score means better outcome	
8	Primary	Physical performance	Baseline, end of treatment (8 wks)	MS Walking Scale (12-item)	range 12 - 54. higher score means worse outcome	Self-reported measure of the impact of MS on walking ability
9	Primary	Respiratory muscle strength	Baseline, end of treatment (8 wks)	Maximal inspiratory pressure	higher score means better outcome	
10	Primary	Respiratory muscle strength	Baseline, end of treatment (8 wks)	Maximal expiratory pressure	higher score means better outcome	
11	Primary	Cognitive function	Baseline, end of treatment (8 wks)	Brief international cognitive assessment for MS (BICAMS)	higher score means better outcome	
Method of analysis						
Statistics	The data were analyzed using IBM SPSS Statistics for Windows (version 24.0; IBM Corp., Armonk, NY, USA). The normality distribution of the data was assessed with the Shapiro-Wilk test and by investigating the histograms. The gain scores (posttest-pretest) were analyzed using an analysis of variance with the treatment group (Pilates vs home exercise) as the independent variable. The 95% confidence intervals were also inspected. The statistical significance was set at $p < 0.05$.					
Population analysed	Intent-to-treat	Modified. Final analyses did not included participants lost to follow-up/missing outcome data. 5/21 (23.8%) lost to follow-up in Pilates group and 4/21 (19%) in Home exercise group				

Characteristics of included studies	Multiple sclerosis
Study ID	**Abasiyanik 2018**
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Three domains had some concerns raised (randomisation, missing outcome data, and outcome measurement). Two domains at low risk for deviations from the intended intervention and selection of the reported result.

Characteristics of included studies	Multiple sclerosis		
Study ID	**Bulguroglu 2015**		
Study Reference	1. Bulguroglu I, Guclu-Gunduz A, Gokhan Y, Ozkul C, Irkec C, Batur-Caglayan HZ, et al. Comparison of the effects of mat Pilates and reformer Pilates on balance, strength, mobility, fatique and quality of life in patients with multiple sclerosis. European Journal of Neurology. 2015;1):672. 2. Bulguroglu I, Guclu-Gunduz A, Yazici G, Ozkul C, Irkec C, Nazliel B, et al. The effects of Mat Pilates and Reformer Pilates in patients with Multiple Sclerosis: A randomized controlled study. Neurorehabilitation. 2017;41(2):413-22.		
Study design	RCT	pseudorandomised	
Author affiliation	Seven author affliated with a tertiary institutions in Turkey.		
Source of funds	Not specified		
Declared interests of study authors	No conflicts of interests declared		
Setting / provider	Department of Physiotherapy and Rehabilitation	Not speicifed	
Country(s) / region	Turkey		Ankara, Turkey
Enrolment period	Not specified		
Length of treatment / followup	8 weeks		
Description of population	*N=*	*Description*	
# participants	59	People with multiple sclerosis	
details	*Inclusion criteria:* aged over 18 years ; not having had an MS attack or any surgery in the last 6 months, being below 4.5 EDSS score. *Exclusion criteria:* Not having any orthopedic, vision, hearing or perception problems which could affect the results of the study and the Body Mass Index Score to be 30 and over.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	12	Mat Pilates for 8 weeks, 2 days a week. Session lasted 1-1.5 hours each and used red Theraband for 2 weeks, then green Theraband. The exercises were performed in standing position and centering in the supine position at warmup. In the cooling period, stretching and posture exercises were used. All exercises were performed with 10 repetitions, increasing to 20 repetitions after 2 weeks.	

Characteristics of included studies	Multiple sclerosis					
Study ID	**Bulguroglu 2015**					
Comparator #1 (control)	13	Reformer Pilates for 8 weeks, 2 days a week. Session lasted 1-1.5 hours each with resistance of the springs increased from yellow to blue to red. All exercises were performed with 10 repetitions, increasing to 20 repetitions after 2 weeks.				
Comparator #2 (other)	13	The control group did breathing and relaxation exercises at home for 8 weeks, 2 times per week.				
Comparator #3 (other)	--	--				
Co-interventions	--	None specified.				
Is practitioner/instructor certified?	Yes	Include in subgroup A		Both of the trainers had an Australian Pilates and Physiotherapy Institute certificates		
Is there an inactive comparator?	No	Comparison=other		breathing and relxation exercises at home		
Outcomes	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Core stability	Baseline, end of Treatment (8wks)	side bridge test (s)	higher score means better outcome	
2	Not specified	Core stability	Baseline, end of Treatment (8wks)	modified beiring-sorensen test (s)	higher score means better outcome	
3	Not specified	Core stability	Baseline, end of Treatment (8wks)	modified push-ups test (repetition/30 s)	higher score means better outcome	
4	Not specified	Core stability	Baseline, end of Treatment (8wks)	trunk-flexion test (s)	higher score means better outcome	

Characteristics of included studies	Multiple sclerosis					
Study ID	**Bulguroglu 2015**					
5	Not specified	Core stability	Baseline, end of Treatment (8wks)	prone bridge test (s)	higher score means better outcome	
6	Not specified	Core stability	Baseline, end of Treatment (8wks)	sit up test (repetition/30 s)	higher score means better outcome	
7	Not specified	Fatigue	Baseline, end of Treatment (8wks)	Fatigue severity scale	higher score means worse fatigue severity	
8	Not specified	QoL - disease specific	Baseline, end of Treatment (8wks)	Multiple sclerosis QOL-54 (mental and physcial health scores)	higher score means higher QoL	
9	Not specified	Balance	Baseline, end of Treatment (8wks)	single leg stance (s)	higher score means better outcome	
10	Not specified	Functional mobility	Baseline, end of Treatment (8wks)	timed up and go test (s)	longer time means worse functional mobility	patients stood from sitting, walked 3 meters, turned, and returned to sitting.
11	Not specified	Balance confidence	Baseline, end of Treatment (8wks)	Activities-specific balance confidence (ABC) scale	higher score means better balance confidence	
Method of analysis						
Statistics	The statistical analysis of the study was carried out with the “Statistical Package for Social Sciences” [SPSS] Version 15.0 (SPSS inc. Chicago, IL, ABD) program. The measurements of the groups prior to and after the treatment were compared with 295 the Wilcoxon Test. The gain obtained in the Mat Pilates and Reformer Pilates groups was compared with the Mann Whitney U Test. The statistical level of significance was taken as $p < 0.05$.					
Population analysed	Intent-to-treat	Modified. Final analyses did not include participants lost to follow-up/missing outcome data. Authors state "7 participants were not able to continue the exercises and thus did not complete the study". Difficult to judge if dropout due to 'health condition'				

Characteristics of included studies	Multiple sclerosis
Study ID	**Bulguroglu 2015**
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	All domains are considered low risk, except for missing information about the randomisation and allocation concealment.

Characteristics of included studies	Multiple sclerosis		
Study ID	**Duff 2018**		
Study Reference	Duff WR, Andrushko JW, Renshaw DW, Chilibeck PD, Farthing JP, Danielson J, et al. Impact of pilates exercise in multiple sclerosis: A randomized controlled trial: International Journal of MS Care. 20 (2) (pp 92-100), 2018. Date of Publication: 01 Mar 2018.; 2018.		
Study design	RCT		
Author affiliation	Seven author affliated with a tertiary institutions in Canada.		
Source of funds	No relevant financial relationships		
Declared interests of study authors	No conflicts of interests declared		
Setting / provider	community and social media	Participants were referred for study at the University of Saskatchewan in **Saskatoon, SK, Canada.**	
Country(s) / region	Canada	Saskatoon, SK, Canada	
Enrolment period	November 2016 - January 2017		
Length of treatment / followup	12 weeks		
Description of population	*N=*	*Description*	
# participants	30	People with multiple sclerosis	
details	*Inclusion criteria* : definite diagnosis of MS, not restricted to a wheelchair or scooter, and the ability to travel to the assessment (University of Saskatchewan) and intervention (Lead Pilates and Integrative Therapies) sites, both located in Saskatoon, Saskatchewan, Canada. To keep the study as real-world as possible, participants were not excluded because of involvement in previous or current exercise programs. *Exclusion criteria* : Not specified		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	15	The Pilates intervention consisted of two 50-minute Pilates sessions per week. The 12-week program included exercises in the standing position on the CoreAlign apparatus and mat work. Each session started with a warm-up and ended with a cool down.	

Characteristics of included studies	Multiple sclerosis					
Study ID	**Duff 2018**					
Comparator #1 (control)	15	No intervention				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	30	Participants in the Pilates and control group received a weekly 1-hour massage therapy session with a registered massage therapist specially trained in massage for multiple sclerosis.				
Is practitioner/instructor certified?	Yes	Include in subgroup A		The Pilates sessions were led by experienced Comprehensive Certified Pilates instructors with training on adapting Pilates exercises for individuals with multiple sclerosis.		
Is there an inactive comparator?	Yes	Comparison=control		Control group received no additional intervention		
Outcomes		***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Primary	Functional mobility	Baseline, end of treatment (12wks)	6-Minute Walk Test (m)	higher score means better outcome	participants allowed to use typical assistive devices and the researcher walked alongside.
2	Secondary	Functional mobility	Baseline, end of treatment (12wks)	Timed Up and Go test	higher score means worse outcome	
3	Secondary	Balance	Baseline, end of treatment (12wks)	Fullerton Advanced Balance Scale	higher score means better balance	The test uses both dynamic and static balance
4	Secondary	Core flexibility	Baseline, end of treatment (12wks)	sit-and-reach test	higher score means better outcome	

Characteristics of included studies	Multiple sclerosis				
Study ID	**Duff 2018**				
5	Secondary	Core stability	Baseline, end of treatment (12wks)	plank hold test	higher score means better outcome
6	Secondary	Body composition	Baseline, end of treatment (12wks)	total mass, lean mass, fat mass (kg)	higher score means worse outcome
7	Secondary	Physical Performance	Baseline, end of treatment (12wks)	quadricep strength (maximum voluntary contraction)	higher score means better outcome
8	Secondary	Physical Performance	Baseline, end of treatment (12wks)	fatigability (sustained maximum voluntary contraction torque drop)	higher score means better outcome
9	Secondary	Physical Performance	Baseline, end of treatment (12wks)	voluntary muscle activation	higher score means better outcome
10	Secondary	Quality of life	Baseline, end of treatment (12wks)	Multiple Sclerosis QoL–54	higher score means better QoL
11	--				
Method of analysis					
Statistics	Baseline characteristics were compared between groups using one-way analysis of variance (ANOVA). A two-factor repeated-measures ANOVA with betweengroup factor for study group (Pilates vs. control) and within-group factor for time (baseline vs. postintervention at 12 weeks) was used. We reported effect size via partial eta-squared (η2p) and significance at $P \leq .05$ for differences in the mean change over time between groups (ie, the group × time interaction). All data were checked and cleared for skewness and kurtosis, as well as for outliers. Welch's F tests were used in place of ANOVA to adjust for homogeneity of variance violations where appropriate. All the results are expressed as mean (SD) or mean absolute changes and 95% CIs. Data were analyzed on both an intention-to-treat (missing data were carried forward from the last recorded value) and perprotocol basis using IBM SPSS Statistics for Windows (version 24.0; IBM Corp, Armonk, New York).				
Population analysed	Intent-to-treat	Data were analyzed using an ITT model (LOCF) and on PP basis. Authors present the ITT results, with no further mention of the PP results or analysis.			

Characteristics of included studies	Multiple sclerosis
Study ID	**Duff 2018**
Missing data	Missing data were carried forward from the last recorded value (LOCF). There were 3 participants (1 in Pilates group and 2 in the control group) who did not complete postintervention testing due to medical reasons (not further described)
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Low risk of bias for all key domains
Summary (descriptive)	all domains are considered low risk

Characteristics of included studies	Multiple sclerosis		
Study ID	**Eftekhari 2018**		
Study Reference	1.Eftekhari E, Etemadifar M. Impact of clinical mat pilates on body composition and functional indices in female patients with multiple sclerosis. Crescent Journal of Medical and Biological Sciences. 2018;5(4):297-305. 2.Eftekhari E, Etemadifar M. Interleukin-10 and brain-derived neurotrophic factor responses to the Mat Pilates training in women with multiple sclerosis. Scientia Medica. 2018;28 (4) (no pagination)(31668).		
Study design	RCT	pseudorandomised	
Author affiliation	Two author affliated with a tertiary institutions in Iran.		
Source of funds	This study was financially supported by the Najafabad Branch.		
Declared interests of study authors	No conflicts of interests declared.		
Setting / provider	Goldasht Multiple Sclerosis Center	Under the auspices of Najafabad Branch, Islamic Azad University.	
Country(s) / region	Iran		Najafabad, Iran
Enrolment period	April and June 2015		
Length of treatment / followup	8 weeks		
Description of population	*N=*	*Description*	
# participants	30	Women with multiple sclerosis	
details	*Inclusion criteria:* being female and having MS with expanded disability status scale (EDSS) 2-6. *Exclusion criteria* : exercising during the last three months, back problems, pregnancy, epilepsy, and cancer. Thirty female patients (age= 33.00±8.08 years, BW= 61.22±12.17 kg, BMI= 24.52±4.92 kg.m-2) with definite MS based on the McDonald criteria (use of imagining to demonstrate the dissemination of CNS lesions which can be done by a single scan (17), with relapsing-remitting (RR) form of disease (EDSS = 2-6) (7) were enrolled in the study.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	15	Mat Pilates protocol was conducted over 8 weeks, and consisted of 3x one hour session per week. The programme was focused on core-stability using low-to moderate intensity exercises according to the participants abilities, which focused on breathing, balance, correct body alignment, and joint range of motion. Intensity of the exercises increased gradually from 3 to 10 repetitions, decreasing rest time, and increasting the number of sets from 1 to 2. Sessions began with 5-minute warm-up and ended with 5-minute cool-down	

Characteristics of included studies	Multiple sclerosis					
Study ID	**Eftekhari 2018**					
Comparator #1 (control)	15	The control group continued their usual lifestyle.				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	None specified				
Is practitioner/instructor certified?	Not specified	Include in subgroup C				
Is there an inactive comparator?	Yes	Comparison=control		Control group received no additional intervention		
Outcomes		***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Functional mobility	Baseline, end of treatment (8 wks)	10-Meter Walk Test (s)	higher score means worse outcome	
2	Not specified	Functional mobility	Baseline, end of treatment (8 wks)	Six Minute Walk Test (m)	higher score means better outcome	
3	Not specified	Fatigue	Baseline, end of treatment (8 wks)	Modified Fatigue Impact Scale (5-items)	higher score means worse outcome (0-20)	
4	Not specified	Balance	Baseline, end of treatment (8 wks)	Berg balance scale (14-items)	Higher score means better balance (0-56). A score of < 45 indicates individuals may be at greater risk of falling.	Five-point ordinal scale ranging from 0 to 4, 0 = lowest level of function and 4 = highest level of function

Characteristics of included studies	Multiple sclerosis				
Study ID	**Eftekhari 2018**				
5	Not specified	Body composition	Baseline, end of treatment (8 wks)	weight (KG)	higher score means worse outcome
6	Not specified	Body composition	Baseline, end of treatment (8 wks)	BMI	higher score means worse outcome
7	Not specified	Body composition	Baseline, end of treatment (8 wks)	body circumference	higher score means worse outcome
8	Not specified	Body composition	Baseline, end of treatment (8 wks)	7-site skinfold test (mm)	higher score means worse outcome
9	Not specified	Body composition	Baseline, end of treatment (8 wks)	fat percentage	higher score means worse outcome
10	Not specified	Body composition	Baseline, end of treatment (8 wks)	body density	higher score means worse outcome
11	Not specified	Serum markers	Baseline, end of treatment (8 wks)	Serum IL-10 and Brain-derived neurotrophic factor (BDNF)	
Method of analysis					
Statistics	The relevant statistical analysis was performed using SPSS version 20.0. Descriptive analysis adopted for demographic and clinical characteristics was reported as mean ± standard deviation (SD). The Shapiro-Wilk test was used for determining the normality of the distributions (P>0.05). Before the statistical analysis, the homogeneity of variances between the 2 groups before starting the protocol was shown by Levene test (P>0.05). The analysis of covariance (ANCOVA) was used to assess the difference between the groups (P<0.05).				
Population analysed	Intent-to-treat	Modified. Final analyses did not include participants lost to follow-up/missing outcome data. 5/30 (16.67%) participants did not complete the study (2 in Pilates group, 3 in the control). Reasons not provided.			

Characteristics of included studies	Multiple sclerosis
Study ID	**Eftekhari 2018**
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	Bias due to missing outcome data and Bias arising from the randomisation process were high risk. Some concerns with deviation from the intended interventions.

Characteristics of included studies	Multiple sclerosis			
Study ID	**Fleming 2019**			
Study Reference	Fleming KM, Coote SB, Herring MP. The feasibility of Pilates to improve symptoms of anxiety, depression, and fatigue among people with multiple sclerosis: an eight-week randomized controlled pilot trial [with consumer summary]. Psychology of Sport and Exercise 2019 Nov;45:101573. 2019.			
Study design	RCT	pseudorandomised		
Author affiliation	Two author affliated with a tertiary institutions in Ireland.			
Source of funds	Authors declare no financial support was received.			
Declared interests of study authors	All authors declared they have no conflicts of interest.			
Setting / provider	MS Society of Ireland Midwest region	Participants were referred for study	to the University of Limerick.	
Country(s) / region	Ireland		Limerick, Ireland	
Enrolment period	Not specified			
Length of treatment / followup	8 weeks			
Description of population	*N=*	*Description*		
# participants	18	Women with multiple sclerosis		
details	*Inclusion criteria:* adults (> 18 years old) with physician-diagnosed Multiple Sclerosis (Patient Determined Disease Steps (PDDS) score < 3) who were free from any other significant physical or psychiatric condition, had no previous Pilates experience, and had no medical contraindications to safe participation in physical activity established by the Physical Activity Readiness Questionnaire (PAR-Q). *Exclusion criteria:* Not specified			
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*		
Intervention	5	Supervised Pilates groups involved two weekly sessions for eight weeks at the University of Limerick supervised by a certified Pilates instructor. Pilates sessions required approximately one hour and were comprised of mat-based beginner's level exercise. Four repetitions in teh first two weeks increasing to 10 repetitions by week 7 and 8.		

Characteristics of included studies	Multiple sclerosis					
Study ID	**Fleming 2019**					
Comparator #1 (control)	7	Wait-list (WL) participants were asked to maintain pre-trial activity levels and completed on-line outcome assessments during the the 8-week intervention. WL participants were offered their choice of supervised Pilates or home based Pilates, but no data were collected.				
Comparator #2 (other)	6	Home based Pilates groups involved two weekly sessions for eight weeks at home, supported by a DVD developed and previously implemented by a lead researcher. Pilates sessions required approximately one hour and were comprised of mat-based beginner's level exercise.				
Comparator #3 (other)	--	--				
Co-interventions	--	None specified				
Is practitioner/instructor certified?	Yes	Include in subgroup A		Supervised Pilates group was led by a certified Pilates instructor.		
Is there an inactive comparator?	Yes	Comparison=control		wait-list control		
Outcomes		***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Primary	Anxiety	Baseline, mid-treatment (2, 4, 6 wks), end of treatment (8 wks)	State trait anxiety inventory (20-item)	higher score means worse outcome	
2	Primary	Anxiety	Baseline, mid-treatment (2, 4, 6 wks), end of treatment (8 wks)	Hospital anxiety and depressions scale	higher score means worse outcome	Measures anxiety and depressive symptoms over the prior week.
3	Primary	Depression	Baseline, mid-treatment (2, 4, 6 wks), end of treatment (8 wks)	Hospital anxiety and depressions scale	higher score means worse outcome	Measures anxiety and depressive symptoms over the prior week.
4	Primary	Depression	Baseline, mid-treatment (2, 4, 6 wks), end of treatment (8 wks)	Quick inventory of depressive symptomatology	higher score means worse outcome	Assesses depressive symptom severity.

Characteristics of included studies	Multiple sclerosis					
Study ID	**Fleming 2019**					
5	Primary	Fatigue	Baseline, mid-treatment (2, 4, 6 wks), end of treatment (8 wks)	Modified Fatigue Impact Scale (21-item)	higher score means worse outcome (0-84)	Measures physical, cognitive, and psychosocial components of fatigue.
6	Primary	Mood	Baseline, mid-treatment (2, 4, 6 wks), end of treatment (8 wks)	Profile of mood states - brief form (30-item)	higher score means worse outcome	Assesses the intensity of feelings of tension, depressed mood, energy and fatigue.
7	Primary	Physical activity	Baseline, mid-treatment (2, 4, 6 wks), end of treatment (8 wks)	Seven-day physical activity recall scale (hr)	higher score means better outcome	Measures the approximate number of hours the participant slept and engaged in moderate, hard, and very hard activity.
8	Primary	Physical activity	Baseline, mid-treatment (2, 4, 6 wks), end of treatment (8 wks)	Godin leisure-time exercise questionnaire	higher score means better outcome	Measure of physical activity.
9	--					
10	--					
11	--					
Method of analysis						
Statistics	Analysis of feasibility indicators from study records were reported descriptively (Lancaster, Dodd, & Williamson, 2004). IBM SPSS Statistics Version 25.0 (IBM Corp., Aramonk, NY) was used to conduct exploratory analyses. One-way ANOVA examined baseline differences between groups. Paired t-tests were used to evaluate within-group differences between pre- and post-intervention. Three group (SP, HB, WL) X 4 time (weeks 2, 4, 6, 8) ANCOVA adjusted for baseline values examined between-group differences in outcomes. Significant interactions were decomposed with simple effects analysis. Within-group and between-group magnitude of change was quantified using standardized mean differences (d) and Hedges' d (Hedges & Olkin, 1985), respectively. Effect sizes were calculated such that improved outcomes resulted in a positive effect size. Consistent with Cohen's suggestion, effect sizes of 0.2, 0.5, and 0.8 were judged as small, moderate, and large, respectively (Cohen, 1988). Session RPE was averaged across the sixteen Pilates sessions and compared between groups using independent samples t-tests.					
Population analysed	Intent-to-treat	Modified. Final analyses did not include participants lost to follow-up/missing outcome data. 2/5 in supervised Pilates discontinued intervention, 1/7 in wait-list group was excluded (male)				

Characteristics of included studies	Multiple sclerosis
Study ID	**Fleming 2019**
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk of bias related to missing outcome data. Some concerns with the randomisation process and outcome measurement.

Characteristics of included studies	Multiple sclerosis		
Study ID	**Freeman 2012**		
Study Reference	1. Fox E, Freeman J, Hough A. The effects of Pilates upon deep abdominal muscle activity in people with multiple sclerosis: An exploratory ultrasound study. Multiple Sclerosis. 2014;20 (7):981. 2. Fox E, Hough A, Creanor S, Gear M, Freeman J. Effects of Pilates-based core stability training in ambulant people with, multiple sclerosis: Multicenter, assessor-blinded, randomized, controlled trial. Physical Therapy. 2016;98(8):1170-8. 3. Fox EE, Hough AD, Creanor S, Gear M, Freeman JA. The effects of Pilates-based core stability training in ambulant people with multiple sclerosis: A multicentre, block randomised, double blinded placebo controlled trial. Multiple Sclerosis. 2013;1):40. 4. Freeman J, Fox E, Gear M, Hough A. Pilates based core stability training in ambulant individuals with multiple sclerosis: Protocol for a multi-centre randomised controlled trial. [References]: BMC Neurology. Vol.12 2012, ArtID 19.; 2012.		
Study design	RCT		
Author affiliation	Five author affliated with a tertiary institutions in the UK.		
Source of funds	The authors acknowledge The MS Trust for funding the trial.		
Declared interests of study authors	Not specified		
Setting / provider	physical therapy departments	physical therapy departments are affiliated to the study's seven recruiting centres in the UK	
Country(s) / region	United Kingdom	Plymouth	
Enrolment period	September 2011 - March 2013		
Length of treatment / followup	12 weeks		
Description of population	*N=*	*Description*	
# participants	100	People with multiple sclerosis	
details	*Inclusion criteria:* aged over 18 years, had a definite diagnosis of multiple sclerosis (MS) according to McDonald's criteria,13 and had an Expanded Disability Status Scale (EDSS) score of 4.0 to 6.5, meaning that, at best, they were able to walk independently without use of an aid or rest for 500 m (EDSS score4.0) and, at worst, they required 2 walking aids (pair of crutches or canes) to walk about 20 m without resting. *Exclusion criteria:* in relapse or having relapsed in the previous 3 months; any medical condition contraindicating participation in Pilates exercises; scoring 6 on the Abbreviated Mental Test, as an indicator of those whose cognitive difficulties could interfere with the informed consent process or the ability to fully engage in the exercise program; current or recent (within previous 6 months) participation in Pilates or core stability exercises; and current involvement in another interventional research study.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	33	The pilates group had one session per week with neurological Pilates-trained center therapist plus 15 minutes of daily home exercises recorded in the diary based on exercises taught in the session. Therapists were able to select and progress exercises based on the participants' individual requirements	

Characteristics of included studies	Multiple sclerosis					
Study ID	**Freeman 2012**					
Comparator #1 (control)	--	--				
Comparator #2 (other)	35	The standard physiotherapy exercise group received 12 half-hour, individualized, one-to-one training sessions were delivered over 12 weeks plus an individualised 15-minute daily home exercise programme. The standardised exercise programme was considered selective of general exercises typical in clinical practice.				
Comparator #3 (other)	32	The relaxation group had one session per month with the center therapist, weekly telephone calls to match for attention plus a 15-minute daily home programme based on audio relaxation CD				
Co-interventions	--	None specified				
Is practitioner/instructor certified?	Yes	Include in subgroup A		The allocated intervention was delivered at each center by a neurological physical therapist. All therapists had undertaken formal postgraduate Pilates training with an accredited body		
Is there an inactive comparator?	No	Comparison=other		See comparator #2 and #3		
Outcomes		***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Primary	Functional mobility	Baseline, end of treatment (12wks) and follow up (16wks)	10-Meter Timed Walk Test (s)	higher score means worse outcome	Not specified
2	Secondary	Functional mobility	Baseline, end of treatment (12wks) and follow up (16wks)	Walking speed (m/s)	higher score means better outcome	Not specified
3	Secondary	Balance confidence	Baseline, end of treatment (12wks) and follow up (16wks)	Activities-specific balance confidence (ABC) scale	higher score means better outcome	Measure perceived balance confidence, patient-reported
4	Secondary	Functional ability	Baseline, end of treatment (12wks) and follow up (16wks)	10-point scale "difficulty in carrying a drink when walking"	higher score means worse outcome	Not specified

Characteristics of included studies	Multiple sclerosis					
Study ID	**Freeman 2012**					
5	Secondary	Physical performance	Baseline, end of treatment (12wks) and follow up (16wks)	Multiple Sclerosis walking scale (12-item)	higher score means worse outcome	Self-reported measure of the impact of MS on walking ability
6	Secondary	Functional reach	Baseline, end of treatment (12wks) and follow up (16wks)	forwards, lateral reach beyond arms length (cm)	higher score means better outcome	Measures balance impairment.
7	--					
8	--					
9	--					
10	--					
11	--					
Method of analysis						
Statistics	Repeated measures mixed models fitted for each outcome incorporation effects of time, allocated group, and their interaction. Statistical significance set at 5%. All pariwise comparisons at 12 weeks (end of treatment) and 16 weeks (end of followup) were considered and calculated using the marginal linear predicitons from the fitted models with Bonferroni-adjusted 95% confidence intervals.					
Population analysed	Intent-to-treat	Data were analyzed using an ITT model (LOCF). Sensitivity analysis also conducted. Authors present ITT results and state mITT results "yielded similar results". Participants lost to follow-up/missing outcome data included 6 participants who relapsed, and 13 lost to followup.				

Characteristics of included studies	Multiple sclerosis
Study ID	**Freeman 2012**
Missing data	Imputed missing outcome values using the last observation carried forward (LOCF) method. This approach was chosen based on existing evidence that a significant decline in overall mobility was unlikely over the time frame of this study.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Low risk of bias for all key domains
Summary (descriptive)	All domains are considered low risk

Characteristics of included studies	Multiple sclerosis		
Study ID	**Guclu-Gunduz 2014**		
Study Reference	Guclu-Gunduz A, Citaker S, Irkec C, Nazliel B, Batur-Caglayan HZ. The effects of pilates on balance, mobility and strength in patients with multiple sclerosis. Neurorehabilitation. 2014;34(2):337-42.		
Study design	NRSI	Nonrandomised controlled trial	
Author affiliation	Five authors affliated with tertiary institution in Turkey.		
Source of funds	No funding for this study.		
Declared interests of study authors	The authors declare no conflict of interest.		
Setting / provider	physiotherapy depart ment or home-based	The gym is affiliated with Faculty of Health Sciences, Gazi University in Turkey	
Country(s) / region	Turkey	Ankara	
Enrolment period	Not specified		
Length of treatment / followup	8 weeks		
Description of population	*N=*	*Description*	
# participants	26	People with multiple sclerosis	
details	*Inclusion criteria* : patients with confirmed diagnosis of clinically definite MS according to Mc Donald's criteria and able to walk independently. *Exclusion criteria* : history of cardiovascular, respiratory, orthopedic or other medical conditions that restrict participation in the Pilates, patients with acute attacks (3 months prior to the study).		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	18	Pilates sessions one hour a day, twice a week for 8-weeks. Pilates exercises were done with 10 repetitions. Attendance to the Pilates exercises was recorded. The training included teaching inward movement of the lower abdominal wall and suine exercises of segmental movements involving trunk muscle recruitment to maintain neutral position. Difficulty of exercises was gradually increased. Exercsie ball and bands were used.	

Characteristics of included studies	Multiple sclerosis					
Study ID	**Guclu-Gunduz 2014**					
Comparator #1 (control)	--	--				
Comparator #2 (other)	8	8-week home exercises program (2 days/week) which included abdominal breathing and active extremity exercises were given as home exercises. Exercises were done with 10 repetitions. Patients were asked to record the days that they could not do home exercises. Patients were called within an interval of two weeks, to see whether they exercised regularly.				
Comparator #3 (other)	--	--				
Co-interventions	--	None specified				
Is practitioner/instructor certified?	Yes	Include in subgroup A		Pilates was applied by experienced Australian Physiotherapist and Pilates Institute certified trainer		
Is there an inactive comparator?	No	Comparison=other		See comparator #2		
Outcomes		***Description***	***timing***	***measured with***	***measure details***	***other***
1	Not specified	Balance	End treatment (8 wks)	Berg balance scale	Higher score means better balance (0-56).	Measures balance stability
2	Not specified	Functional mobility	End treatment (8wks)	Timed up and go test	Longer time means less functional mobility	
3	Not specified	Balance confidence	End treatment (8wks)	Activities specific balance confidence scale	Higher score means greater confidence in balance skills	
4	Primary	Physical performance	End treatment (8wks)	Muscle strength	Higher score means greater muscle strength	

Characteristics of included studies	Multiple sclerosis	
Study ID	**Guclu-Gunduz 2014**	
5	--	
6	--	
7	--	
8	--	
9	--	
10	--	
11	--	
Method of analysis		
Statistics	All data were analyzed using the Statistical Package for the Social Sciences (SPSS1, Chicago, IL, USA, version 17). Data normality was tested using Shapiro-Wilk test. Since examples were small, comparisons were performed using Mann Whitney U test or Wilcoxon signed-rank test and were expressed as median (IQR). Statistical significance was set at $p < 0.05$.	
Population analysed	Intent-to-treat	Assumed modified. Patient disposition for the study is not clear, 18 participants were reported to have completed the study while results were presented for 24 participants. Of 24 participant, 6 did not continue the program (25%). Reasons not provided, but assumed not beyond what would be anticipated in usual practice.

Characteristics of included studies	Multiple sclerosis
Study ID	**Guclu-Gunduz 2014**
Missing data	Not clear if any imputations were made for missing data.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Moderate risk. The study appears to provide sound evidence for a non-randomised study but cannot be considered comparable to a well-performed randomised trial. The study is judged to be a low or moderate risk of bias for ALL domains
Summary (descriptive)	Four domains are considered low risk. Some concerns relating to missing data, with a lack of information on reasons for exclusion/dropouts and some concerns related to the subjective outcomes

Characteristics of included studies	Multiple sclerosis		
Study ID	**Kalron 2016**		
Study Reference	1.Kalron A, Frid L, Berkowitz S, Achiron A. Changes in gait and balance in people with multiple sclerosis attending a 12-week Pilates exercise program. Multiple Sclerosis. 2016;22 (Supplement 3):396. 2.Kalron A, Rosenblum U, Frid L, Achiron A. Pilates exercise training versus physical therapy for improving walking and balance in people with multiple sclerosis: a randomized controlled trial [with consumer summary]. Clinical Rehabilitation 2017 Mar;31(3):319-328. 2017.		
Study design	RCT		
Author affiliation	Four authors affliated with a tertiary institutions in Israel.		
Source of funds	This work was supported by a grant (EMR200136_642) from the Merk KGaA, Damstadt, Germany.		
Declared interests of study authors	The author(s) declared no potential conflicts of interest.		
Setting / provider	medical centres	They study was performed at the Multiple Sclerosis Center and Sheba Medical Center.	
Country(s) / region	Israel	TelHashomer	
Enrolment period	June 2013 -May 2015		
Length of treatment / followup	12 weeks		
Description of population	*N=*	*Description*	
# participants	50	People with multiple sclerosis	
details	*Inclusion criteria* : diagnosis of definite relapsing-remitting multiple sclerosis according to the revised McDonald criteria; age range from 25-55 years; and the Expanded Disability Status Scale score ranging from 3.0 to 6.0. Additionally, in order to neutralize the effects of immune-modulatory medication, only patients receiving disease modifying drugs based on interferon beta-1a for at least 3 months, were recruited. *Exclusion criteria* : orthopedic disorders that could negatively affect mobility; any medical condition contra-indicating participation in core stability exercises; patients experiencing major depression or cognitive decline and incapable of performing Pilates exercises; pregnancy; blurred vision; cardiovascular disorders; in relapse or relapsed during the previous three months; current or recent (within the past 6 months) participation in core stability exercises.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	25	Pilates group received a single 30-minutes session per week, for 12 consecutive weeks.	

Characteristics of included studies	Multiple sclerosis					
Study ID	**Kalron 2016**					
Comparator #1 (control)	--	--				
Comparator #2 (other)	25	Physical therapy group received a single 30-minutes session per week, for 12 consecutive weeks.				
Comparator #3 (other)	--	--				
Co-interventions	50	15-minute daily home exercise program				
Is practitioner/instructor certified?	Yes	Include in subgroup A		Lessons were delivered by physical therapists certified in the Pilates method.		
Is there an inactive comparator?	No	Comparison=other		See comparator #2		
Outcomes		***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Functional mobility	baseline, end of treatment (12wks)	Timed up and go	Lower score means better funcion	
2	Not specified	Functional mobility	baseline, end of treatment (12wks)	2 and 6 minute walk test	Higher score means better walking speed	
3	Not specified	Balance	baseline, end of treatment (12wks)	Berg balance scale (14-items)	Higher score means better balance (0-56).	
4	Not specified	Functional reach	baseline, end of treatment (12wks)	Functional reach - clinician rated	Higher score means better functional reach	

Characteristics of included studies	Multiple sclerosis					
Study ID	**Kalron 2016**					
5	Not specified	Balance	baseline, end of treatment (12wks)	Four Square Step Test	Lower score means less risk of falling	
6	Not specified	Physical activity	baseline, end of treatment (12wks)	MS walking scale (12-item)		Questioning the perceived impact of multiple sclerosis on walking ability.
7	Not specified	Fatigue	baseline, end of treatment (12wks)	Modified Fatigue impact scale	higher score means worse outcome (0-84)	Assesses the effects of fatigue in terms of physical, cognitive, and psychosocial functioning.
8	Not specified	Postural control	baseline, end of treatment (12wks)	Posturography- eyes open	Lower score indicates improved static balance and control	
9	Not specified	Postural control	baseline, end of treatment (12wks)	Posturography- eyes closed		
10	Not specified	Falls risk	baseline, end of treatment (12wks)	Falls Efficacy Scale International	Lower score means less risk of falling	
11	--					
Method of analysis						
Statistics	Data analysis was performed using IBM SPSS statistics software (Version 22.0 for Windows, SPSS Inc. NY, USA). Data was initially examined for normality violations, outliers, errors and missing values. Groups were compared at baseline using the t-test for independent samples for continuous variables and the chi-square test for categorical data. All outcome variables showed normal distribution; therefore, to test our hypothesis, we chose the repeated measure ANOVAs with a between-subject factor at 2 levels (the Pilates group vs. the standardized physical therapy group) and a within-subject factor at 2 levels (the time, preintervention, post intervention period). The interaction of group and time determined the efficacy of the Pilates training program on each of the outcome measures. A P-value in each case of <.05 was considered significant.					
Population analysed	Intent-to-treat	Modified. Final analyses did not include participants lost to follow-up/missing outcome data. 3/25 participants in Pilates group and 2/25 participant in physical therapy group were lost to follow up and not included in the final analyses.				

Characteristics of included studies	Multiple sclerosis
Study ID	**Kalron 2016**
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Low risk of bias for all key domains
Summary (descriptive)	all domains are considered low risk

Characteristics of included studies	Multiple sclerosis		
Study ID	**Kara 2017**		
Study Reference	Kara B, Kucuk F, Poyraz EC, Tomruk MS, Idiman E. Different types of exercise in Multiple Sclerosis: Aerobic exercise or Pilates, a single-blind clinical study. Journal of Back & Musculoskeletal Rehabilitation. 2017;30(3):565-73.		
Study design	NRSI	Nonrandomised controlled trial	
Author affiliation	Five authors affliated with tertiary institutions in Turkey.		
Source of funds	This study received no funding.		
Declared interests of study authors	The authors declare no conflict of interest.		
Setting / provider	Izmir Multiple Sclerosis Society	the study is affiliated with Dokuz Eylül University in Izmir, Turkey.	
Country(s) / region	Izmir, Turkey		
Enrolment period	2013 - 2014		
Length of treatment / followup	8 weeks		
Description of population	*N=*	*Description*	
# participants	55	People with multiple sclerosis	
details	*Inclusion criteria:* diagnosed with definite MS according to McDonald criteria, an-EDSS of less than or equal to 6, Being older than 18 years, Not having an acute attact. *Exclusion criteria:* Presence of health problems which prevent participation in the exercise program (Cardiovascular diseases, thyroid disorders, gout or orthopedic limitation), Lack of regular participation in the exercise program. Healthy subjects were chosen from the people who were at the same age with MS patients and who didn't have any health problems which affect the musculuskeletal system.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	27	Pilates group participated in mat-based Pilates exercises for 45-60 minute sessions, two-days per week for 8 weeks	

Characteristics of included studies	Multiple sclerosis					
Study ID	**Kara 2017**					
Comparator #1 (control)	21	Included healthy participants (# treatment sessions, session duration, program duration was not specified.)				
Comparator #2 (other)	28	Aerobics group participated in aerobics exercises for 40-60 minute sessions, two-days per week for 8 weeks				
Comparator #3 (other)	--	--				
Co-interventions	--	None specified.				
Is practitioner/instructor certified?	No	Include in subgroup B				
Is there an inactive comparator?	No	Comparison=other		See comparator #2		
Outcomes		***Description***	***timing***	***measured with***	***measure details***	***other***
1	Not specified	Balance	baseline, end of treatment (8wks)	Berg balance scale (14-items)	Higher score means better balance (0-56).	
2	Not specified	Depression	baseline, end of treatment (8wks)	Beck Depression Inventory (21-item)	Lower score means less depressed	
3	Not specified	Fatigue	baseline, end of treatment (8wks)	Fatigue impact scale (40-item)	higher score means worse outcomes	
4	Not specified	Cognitive function	baseline, end of treatment (8wks)	MS Functional Composite	higher score means worse outcome	

Characteristics of included studies	Multiple sclerosis				
Study ID	**Kara 2017**				
5	Not specified	Functional mobility	baseline, end of treatment (8wks)	Timed up and go (s)	higher score means worse outcome
6					
7					
8					
9					
10					
11					
Method of analysis					
Statistics	Statistical analysis was performed using the SPSS software package (version 15.0; SPSS, Inc., Chicago, IL, USA) for Windows. Data were presented as the mean ± standard deviation. The normality of the data distribution was assessed by the Shapiro-Wilk test. Qualitative variables were compared with the chisquare test. Wilcoxon signed rank test was used in the assesment of before-after interventions of aerobic exercise and Pilates exercises. Kruskal-Wallis test was used to compare the groups. In determining the source of difference between groups, the Mann Whitney U test with Bonferroni correction was used. Mann-whitney U test with Bonferonni correction was used to determine the difference between groups. The obtained data were examined with the Spearman test for testing the relationship between variables. $p < 0.05$ was accepted as significant.				
Population analysed	Intent-to-treat	Modified. Final analyses did not include participants lost to follow-up/missing outcome data. 18/27 participants in Pilates group and 2/28 participants in aerobics group were lost to folllow up and not included in final analyses			

Characteristics of included studies	Multiple sclerosis
Study ID	**Kara 2017**
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Critical risk. The study is too problematic with regards to this domain to provide any useful evidence about the intervention. The study is judged to be at critical risk of bias in at least ONE domain
Summary (descriptive)	Critical bias due to deviations from intended interventions, with a high dropout rate in the intervention group.

Characteristics of included studies	Multiple sclerosis		
Study ID	**Küçük 2015**		
Study Reference	1.Kucuk F, Kara B, Coskuner Poyraz E, Idiman E, Senol H. Comparison of the effects of clinical pilates and exercise treatment in multiple sclerosis patients: A single blind randomised study. Fizyoterapi Rehabilitasyon. 2015;26 (2):S62. 2.Küçük F, Kara B, Poyraz E, İdiman E. Improvements in cognition, quality of life, and physical performance with clinical Pilates in multiple sclerosis: a randomized controlled trial. J Phys Ther Sci. 2016;28(3):761-8.		
Study design	RCT	pseudorandomised	alternate allocation
Author affiliation	Four authors affliated with a tertiary institutions in Turkey.		
Source of funds	Not speicfied		
Declared interests of study authors	Not speicifed		
Setting / provider	Local community	They study was performed at the Multiple Sclerosis Center and Sheba Medical Center.	
Country(s) / region	Izmir, Turkey		
Enrolment period	Not specified		
Length of treatment / followup	8 weeks		
Description of population	*N=*	*Description*	
# participants	20	People with multiple sclerosis	
details	*Inclusion criteria:* over 18 years of age, diagnosed with MS, an Expanded Disability Status Scale (EDSS) score of six or lower, and able to act, or move independently, able to walk alone or with support. *Exclusion criteria:* an MS-related acute attack, cardiovascular diseases, thyroid disorders, gout or orthopedic limitation or irregular attendance.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	11	Pilates group received 45 minute sessions of clinical Pilates with physiotherapist twice per week for 8 weeks, plus 10 minute warm-up and 10 minute cooldown. Key elements of breathing, focus, placement of the rib cage, shoulder, head and neck taught prior to the conduct of the trai. Exercises were repeated 8-10 times and started as closed chain, progressing to open chain exercises.	

Characteristics of included studies	Multiple sclerosis					
Study ID	**Küçük 2015**					
Comparator #1 (control)	--	--				
Comparator #2 (other)	9	Traditional exercise programme: 45 minute sessions, twice per week for 8 weeks that included strength, balance and coordination exercises. (No further details provided)				
Comparator #3 (other)	--	--				
Co-interventions	--	None specified.				
Is practitioner/instructor certified?	Not specified	Include in subgroup C		Physical therapist delivered the interventions. Not clear if certified in Pilates.		
Is there an inactive comparator?	No	Comparison=other		See comparator #2		
Outcomes		***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Cognitive function	baseline, end of treatment (8wks)	MS Functional Composite	higher score means worse outcome	Evaluates upper- and lower-motor function, and cognitive function.
2	Not specified	Balance	baseline, end of treatment (8wks)	Berg balance scale (14-items)	Higher score means better balance (0-56).	
3	Not specified	Physical performance	baseline, end of treatment (8wks)	Time to roll	higher score means worse outcome	
4	Not specified	Functional mobility	baseline, end of treatment (8wks)	Timed up and go (s)	higher score means worse mobility	

Characteristics of included studies	Multiple sclerosis					
Study ID	**Küçük 2015**					
5	Not specified	Fatigue	baseline, end of treatment (8wks)	Modified fatigue impact scale (21-item)	higher score means worse outcome (0-84)	
6	Not specified	Depression	baseline, end of treatment (8wks)	Beck Depression Inventory	Lower score means less depressed	
7	Not specified	QoL - disease specific	baseline, end of treatment (8wks)	MusiQoL (31-items)	Higher score means better QoL (0-100)	9 subscales measuring activites of daily living, psychological wellbeing, symtpoms, social-friends, social-family, snetiment and sexual life, coping, rejection, relationship with health system
8	Not specified	Balance	baseline, end of treatment (8wks)	Trunk Impairment Scale	higher score means better outcome	Used to asses static and dynamic sitting balance and trunk coordination and control in a sitting position.
9	--					
10	--					
11	--					
Method of analysis						
Statistics	The SPSS 16.0 software was used to analyze data. Descriptive statistics were calculated for demographic characteristics, and the Wilcoxon test was used to evaluate scores obtained before and after the intervention, while the Mann-Whitney U test was used for testing the differences between groups.					
Population analysed	Intent-to-treat	Modified. Final analyses did not include participants lost to follow-up/missing outcome data. 4/11 participants in Pilates group and 4/9 in control group dropped out of the study and were not included the final analyses				

Characteristics of included studies	Multiple sclerosis
Study ID	**Küçük 2015**
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Two domains are considered low risk. Some concerns related to randomisation, missing outcome data and outcome measures, related to knowledge of the intervention received.

Characteristics of included studies	Multiple sclerosis		
Study ID	**Marandi 2013**		
Study Reference	1.Marandi S, Nejad V, Shanazari Z, Zolaktaf V. A comparison of 12 weeks of Pilates and aquatic training on the dynamic balance of women with Multiple Sclerosis. Int J Prev Med. 2013;4(Supp 1):S110-7. 2.Marandi SM, Shahnazari Z, Minacian V, Zahed A. A comparison between Pilates exercise and aquatic training effects on mascular strength in women with Mulitple sclorosis 15466. 2013;29.		
Study design	RCT	pseudorandomised	no information provided
Author affiliation	Four authors affliated with a tertiary institutions in Iran.		
Source of funds	Not specified.		
Declared interests of study authors	Not specified.		
Setting / provider	multiple sclerosis clinic	The multiple sclerosis clinic is affiliated with Kashai University Hospital.	
Country(s) / region	Isfahan, Iran		
Enrolment period	Not specified.		
Length of treatment / followup	12 weeks		
Description of population	*N=*	*Description*	
# participants	57	Women with multiple sclerosis	
details	*Inclusion criteria* : Women with multiple sclerosis and EDSS < 4.5 *Exclusion criteria* : not specified		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	19	Pilates exercise group included a series of exercise activities for a period of 12 weeks and three sessions every week. Each session took one hour. 10 minutes simple stretching followed by main exercise focused on stretching, power, coordination and balance moves, then 10 minutes cooldown.	

Characteristics of included studies	Multiple sclerosis					
Study ID	**Marandi 2013**					
Comparator #1 (control)	19	The control group did not receive an intervention.				
Comparator #2 (other)	19	Aquatic training group included a series of water activities for a period of 12 weeks, with 3 one-hour sessions a week. 10 minute walking in the water followed by stretching, power and endurance activites, then 10-minutes cooldown.				
Comparator #3 (other)	--	--				
Co-interventions	57	Usual medical care				
Is practitioner/instructor certified?	Not specified	Include in subgroup C		Not specified		
Is there an inactive comparator?	Yes	Comparison=control		See comparator #1		
Outcomes		***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Muscle strength	Baseline, End of treatment (12wks)	Grip strength	Higher score means stronger grip strength	
2	Not specified	Balance	Baseline, End of treatment (12wks)	right leg dynamic balance using Six Spot Step Test	higher score means worse outcome	
3	Not specified	Balance	Baseline, End of treatment (12wks)	left leg dynamic balance using Six Spot Step Test	higher score means worse outcome	
4	--					

Characteristics of included studies	Multiple sclerosis	
Study ID	**Marandi 2013**	
5	--	
6	--	
7	--	
8	--	
9	--	
10	--	
11	--	
Method of analysis		
Statistics	Not specified	
Population analysed	Per protocol	Final analyses excluded participants who were absent from more than 6 sessions. 4/19 (21%) participants in each group were not included in the final analysis.

Characteristics of included studies	Multiple sclerosis
Study ID	**Marandi 2013**
Missing data	Authors present PP analyssis. No mention of ITT or mITT results. Data not available to calculate.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	

Characteristics of included studies	Multiple sclerosis		
Study ID	**Rezvani 2017**		
Study Reference	Rezvani MH. Comparing Pilates and physioball exercise regimens on balance and motor control in women with multiple sclerosis. International Journal of Health Studies. 2017;3(2):5-9.		
Study design	RCT	pseudorandomised	no information provided
Author affiliation	One author is affiliated with tertiary institutions in Iran		
Source of funds	Not specified.		
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	Not specified.		
Country(s) / region	Iran		Shahroud, Iran.
Enrolment period	Not specified.		
Length of treatment / followup	8 weeks		
Description of population	*N=*	*Description*	
# participants	30	Women with multiple sclerosis	
details	*Inclusion criteria* : diagnosed as having multiple sclerosis by a neurologist; score of less than or equal to 4 on the physical disability scale. *Exclusion criteria* : exercise limitations; cardiovascular or metabolic disease; family history of epilepsy; psychiatric disorders; multiple sclerosis relapse in previous 2 months. The mean age for the Pilates intervention group was 34.3 ± 6.93, 33.8 ± 7.14 for the rebound intervention group and 34.4 ± 7.9 for the inactive control comparison group.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	10	Pilates classes lasted 15-35 mins, performed 3 times a week for 8 weeks. Sessions included 10 strength training exercises (3 sets of 15 reps) and 10 stretching exercises (2 sets of 10 reps of 20 seconds). These exercises were performed on a mat. Training sessions lasted 15 minutes, increasing to 35 minutes by the end of the eight weeks. During the first session of PE, the principles of the exercises were explained and all subjects were given an overview of PE. Each exercise session consisted of three parts: the warm up, the main training, and the cool down. The ten-minute warm up includes training on the bicycle ergometer and exercise movements. The ten-minute cool down portion (for 10 minutes) included exercise movements and jogging.	

Characteristics of included studies	Multiple sclerosis					
Study ID	**Rezvani 2017**					
Comparator #1 (control)	10	The control group did not receive an intervention.				
Comparator #2 (other)	10	Physioball exercise classes which lasted 15-35 mins, performed 3 times a week for 8 weeks total. The training program included 13 exercises that were specific spinal stabilization exercises, proprioceptive re-education of the lumbar and pelvic regions and the lower limbs. Overload and gradual increase of each exercise's timing was identified and controlled according to the proper implementation and training load in previous sessions. The aim was to reach the repetitions of each exercise per set from the first week until the eighth week from 3 sets of 7 seconds to 3 sets of 20 seconds. During this period, the control group was asked to avoid strength and balance training.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Not specified	Include in subgroup C		Not specified		
Is there an inactive comparator?	No	Comparison=other				
Outcomes		***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Primary	Disability	baseline, end of treatment (8 weeks)	Expanded disability status scale (EDSS)	A higher score indicates worse disability (0-10)	Self-report questionnaire assessing states and functions of the central nervous system.
2	Primary	Balance	baseline, end of treatment (8 weeks)	Sharpened Romberg's sided test, eyes open/closed (s)	A higher score means better static balance. It denotes sensory ataxia as the cause of postural imbalance	The time spent balancing on one leg with eyes open and closed. Mean score of three recorded.
3	Primary	Functional mobility	baseline, end of treatment (8 weeks)	Timed Up and Go (s)	higher score means worse mobility	The time taken to rise from chair, walk 3m and sit back in chair. Mean score of three recorded.
4	--					

Characteristics of included studies	Multiple sclerosis	
Study ID	**Rezvani 2017**	
5	--	
6	--	
7	--	
8	--	
9	--	
10	--	
11	--	
Method of analysis		
Statistics	As describe by study: "Analysis of variance (ANOVA) with repeated measures was used to investigate the effects of balance training on the outcome variables within each group and the differences between groups. Statistical analysis was performed using SPSS version 19. P-values of less than 0.05 were regarded as statistically significant."	
Population analysed	Other (provide details)	No information provided. (N for each group = 10 at enrolment, but results do not provide the N analysed).

Characteristics of included studies	Multiple sclerosis
Study ID	**Rezvani 2017**
Missing data	No information provided.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk due to deviations from intended interventions and randomisation process. The study failed to report critical baseline characteristics including baseline disease/symptom severity and measurements on study outcomes. Some concerns with missing outcome data, measurement of the outcomes, and selective reporting of results.

Characteristics of included studies	Multiple sclerosis		
Study ID	**Sisi 2013**		
Study Reference	1.Sisi SZH, Sadeghi H, Nabavi SM. The effects of 8 weeks of rebound therapy and Pilates practices on static and dynamic balances in males with multiple sclerosis. Advances in Environmental Biology. 2013:4290-93.		
Study design	RCT	pseudorandomised	no information provided
Author affiliation	Three authors are affiliated with tertiary institutions in Iran		
Source of funds	Not specified.		
Declared interests of study authors	Not specified.		
Setting / provider	Not specified.		
Country(s) / region	Iran		Tehran, Iran.
Enrolment period	Not specified.		
Length of treatment / followup	8 weeks		
Description of population	*N=*	*Description*	
# participants	45	Male patients with multiple sclerosis	
details	*Inclusion criteria:* Male patients with multiple sclerosis (EDSS 0-4) *Exclusion criteria:* not specified. The mean age for the Pilates intervention group was 30.32 ± 8.32, 32.21 ± 7.6 for the rebound intervention group and 31.43 ± 7.09 for the inactive control comparison group.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	15	Participants underwent 60 mins of Pilates, number of sessions per week not specified, for 8 weeks. The Pilates sessions were described by the authors as follows: "The Pilates exercises chosen for the training sessions were those promoting neuromuscular coordination without jumps.. All exercises were repeated three times in each set in the first few training sessions and were gradually increased to twelve repetitions in each set by the final sessions, based on principles of physical training."	

Characteristics of included studies	Multiple sclerosis					
Study ID	**Sisi 2013**					
Comparator #1 (control)	15	No intervention				
Comparator #2 (other)	15	Participants underwent 24 sessions of rebound therapy with each session lasting for 30 mins. "The rebound therapy exercises included jumping on a mini-trampoline. All exercises were repeated three times in each set in the first few training sessions and were gradually increased to twelve repetitions in each set by the final sessions, based on principles of physical training."				
Comparator #3 (other)	--	--				
Co-interventions	45	Diet consultation (treatment is 1 hr /day for 5 days a week for 12 weeks) not specified.				
Is practitioner/instructor certified?	Not specified	Include in subgroup C				
Is there an inactive comparator?	Yes	Comparison=control		See comparator #1		
Outcomes		***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Functional mobility	baseline, end of treatment (8 weeks)	Timed Up and Go (s)	higher score means worse mobility	
2	Not specified	Balance	baseline, end of treatment (8 wks)	Berg balance scale (14-items)	Higher score means better balance (0-56).	Test has 14 items with each stage scored out of 4.
3	--					
4	--					

Characteristics of included studies	Multiple sclerosis
Study ID	**Sisi 2013**
5	--
6	--
7	--
8	--
9	--
10	--
11	--
Method of analysis	
Statistics	Using K-S test, data was normalized and then correlated t-test was used for intra-group analysis and unilateral variance analysis was applied for extra-group comparison at significance level of 0.05.
Population analysed	Other (provide details) Assumed modified. All recruited participants appear to be included in analyses, but N analysed are not reported.

Characteristics of included studies	Multiple sclerosis
Study ID	**Sisi 2013**
Missing data	No information provided.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk due to deviations from intended interventions and randomisation process. Some concerns of bias was detected for possible bias in missing outcome data, the measurement of study outcomes, and sleection of the reported results.

Characteristics of included studies	Myelopathy (HTLV-1 associated)	
Study ID	**Borges 2014**	
Study Reference	Borges J, Baptista AF, Santana N, Souza I, Kruschewsky RA, Galvao-Castro B, et al. Pilates exercises improve low back pain and quality of life in patients with HTLV-1 virus: a randomized crossover clinical trial. Journal of Bodywork & Movement Therapies. 2014;18(1):68-74.	
Study design	RCT	crossover trial
Author affiliation	Seven authors are affliated with tertiary institutions in Brazil	
Source of funds	Not specified	
Declared interests of study authors	Not specified	
Setting / provider	Integrative and Multidisciplinary Center for HTLV (CHTLV)	The centre is affiliated with Bahian School of Medicine and Public Health in Salvador, Bahia, Brazil.
Country(s) / region	Salvador, Bahia, Brazil	
Enrolment period	Not specified	
Length of treatment / followup	15 weeks	
Description of population	*N=*	*Description*
# participants	22	Patients infected by the HTLV-1
details	*Inclusion criteria* : 1) Individuals infected by the HTLV-1, who had reported low back pain for at least six months (felt everyday or almost everyday); 2) Age 18 or older and younger than 65; 3) Able to understand the exam questions and proposed exercises; 4) Able to empty the bladder before each therapeutic session voluntarily or by catheterization. *Exclusion criteria* : 1) Physical deformity; 2) Associated neurological deficits, unrelated to the viral disease; 3) Patients doing another physical activity; 4) Pregnant women.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	11	Pilates = one-hour session of Reformer Pilates twice a week for a total of 30 classes The Pilates group performed these exercises for 15 weeks, when they began to follow the control group program until week 30.

Characteristics of included studies	Myelopathy (HTLV-1 associated)					
Study ID	**Borges 2014**					
Comparator #1 (control)	11	The Control group continued their daily activities without any changes for 15 weeks, when they began to follow the Pilates program until week 30.				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Not specified	Include in subgroup C		taught by previously trained staff, but not clear if certififed.		
Is there an inactive comparator?	Yes	Comparison=control		Usual activities were not described but patients doing other physcial activities were excluded.		
Outcomes	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Primary	Pain	baseline, end of treatment (15 wks) end of crossover (30 wk)	0-10 visual analague scale	Higher score means more pain	
2	Secondary	Physical function	baseline, end of treatment (15 wks) end of crossover (30 wk)	SF-36 Physical functioning	Higher score means better physical functioning	Limitations in physical activities due to physical health
3	Secondary	Role - Physical	baseline, end of treatment (15 wks) end of crossover (30 wk)	SF-36 role physical	Higher score means better ADL	Limitations in daily activities (e.g. walking, dressing) due to physical health
4	Secondary	Role-emotional	baseline, end of treatment (15 wks) end of crossover (30 wk)	SF-36 emotional role functioning	Higher score means better outcome	Limitations in daily activities (e.g. walking, dressing) due to emotional problems

Characteristics of included studies	Myelopathy (HTLV-1 associated)				
Study ID	**Borges 2014**				
5	Secondary	Pain	baseline, end of treatment (15 wks) end of crossover (30 wk)	SF-36 bodily pain	Higher score means better outcome
6	Secondary	General health	baseline, end of treatment (15 wks) end of crossover (30 wk)	SF-36 general health perceptions	Higher score means better outcome
7	Secondary	Vitality	baseline, end of treatment (15 wks) end of crossover (30 wk)	SF-36 vitality	Higher score means better outcome
8	Secondary	Role-social	baseline, end of treatment (15 wks) end of crossover (30 wk)	SF-36 social role functioning	Higher score means better outcome
9	Secondary	Mental health	baseline, end of treatment (15 wks) end of crossover (30 wk)	SF-36 mental health	Higher score means better outcome
10	--				
11	--				
Method of analysis					
Statistics	Analyses were made of the following treatment-sequence groups: Pilates-control and Control-pilates. To evaluate whether or not the subjects were adequately randomized into groups, the independent samples t-test was used. To evaluate the impact of the training program on the analyzed variables over the evaluation period, the linear mixed models for longitudinal data was used (Senn, 2002). Additionally, the correlated random effects model was used for the individuals evaluated, and the period used was a repeated effect in a model with correlated residuals within the random effects. To analyze the effect of treatment, $p < 0.05$ was used as the criterion for statistical significance. As for the carryover effect, $p < 0.10$ was used as the criterion for statistical significance.				
Population analysed	Intent-to-treat	Modified. Analyses included all randomised participants. 1/11 participants in the control group failed to provide followup data.			

Characteristics of included studies	Myelopathy (HTLV-1 associated)
Study ID	**Borges 2014**
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	All domains are considered low risk except the absence of baseline characteristics to judge randomisation, which raises some concerns.

Characteristics of included studies	Parkinson's Disease	
Study ID	**Daneshmandi 2017**	
Study Reference	Daneshmandi H, Sayyar S, Bakhshayesh. The effect of a selective Pilates program on functional balance and falling risk in patients with Parkinson's disease. Zahedan Journal of Research in Medical Sciences. 2017;19(4):e7886. Sayyar S. Comparison of the effect of Pilates exercises and unstable support surface balance exercises on parameters of gait cycle and falling risk in patients with Parkinson's disease. Iranian Registry of Clinical Trials. 2016; IRCT2016071228885N1.	
Study design	RCT	pseudorandomised
Author affiliation	Three authors are affliated with tertiary institutions in Iran	
Source of funds	Vice chancellor for research, Faculty of Physical Education and Sport Science, University of Guilan.	
Declared interests of study authors	Not specified.	
Setting / provider	Faculty of Physical Education and Sport Science, University of Guilan.	
Country(s) / region	Rasht, Iran.	
Enrolment period	August 2016 - October 2016	
Length of treatment / followup	8 weeks (2 months)	
Description of population	*N=*	*Description*
# participants	32	Patients with Parkinson's disease
details	*Inclusion criteria* : over the age of 50 years old, diagnosed with idopathic Parkinson's disease (moderate levels II and III) for at least 3 years, ability to walk and stand independently and the ability to participate in training sessions. *Exclusion criteria* : Other neurological disease, cognitive disorders, use of walking assistant devices, balancing/walking disorders due to Parkinson's disease, inability to participate in regular physical training sessions, undertaking any physiopherapy which would conflict with study, pain in limbs and limb deformation. The mean age for the Pilates intervention group was 57 ± 6.24 and 58.31 ± 7.37 for the comparison group.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	15	Each session lasted 1h, 3 sessions per week for 8 weeks and consisted of the following: 10 minutes of warm-up exercises, continued with 45 minutes of taking 10 selected Pilates exercise (standing side reach, bow and arrow, one leg stretch, oblique curl up, knee fold scissors, knee opening, shoulder bridge, diamond press, prone leg pull, torpedo) with the purpose of increasing the strength of body core muscles and lower limb joints' range of motion and finished with 5 minutes of cool down exercises. The use of equipment during Pilates sessions included a Pilates mini ball and Thera-band: "Exercises began with 6 - 8 replications and without any exercise resistance given the abilities of subjects, and in the process of implementing the protocol, the exercise volume (replication and duration) was regularly increased during 8 weeks considering characteristics of each subject and Pilates mini ball and Thera-Band were used for increasing the strength"

Characteristics of included studies	Parkinson's Disease					
Study ID	**Daneshmandi 2017**					
Comparator #1 (control)	--	--				
Comparator #2 (other)	15	Subjects in the control group were similar to those of experimental one as much as possible and in addition to taking daily physical activities, they started walking in the duration similar to exercise group.				
Comparator #3 (other)	--	--				
Co-interventions	--	All subjects were under supervision of their neurologist, and took prescribed medications including Levodopa, Madopar, Trifen, and Bromocriptine				
Is practitioner/instructor certified?	Not specified	Include in subgroup C		The Pilates instructor is only referred to as "the Pilates instructor".		
Is there an inactive comparator?	No	Comparison=other		See Comparator #2. Walking is considered an additional prescribed activity		
Outcomes		***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Primary	Balance	baseline, end of treatment (8 wks)	Fullerton Advanced Balance Scale (10-items)	A higher score indicates better performance (0-40)	10 item balance test (assessed by trialist)
2	Primary	Functional mobility	baseline, end of treatment (8 wks)	Timed Up and Go test (s)	A lower score indicates better performance.	Mobility task measured by trialist
3	--					
4	--					

Characteristics of included studies	Parkinson's Disease	
Study ID	**Daneshmandi 2017**	
5	--	
6	--	
7	--	
8	--	
9	--	
10	--	
11	--	
Method of analysis		
Statistics	The statstical analyses were as described by the authors: "After data collection, in order to study normal data distribution, Kolmogorov-Smirnov testwasused. Data on subjects' characteristics, including age, height, weight and other research variables were analyzed in two sections of descriptive and inferential statistics by SPSS software, version 22. For comparing the results obtained before and after the exercise intervention and also for comparing the results obtained in two groups, paired-samples T-test and independent-samples T-test were used respectively at the significance level of P < 0.001."	
Population analysed	Intent-to-treat	Modified. participants with missing data were not included in the analysis. One participant from the Pilates group and one participant from the control group dropped out of the study due to fatigue, pain developed during engagement in their respective treatment regiments.

Characteristics of included studies	Parkinson's Disease
Study ID	**Daneshmandi 2017**
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Some risk of bias was detected for the randomisation process of participants, outcome measurement and selective reporting. The authors do not provide adequate information on randomisation and allocation concealment methodology.

Characteristics of included studies	Parkinson's Disease		
Study ID	**Mollinedo-Cardalda 2018**		
Study Reference	Mollinedo-Cardalda I, Cancela-Carral JM, Vila-Suarez MH. Effect of a Mat Pilates Program with TheraBand on Dynamic Balance in Patients with Parkinson's Disease: Feasibility Study and Randomized Controlled Trial. Rejuvenation Research. 2018;21(5):423-30.		
Study design	RCT		
Author affiliation	Three author affliated with a tertiary institution in Turkey.		
Source of funds	The authors have received no funding to carry out the study.		
Declared interests of study authors	The authors declare no conflicts of interest.		
Setting / provider	Provincial Parkinson's association	Not specified	
Country(s) / region	Spain		
Enrolment period	16 weeks		
Length of treatment / followup	December 2015-January 2016 (recruitment)		
Description of population	*N=*	*Description*	
# participants	26	Elderly Parkinsons disease patients	
details	*Inclusion criteria:* (1) Hoehn & Yahr stage 1-3; (2) no clinical history of dementia, neurological deficits (for example, the after-effects of a stroke or spinal injuries) or any other preexisting condition that could limit limb movement (as patients with a history of major surgical operations or wheelchair users), and; (3) no medical or surgical interventions that could interfere with the motor function. *Exclusion criteria* : not specified The mean age for the Pilates group was 62.85 ± 9.75 and 66.00 ± 13.14 years old in the control, majority female (Pilates = 61.50% & control (69.20%)		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	13	Mat Pilates group exercises using medium-resistant Theraband and 0.5kg angle or wristbands lasted 12 weeks and involved two weekly sessions of 60 minutes. Workout intensity kept constant at a rating of 7 on the Borg scale, adding extgra resistance as needed. The workout was predominantly floor based in a sitting position.	

Characteristics of included studies	Parkinson's Disease					
Study ID	**Mollinedo-Cardalda 2018**					
Comparator #1 (control)	--	--				
Comparator #2 (other)	13	A physical activity program based on calisthenics: The program lasted 12 weeks and involved two weekly sessions of 60 minutes. The intervention combined aerobic exercises, such as different varieties of marching, with strength, flexibility, articular mobility and coordination tasks. The workout was predominantly conducting in a standing position.				
Comparator #3 (other)	--	--				
Co-interventions	--	All participants continued taking their PD medications.				
Is practitioner/instructor certified?	Not specified	Include in subgroup C				
Is there an inactive comparator?	No	Comparison=other		See Comparator #2		
Outcomes	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Body composition	baseline, end of treatment (12 wk), follow up (17 wk)	BMI (kg/m2)		
2	Not specified	Functional mobility	baseline, end of treatment (12 wk), follow up (17 wk)	Timed Up and Go test (s)	Higher score means better balance	
3	Not specified	Motor scale	baseline, end of treatment (12 wk), follow up (17 wk)	Unified Parkinson's Disease Rating Scale Part III	higher score means worse disability	measure of bradykinesia, tremor or rigidity
4	Not specified	Strength	baseline, end of treatment (12 wk), follow up (17 wk)	30 second chair stand	Lower score means better lower body strength and speed.	

Characteristics of included studies	Parkinson's Disease				
Study ID	**Mollinedo-Cardalda 2018**				
5	Not specified	Strength	baseline, end of treatment (12 wk), follow up (17 wk)	five sit up test	Lower score means better lower body strength and speed.
6	--				
7	--				
8	--				
9	--				
10	--				
11	--				
Method of analysis					
Statistics	A descriptive analysis of the initial sample was carried out using central tendency and dispersion (mean and standard deviation) measures for each of the groups (MG and CG). Sample homogeneity was checked using Student's t test for unpaired samples, since the quantitative parameters met the normality criteria (Shapiro-Wilk test; $p > 0.05$). To analyze the effect of the MP program with respect to the physical activity of CG, a two-way analysis of variance was performed (Group: MG and CG; Moment: Pre and Post; 2 x 2). Another two-way analysis of variance was applied to check the possible residual effects of the Pilates intervention on the PD collective (Group: MG and CG; Moment: Post and Follow up; 2 x 2). IBM® SPSS® Statistics 20 statistical software was used for this analysis. Significance level was set at $p < 0.05$.				
Population analysed	Intent-to-treat	Modified. Participants with missing data were not included in the analysis. 1 participant from Pilates group and 3 from control group did not complete the experiment.			

Characteristics of included studies	Parkinson's Disease
Study ID	**Mollinedo-Cardalda 2018**
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk due to deviation from the intended interventions, which were not balanced between treatment groups. The effect may be against Pilates, if those in the calisthenics group dropped out due to perceived no benefit. Some concerns relating to missing data and outcome measurement

Characteristics of included studies	Parkinson's Disease		
Study ID	**Pandya 2017**		
Study Reference	Pandy S, Nagendran T, Shah A, Chandrabharu V. Effect of Pilates training program on balance in participants with idiopathic Parkinson's disease - an interventional study. International Journal of Health Sciences and Research. 2017;7(5):186-96.		
Study design	RCT	pseudorandomised	alternate allocation
Author affiliation	Three authors are affliated with tertiary institutions in India, one author affiliated with a tertiary institution in Kuwait.		
Source of funds	Not specified.		
Declared interests of study authors	Not specified.		
Setting / provider	Neuro-physiotherapy outpatient clinic.		
Country(s) / region	India.		Gujarat, India.
Enrolment period	January 2014-October 2014		
Length of treatment / followup	7 weeks (1.75 months)		
Description of population	*N=*	*Description*	
# participants	30	Patients with Parkinson's disease	
details	*Inclusion criteria* : below the age of 65 years old; diagnosed with idopathic Parkinson's disease by a neurologist; on stabilised pharmaceutical treatment if idiopathic Parkinson's disease diagnosis was established less than a year ago; prior history of one or more falls and/or near-falls in the preceding two years. *Exclusion criteria* : received any other physical therapy or performed any other regular exercise activities; serious cognitive disorders (score ≥24 on the Mini Mental State Exam); Parkinson's disease too advanced (Modified Hoehn & Yahrscore of > 4); experienced severe dyskinesia and/or motor fluctuations; previously been diagnosed with stroke or dementia; presence of other medical conditions or physical disabilities interfering with their mobility; did not agree to participate in the study. The mean age for the Pilates intervention group was 58 and 58.46 for the conventional balance training intervention comparison group.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	15	Pilates: Each session lasted 60 minutes, 3 sessions per week for 7 weeks. Total of 21 sessions. Session consisted of the following: a) Hundred; b) Shoulder bridge; c) Single leg circle; d) Alternate toe tap; e) Spine twist; f) Swan dive; g) Side kick series (front & back); h) Cat Stretch; a) Ball leg lift; b) Ball wall squat; c) Shoulder Bridge with swiss-ball; d) Leg pull front (beginner); a) Theraband seated Hip Abduction- Adduction; b) Theraband seated Rowing. Equipment used in Pilates sessions included a ball, Swiss ball and Thera-band.	

Characteristics of included studies	Parkinson's Disease					
Study ID	**Pandya 2017**					
Comparator #1 (control)	15	No intervention				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	Conventional balance training: Each session lasted 60 minutes, 3 sessions per week for 7 weeks. Total of 21 sessions. Sessions are described as follows: a. Relaxation Exercises; b. Flexibility Training; c. Strength Training; d. Functional Training; e. Motor Co-ordination Exercises; f. Balance Exercises; g. Locomotor Training.As described by the authors: "The remaining days the participant's or the care taker was taught exercises to be carried out at home to maintain continuity in the treatment session."				
Is practitioner/instructor certified?	Not specified	Include in subgroup C				
Is there an inactive comparator?	Yes	Comparison=control		Pilates was delivered as an adjunct to conventional balance training		
Outcomes		***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Primary	Balance	baseline, end of treatment (7 wks)	Berg balance scale (14-items)	Higher score means better balance (0-56).	Measure assessed by trialist. 14 item balance test, with a 0-4 score determind per item.
2	Primary	Functional mobility	baseline, end of treatment (7 wks)	Timed Up and Go test (s)	A lower score/time (in secs) indicates better performance.	Mobility task measured by trialist
3	Secondary	Balance Confidence	baseline, end of treatment (7 wks)	Activity Specific Balance Confidence Scale	A higher percentage indicates more confidence performing daily tasks without falling.	Self-report 16-item questionnaire. Each item is scored out of 100 and exprssed in the study as a percentage.
4	--					

Characteristics of included studies	Parkinson's Disease	
Study ID	**Pandya 2017**	
5	--	
6	--	
7	--	
8	--	
9	--	
10	--	
11	--	
Method of analysis		
Statistics	The statstical analyses were described by the authors as follows: "For the statistical analysis, data were obtained before the treatment and after the 7 weeks of treatment from both the group. The analysis was done for age, gender, BBS, ABC and TUG test for pre and post values. The mean and Standard Deviation were analysed for pre and post values. The statistical analysis was carried out using both parametric tests and non- parametric tests. For the BBS and TUG test being Interval scale the parametric tests were performed and the ABC scale being Ordinal scale non-parametric test was performed. The parametric tests being highly sensitive were selected for the analysis. For the parametric tests, paired t test was carried out for intra-group comparison while independent t test was done for inter-group comparison. The non-parametric test used was Wilcoxon Signed Rank Test for intra-group comparison and Mann-Whitney U test for inter-group comparison."	
Population analysed	Intent-to-treat	Modified. Whilst not explicitly stated, it appears that only participants that completed the study were analysed

Characteristics of included studies	Parkinson's Disease
Study ID	**Pandya 2017**
Missing data	No information provided.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Some concerns in most domains, often relating to missing infromation and poor reporting; including that related to the randomisation process, whether all participants allocated to the intervention were included in the analysis, and the potential for bias related to the outcome assessor not blinded to treatment allocation.

Characteristics of included studies	Stroke recovery		
Study ID	**Lim 2016**		
Study Reference	Lim HS, Kim YL, Lee SM. The effects of Pilates exercise training on static and dynamic balance in chronic stroke patients: a randomized controlled trial. Journal of Physical Therapy Science. 2016;28(6):1819-24.		
Study design	RCT	pseudorandomised	
Author affiliation	Three author affliated with a tertiary institutions in The republic of Korea.		
Source of funds	Not specified		
Declared interests of study authors	Not specified		
Setting / provider	local rehabilitation centre	The study is affiliated with the Sahmyook University.	
Country(s) / region	Gyeonggi, Korea		
Enrolment period	Not specified		
Length of treatment / followup	2 months		
Description of population	*N=*	*Description*	
# participants	19	Chronic hemiparetic stroke patients	
details	Inclusion criteria: At least 2 years post stroke, medically stable with a physician release granting approval to initiate and complete an exercise program, able to walk independently without an assistive device, and willing to participate in a Pilates exercise class. Exclusion criteria: visual impairment, hearing damage, uncontrolled high blood pressure, or were unable to understand the nature of the experiment. Participants who were receiving physical therapy separately were also excluded from this study Mean age 64.7 (6.9) years		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	10	The Pilates training program was based on Mat classes lasting one hour per class, three times a week for 8 weeks. All movements based on 8 repetitions per exercise. Exercsies focused on core stability, spine mobility, upper limb exercsies and lower limb strengthening.	

Characteristics of included studies	Stroke recovery					
Study ID	**Lim 2016**					
Comparator #1 (control)	9	Control group was not given any exercises or treatment. Further description on the their activity was not specified.				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	None specified.				
Is practitioner/instructor certified?	Yes	Include in subgroup A		Two certified Pilates instructors and one physical therapist were in charge of the class		
Is there an inactive comparator?	Yes	Comparison=control		See Comparator #1		
Outcomes	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Dynamic balance	Baseline, end of treatment (9 wks)	Center of Pressure, velocity (medial-lateral)	Changes in dynamic balance ability on the paretic side in stance phase	Total of five tests, with the mean value used for data analysis
2	Not specified	Dynamic balance	Baseline, end of treatment (9 wks)	Center of Pressure, velocity (anterior-posterior)	Changes in dynamic balance ability on the non-paretic side in stance phase	Total of five tests, with the mean value used for data analysis
3	Not specified	Static balance	Baseline, end of treatment (9wks)	Center of Pressure, sway (medial-lateral)	Force plate	Total of five tests, with the mean value used for data analysis
4	Not specified	Static balance	Baseline, end of treatment (9 wks)	Center of Pressure, sway (anterior-posterior)	Force plate	Total of five tests, with the mean value used for data analysis

Characteristics of included studies	Stroke recovery	
Study ID	**Lim 2016**	
5	--	
6	--	
7	--	
8	--	
9	--	
10	--	
11	--	
Method of analysis		
Statistics	Independent samples t-test and χ2 analysis were used for homogeneity testing. The 8-week Pilates training effects were assessed using a paired t-test, and an independent samples t-test was conducted to compare the differences in subordinate variables between the groups. The level of significance for all comparisons was set as α=0.05.	
Population analysed	Intent-to-treat	Modified.The study does not include data from 1 participant from the control group, due to hospitalisation during the trial.

Characteristics of included studies	Stroke recovery
Study ID	**Lim 2016**
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Concerns raised relate to missing information regarding the randomisation process/allocation concealment, deviations from intended interventions, and selective reporting of results.

Characteristics of included studies	Stroke recovery	
Study ID	**Lim 2017**	
Study Reference	Lim HS, Yoon S. The effects of Pilates exercise on cardiopulmonary function in the chronic stroke patients: a randomized controlled trials. Journal of Physical Therapy Science. 2017;29(5):959-63.	
Study design	RCT	
Author affiliation	Two authors affliated with a tertiary institutions in The republic of Korea.	
Source of funds	Not specified	
Declared interests of study authors	Not specified	
Setting / provider	local rehabilitation centre	The study is affiliated with the e Korea National Sport University.
Country(s) / region	Busan, Republic of Korea	
Enrolment period	Not specified	
Length of treatment / followup	2 months	
Description of population	*N=*	*Description*
# participants	20	Chronic stroke patients in a rehabilitation center for the disabled
details	Inclusion criteria: patients who had suffered a stroke more than 2 years previously, had a stroke for the first time, and had no congestive disorders with more than 24 scores of MMSE-K, those who communicate, those who had no apraxia or hemi-neglect, and those who could walk at least more than 10 minutes. Exclusion criteria: patients who had had a cardiac disorder, uncontrollable high blood pressure and pain, orthopedic problems such as fracture of the pelvic limb or traumatic damage of peripheral nerves, and a visual impairment, visual field defects, or hearing impairments	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	10	The exercise group performed Pilates exercise, using a mat that was modified to be suitable for stroke patients. Pilates in these patients involved the use of props such as balls, magic circles and theraband. Each session was conducted for an hour, three times a week for 8 weeks. All movements based on 8 repetitions per exercise. Exercsies focused on core stability, spine mobility, upper limb exercsies and lower limb strengthening.

Characteristics of included studies	Stroke recovery					
Study ID	**Lim 2017**					
Comparator #1 (control)	10	Control group did not receive any additional exercise.				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	20	Conventional stroke rehabilitation consisted of joint mobility, muscle strengthening and walking exercise for 30 minutes once a day, 5 days a week, over 8 weeks.				
Is practitioner/instructor certified?	Yes	Include in subgroup A		Two certified Pilates instructors and one experienced physical therapist were in charge of the class.		
Is there an inactive comparator?	Yes	Comparison=control		Pilates delivered as an adjunct to conventional stroke rehabilitation.		
Outcomes	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Cardiopulmonary function	End of treatment (8 wks)	Resting heart rate (bpm)	Higher score means faster heart rate	
2	Not specified	Cardiopulmonary function	End of treatment (8 wks)	Maximal Oxygen consumption (VO2 max)	Higher score means more oxygen consumption	
3	Not specified	Cardiopulmonary function	End of treatment (8wks)	Maximal Oxygen consumption per kg (Vo2 max per kg)	Higher score means more oxygen consuption per kg	
4	Not specified	Functional mobility	End of treatment (8 wks)	Timed Up and Go test (s)	Higher score means worse functional mobility	

Characteristics of included studies	Stroke recovery	
Study ID	**Lim 2017**	
5	--	
6	--	
7	--	
8	--	
9	--	
10	--	
11	--	
Method of analysis		
Statistics	Data were analyzed using SPSS for Window Version 18.0. A paired t-test was used to compare the pretest and posttest subordinate variables in each group. An independent t-test was used to compare the differences in subordinate variables between the Pilates and control group. All statistical significance level (α) of all statistical materials were set at 0.05.	
Population analysed	Intent-to-treat	All participants included in the analysis. Data reported as means +/- standard error

Characteristics of included studies	Stroke recovery
Study ID	**Lim 2017**
Missing data	No mention of PP analysis.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Concerns raised relate to missing information regarding the randomisation process/allocation concealment, and selective reporting of results.

Characteristics of included studies	Stroke recovery	
Study ID	**Roh 2016**	
Study Reference	Roh S, Gil HJ, Yoon S. Effects of 8 weeks of mat-based Pilates exercise on gait in chronic stroke patients. Journal of Physical Therapy Science. 2016;28(9):2615-9.	
Study design	RCT	pseudorandomised
Author affiliation	Two authors affliated with a tertiary institutions in The republic of Korea.	
Source of funds	This research was supported by the Gachon University research fund of 2014 (GCU-2014–0132).	
Declared interests of study authors	Not specified	
Setting / provider	Not specified	Not specified
Country(s) / region	Republic of Korea	
Enrolment period	Not specified	
Length of treatment / followup	2 months	
Description of population	*N=*	*Description*
# participants	20	Chronic stroke patients
details	*Inclusion criteria:* Unilateral chronic hemiparetic stroke. No other details provided. *Exclusion criteria:* for the poststroke participants included moderate/severe chronic white matter disease on MRI or orthopedic and other gait-influencing diseases such as arthrosis or history of lower-extremity joint replacement. Participants who were involved in other studies or rehabilitation programs were also excluded from this study. Mean age 66.1 (4.4 yrs)	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	10	The Pilates exercise were performed three times a week, 60 minutes per session, for eight weeks. The program included warmup and cooldown periods and breathing exercsies were conducted in a sitting posture before and after the main exercise. (no other details provided)

Characteristics of included studies	Stroke recovery					
Study ID	**Roh 2016**					
Comparator #1 (control)	10	Control group did not perform any kind of exercises or receive any treatment.				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	None specified				
Is practitioner/instructor certified?	Yes	Include in subgroup A		Two certified Pilates instructors and one experienced physical therapist were in charge of the class.		
Is there an inactive comparator?	Yes	Comparison=control		See Comparator #1		
Outcomes	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Primary	Fucntional mobility	Baseline, end of treatment (8 wks)	Gait speed (cm/s)	3-D motion analysis with 8 infrared cameras.	Participants walked on treadmill for 30 seconds, with 5 strides in the middle of recording used in the analysis
2	Primary	Gait parameters	Baseline, end of treatment (8 wks)	Stride length (cm	higher score means better outcome	
3	Primary	Gait parameters	Baseline, end of treatment (8 wks)	Stride time (s)	higher score means worse outcome	
4	Primary	Asymmetry indexes	Baseline, end of treatment (8 wks)	Step length (cm) paretic/non-paretic		

Characteristics of included studies	Stroke recovery			
Study ID	**Roh 2016**			
5	Primary	Range of motion	Baseline, end of treatment (8 wks)	Range of motion, Knee
6	Primary	Range of motion	Baseline, end of treatment (8 wks)	Range of motion, Ankle
7	Not specified	Range of motion	Baseline, end of treatment (8 wks)	Hip ROM
8	--			
9	--			
10	--			
11	--			
Method of analysis				
Statistics	To evaluate the asymmetric pattern of gait parameters, the asymmetry index was used. Xparetic and Xnon-paretic are the values of a gait parameters recorded for the paretic and non-paretic limbs, respectively. To verify the effect of the 8-week Pilates exercise on the gait of poststroke patients, the two-way ANOVA with repeated measure was used, and statistical significance was set at α=0.05.			
Population analysed	Intent-to-treat	Assumed modified. Not specified if any participants missing/discontinued/excluded from the analysis.		

Characteristics of included studies	Stroke recovery
Study ID	**Roh 2016**
Missing data	No information provided.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	Hig risk due to missing information regarding the randomisation process/allocation concealment and a lack of baseline information. Some concerns with deviations from intended interventions, and selective reporting of results.

Characteristics of included studies	Stroke recovery	
Study ID	**Sathe 2018**	
Study Reference	Sathe P, Chitre P, Ghodey S. Added effect of Pilates mat exercises on balance and limits of stability in chronic stroke patients: a pilot study. International Journal of Physiotherapy and Research. 2018;6(3):2732-39.	
Study design	RCT	pseudorandomised
Author affiliation	Three authors are affiliated with tertiary institutions in India.	
Source of funds	Not specified.	
Declared interests of study authors	Not specified.	
Setting / provider	BSTRH Neurophysiotherapy OPD.	
Country(s) / region	Talegaon-Dabhade, India.	
Enrolment period	Not specified	
Length of treatment / followup	6 weeks	
Description of population	*N=*	*Description*
# participants	10	Chronic stroke patients
details	*Inclusion criteria* : Ambulant, chronic stroke patients (6-months post stroke); Tinetti Performance Oriented Mobility Assessment score of 19-24; intact cognitive function (Mini Mental State Exam score of 24-30). *Exclusion criteria* : visual or hearing impairment; contractures, tightness or deformities of lower extremities; lower motor neuron lesion of the lower extremities. The age of participants in this study were not reported.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	5	Pilates treatment sessions were delivered 3 times a week, for 6 weeks (18 sessions in total). Duration of each session not specified. Week 1 & 2 - Ab Prep, Breast Stroke Prep, Spine Stretch Forward, Half Roll Back; Week 3 & 4 - Oblique Roll Back, Spine twist, Saw, Hip Clamp; Week 5 & 6 - One leg circle, Obliques, Figure of eight, Swimming Prep. No equipment specified.

Characteristics of included studies	Stroke recovery					
Study ID	**Sathe 2018**					
Comparator #1 (control)	5	Control group did not receive any additional exercise.				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	10	Conventional balance therapy. "Sitting legs uncrossed; Sitting legs crossed; Standing normal BOS (EO, EC); Tandem stance (EO, EC); One leg stand (EO, EC); Stepping forward, backward, sideways; Marching in place; Reach outs sitting and standing; Picking up objects off table, stool, floor; Standing on foam (EO, EC); Foot on ball, moving ball sitting then standing; Head rotation look up & down sitting then standing then walking; Trunk rotations sideways sitting then standing then walking; Walking forward backward sideways; Dual task training (standing while holding a ball over a book, standing while catching a ball".				
Is practitioner/instructor certified?	Not specified	Include in subgroup C				
Is there an inactive comparator?	Yes	Comparison=control		Pilates delivered as an adjunct to conventional balance therapy.		
Outcomes		***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Primary	Dynamic balance	Baseline, end of treatment (6 wks)	Tinetti Performance Oriented Mobility Assessment Scale	A higher score indicates better mobility.	Participants are assessed on basic tasks including sitting/rising from a chair, walking and turning.
2	Primary	Dynamic balance	Baseline, end of treatment (6 wks)	Limit of stability, reaction time.	A shorter reaction time indicates better performance.	Participants react to a series of on screen instructions instructing them to step in a certain orientation and shift their weight on a force feedback plate.
3	Primary	Dynamic balance	Baseline, end of treatment (6 wks)	Limit of stability, end point excursion		NeuroCom® Basic Balance Master®
4	Primary	Dynamic balance	At baseline and at 6 week follow up.	Limit of stability, maximum excursion		NeuroCom® Basic Balance Master®

Characteristics of included studies	Stroke recovery				
Study ID	**Sathe 2018**				
5	Primary	Dynamic balance	Baseline, end of treatment (6 wks)	Limit of stability, movement velocity	NeuroCom® Basic Balance Master®
6	Primary	Dynamic balance	At baseline and at 6 week follow up.	Limit of stability, directional control	NeuroCom® Basic Balance Master®
7	--				
8	--				
9	--				
10	--				
11	--				
Method of analysis					
Statistics	As described in the study: "After 6 weeks of intervention, recorded data analyzed and compared using paired ‘t’ test for matched data and unpaired ‘t’ test for comparing the two groups in the InStat software."				
Population analysed	Intent-to-treat	Assumed modified. A single participant who dropped out not included in the analysis.			

Characteristics of included studies	Stroke recovery
Study ID	**Sathe 2018**
Missing data	No information provided.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	Hig risk due to missing information regarding the randomisation process/allocation concealment and a lack of baseline information. Some concerns with deviations from intended interventions, and selective reporting of results.

Characteristics of included studies	Stroke recovery	
Study ID	**Yun 2017**	
Study Reference	Yun SM, Park SK, Lim HS. Influence of pilates training on the quality of life of chronic stroke patients: Journal of Physical Therapy Science. 29 (10) (pp 1830-1835), 2017. Date of Publication: 2017.; 2017.	
Study design	NRSI	Nonrandomised controlled trial
Author affiliation	Three authors affliated with a tertiary institutions in the Republic of Korea.	
Source of funds	Supported by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea (NRF-2016S1A5B5A 01023113).	
Declared interests of study authors	Not specified	
Setting / provider	rehabilitation centre	The study is affiliated with the Korea National Sport University.
Country(s) / region	Seoul, Republic of Korea	
Enrolment period	Not specified	
Length of treatment / followup	3 months	
Description of population	*N=*	*Description*
# participants	40	Chronic stroke patients
details	*Inclusion criteria:* 1) Patients with a disease duration of 1 year or longer, 2) Patients who scored 25 points or higher on the MMSE-K (Mini Mental State Examination-Korean), 3) Patients who are able to communicate, 4) Patients who did not faint or resist, 5) Patients who were able to walk for 10 min or longer. *Exclusion criteria:* Patients with heart disease, high blood pressure, or pain that could not be controlled and patients with fractures in the pelvic floor, traumatic injury to the peripheral nerves, or visual or hearing disabilities.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	20	60-min Pilates training program twice a week for 12 weeks, including 10 minute wamr-up and 10-minute cooldown periods. Program was repeated eight times and was based on mat Pilates, modified to suit each patient as needed. Props included balls, Magic Rings, and Thera-Bands.

Characteristics of included studies	Stroke recovery					
Study ID	**Yun 2017**					
Comparator #1 (control)	--	--				
Comparator #2 (other)	20	The control group participated in a 50-min occupational session thrice a week.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Not specified	Include in subgroup C				
Is there an inactive comparator?	No	Comparison=other				
Outcomes		***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Physical function	baseline, end of treatment (12 wks)	SS-QOL -physical	higher scores mean better functioning	
2	Not specified	Mental wellbeing	baseline, end of treatment (12 wks)	SS-QOL-psychological	higher scores mean better quality of life	
3	Not specified	Social function	baseline, end of treatment (12 wks)	SS-QOL-social	higher scores mean better quality of life	
4	Primary	Qol - disease specific	baseline, end of treatment (12 wks)	SS-QOL-total	higher scores mean better quality of life	

Characteristics of included studies	Stroke recovery	
Study ID	**Yun 2017**	
5	--	
6	--	
7	--	
8	--	
9	--	
10	--	
11	--	
Method of analysis		
Statistics	SPSS for Window Version 21.0 was used to analyze the collected data, and all statistical significance levels were set to 0.05 for this study. When analyzing the study results, a Shapiro-Wilk normality test was conducted to check the normality of the quality of life between the experimental and control groups, and an independent sample t-test was conducted to test homogeneity before beginning the Pilates program. A matching sample t-test was conducted to compare the physical, social, and psychological domains of quality of life before and after starting the Pilates program for the experimental and control groups. Lastly, an independent sample t-test was conducted to compare the physical, social, and psychological domains of quality of life after starting the Pilates program for the experimental and control groups.	
Population analysed	Intent-to-treat	Assumed modified. Not specified if any participants missing/discontinued/excluded from the analysis.

Characteristics of included studies	Stroke recovery
Study ID	**Yun 2017**
Missing data	No information provided.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Moderate risk. The study appears to provide sound evidence for a non-randomised study but cannot be considered comparable to a well-performed randomised trial. The study is judged to be a low or moderate risk of bias for ALL domains
Summary (descriptive)	All domains are low risk except for Bias due to missing data and Bias in measurement of outcomes which were no information. Bias in selection of the reported result which wasmoderate risk.

Characteristics of included studies	Hypertension	
Study ID	**Martins-Meneses 2015**	
Study Reference	Martins-Meneses DT, Antunes HKM, De Oliveira NRC, Medeiros A. Mat Pilates training reduced clinical and ambulatory blood pressure in hypertensive women using antihypertensive medications. International Journal of Cardiology. 2015;179:262-8.	
Study design	NRSI	Nonrandomised controlled trial
Author affiliation	Four authors are affliated with tertiary institutions in Brasil.	
Source of funds	This work was supported by Fundação de Amparo à Pesquisa do Estado de São Paulo — FAPESP (2012/17735-0).	
Declared interests of study authors	Not specified	
Setting / provider	Community dwelling	
Country(s) / region	Sao Paulo, Brasil	
Enrolment period	Not specified	
Length of treatment / followup	4 months	
Description of population	*N=*	*Description*
# participants	70	Hypertensive women
details	*Inclusion criteria* : hypertension, age between 30 and 59 years old, use of antihypertensive medication of any class, not physically active for at least 6 months, medical permission for exercise training. *Exclusion criteria:* presence of musculoskeletal disease, other diseases that could compromise the cardiovascular response to exercise, drug treatment changes during the trial period and frequencies at exercise sessions below 75%.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	22	Mat Pilates (MP) group participated in 60 minute sessions, twice a week for 16 weeks. The MP sessions consisted of 60 min, divided into 10 min of warming up and stretching, 40 min of MP exercise and 10 min of stretching and cooling down. Each session consisted of about 12 exercises and was performed to sounds of calm and relaxing music. The intensity was monitored using the original Borg scale of perceived exertion, For weeks 1 to 8 perceived exertion was to range from 11 to 13 and for weeks 9 to 16 the range was 13–15. The intensity increase was done by increasing the number of repetitions and the degrees of difficulty and complexity of the exercise. Participants who had systolic BP above 160 mm Hg and/or diastolic BP above 105 mm Hg before the session, were exempted from the session and had to make up for the lost class at some other time
Comparator #1 (control)	22	The control group was advised to maintain daily activities without exercise training during the 16-week period, and after the protocol they were invited to participate in the exercise training program.
Comparator #2 (other)	--	--
Comparator #3 (other)	--	--
Co-interventions	--	Maintained prescribed hypertensive medications.

Characteristics of included studies	Hypertension					
Study ID	**Martins-Meneses 2015**					
Is practitioner/instructor certified?	Not specified	Include in subgroup C	The Pilates group are said to have attended class sessions. However, the certification of the instructors is not specified.			
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	Blood pressure	baseline, end of treatment (16wks)	systolic, diastolic, mean (mmHg)	Higher score is worse health	Semi-automatic blood pressure monitor
2	Not specified	Body composition	baseline, end of treatment (16wks)	Body mass index (kg/m2)	Larger BMI suggests worse health (i.e. overweight and obesity).	
3	Not specified	Double product (DP)	baseline, end of treatment (16wks)	systolic BP x HR	Lower score means better health	
4	Not specified	Flexibility	baseline, end of treatment (16wks)	Bank of Wells test	Higher score means greater flexibility	
5	Not specified	Hand strength	baseline, end of treatment (16wks)	kg using handheld dynamometer	Higher score means better grip strength	
6	Not specified	Heart rate	baseline, end of treatment (16wks)	Heart rate monitor	Higher score hears faster heart rate	
7	Not specified	Body composition	baseline, end of treatment (16wks)	Hip-waist ratio	anthropometric tape (cm)	
Method of analysis						
Statistics	The data were normally distributed after their examination by the Shapiro–Wilk's test. To study the behavior of the volunteers for the variables of interest over time, by checking the possible effect of MP training on such characteristics, we employed the model of analysis of variance, two-way repeated measures ANOVA and ANCOVA analyses of covariance, using the GLM — General Linear Models, using post-hoc Newman–Keuls in the two analyses. In the comparison between the groups was the covariate premoment. For all analyses were adopted as significance p b 0.05, effect sise (η2) ≥0.30 and the power observed (ω) ≥0.80. The statistical software used was STATISTICA Version 12. Data are shown as mean ± standard deviation in the tables and as mean ± standard error in the graphs.					
Population analysed	Per protocol	Data were analysed by using an per protocol model. Missing data were not included in the analysis. 21 participants withdrew from the trial within the first 4 weeks (P=12/37 and C=9/33). A further 5 were excluded from the analysis because they attended less than 75% of sessions. (P=3/37 and C=2/33). It is not clear how the 2 in the control group are assessed as failing to meet 75% exercise sessions, considering they were on a waitlist.				

Characteristics of included studies	Hypertension
Study ID	**Martins-Meneses 2015**
Missing data	No imputations for missing data made. Authors present PP analysis. No mention of ITT or mITT results. Data not available to calculate.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Critical risk. The study is too problematic with regards to this domain to provide any useful evidence about the intervention. The study is judged to be at critical risk of bias in at least ONE domain
Summary (descriptive)	Critical risk of bias due high attrition (more than 40%). Participants who did not complete the study or attend more than 75% sessions were not included in the data analysis, which was considered to substantially overstate the treatment effect.

Characteristics of included studies	Arthropathies, Osteoarthritis	
Study ID	**Mazloum 2018a**	
Study references	Mazloum V, Rabiei P, Rahnama N, Sabzehparvar E. The comparison of the effectiveness of conventional therapeutic exercises and Pilates on pain and function in patients with knee osteoarthritis. Complementary Therapies in Clinical Practice. 2018;31:343-8.	
Study design	RCT	pseudorandomised
Author affiliation	All authors were affiliated with tertiary institutions in Iran.	
Source of funds	Authors declare no financial support was received.	
Declared interests of study authors	All authors declared they have no conflicts of interest.	
Setting / provider	Not reported	
Country(s) / region	Iran	Isfahan
Enrolment period	Not reported	
Length of treatment / followup	8 weeks	
Description of population	*N=*	*Description*
# participants	49	Patients with knee osteoarthritis (43 males and 19 females)
details	*Inclusion criteria* : age over 40 years, knee pain on most days of the previous month (mean > 4), osteophyte in radiography. (based on the clinical and radiological criteria defined by the US rheumatological college for KOA) *Exclusion criteria:* receiving physical therapy or knee joint surgery (in the past 12 months), lower extremity arthroplasty, intra-articular steroid injections (in the past 6 months), systemic arthritis disease, cardiorespiratory dysfunction, and unwillingness of the subjects to participate in the study.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	17	Pilates - 60 minute sessions 3 times/week for 8 weeks and icnluded 10 minutes wamr-up and 10 minutes cool-down. Sessions were based on 6 main principles of centering, control, precision, concentrating, breath, flow. The number of repetitions increased from 5 according to the patient's abilities.
Comparator #1 (control)	16	Control group - requested to maintian their daily routines and prevented from participating in any exercises and sporting activities

Characteristics of included studies	Arthropathies, Osteoarthritis					
Study ID	**Mazloum 2018a**					
Comparator #2 (other)	16	Conventional therapeutic exercises - 3 times/week for 8 weeks with sessions starting at 30 minutes and increasing to 60 minutes based on the participants ability to perform the exercises.				
Comparator #3 (other)	--	--				
Co-interventions	--	None specified				
Is practitioner/instructor certified?	Not specified	Include in subgroup C				
Is there an inactive comparator?	Yes	Comparison=control		See comparator #1		
Outcomes (meaure, description, measurement tool, timing)	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Physical performance	baseline, end of treatment (8 wks)	time to complete four functional activities (walking 15m, standing up from chair and walking 15m, going up and down 11 stairs)	lower score means better function	presume up and down stairs counted separately? (only three tasks listed)
2	Not specified	Functional status	baseline, end of treatment (8 wks)	target angle reproduction error	lower score means better function	
3	Not specified	Global functioning/ disability	baseline, end of treatment (8 wks)	Lequesne Index	higher score means worse pain and disability (0-24)	< 8 = minor/moderate 8 to 14 = severe >14 most severe

Characteristics of included studies	Arthropathies, Osteoarthritis
Study ID	**Mazloum 2018a**
4	--
5	--
6	--
7	--
8	--
9	--

Characteristics of included studies	Arthropathies, Osteoarthritis	
Study ID	**Mazloum 2018a**	
10	--	
11	--	
12	--	
13	--	
14	--	
Method of analysis		
Statistics	Descriptive statistical tests (e.g. Shapiro-Wilk) were applied to check the normality of the data. To assess the intra-group differences, One-way ANOVA test was used (P < 0.05) and the Scheffe test was administered to compare inter-group differences.	
Population analysed	Intent-to-treat	Assumed modified. 8/49 (>16%) participants did not receive the allocated intervention due to 'personal reasons' and were excluded from the analysis. Not clear if they didn't receive the intervention (deviation from protocol) or failed to complete the program (expected attrition). Reported differently in the text/Consort.
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.	

Characteristics of included studies	Arthropathies, Osteoarthritis
Study ID	**Mazloum 2018a**
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk relating to missing outcome data. Some concerns with randomisation, deviations from intervention, outcome measurement and selective reporting.

Characteristics of included studies	Arthropathies, post viral	
Study ID	**de Oliveira 2019**	
Study references	1.de Oliveira BFA, Carvalho PRC, de Souza Holanda AS, Dos Santos R, da Silva FAX, Barros GWP, et al. Pilates method in the treatment of patients with Chikungunya fever: a randomized controlled trial. Clinical Rehabilitation. 2019;33(10):1614-24. 2.tdpn RBR. The Effects of Pilates Exercise on Joint Pain and Mobility of Chikungunya Fever Patients. http://wwwwhoint/trialsearch/Trial2aspx?TrialID=RBR-99tdpn. 2017.	
Study design	RCT	
Author affiliation	All authors were affiliated with tertiary institutions in Brazil.	
Source of funds	Authors declare no financial support was received.	
Declared interests of study authors	All authors declared they have no conflicts of interest.	
Setting / provider	Advanced Laboratory in Physical Education and	
Country(s) / region	Brazil	Recife
Enrolment period	April and November 2017	
Length of treatment / followup	12 weeks	
Description of population	*N=*	*Description*
# participants	51	Patients with chronic Chikungunya fever
details	*Inclusion criteria* : patients of both genders, age 18 years and older, with confirmed diagnoses of Chikungunya fever, who were in clinical treatment at the Chikungunya outpatient clinic, and in the chronic phase of the disease (symptoms lasting more than three months). *Exclusion criteria:* contraindication for physical exercise according to the treating physician; a severely limiting cognitive, auditory, visual, or motor deficit confirmed by a specialist physician; and a history of inflammatory, rheumatic, neurological, or neoplastic disorders.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	26	Pilates - 50 minute sessions twice per week for 12 weeks. Groups of 6 patients per class. Exercises were of light to moderate intensity (increasing from 6 to 12 repetitions) using Swiss ball (75-cm) and elastic bands of medium (upper body) and strong (lower body) intensity. The exercises involved coordination, strength, flexibilty, and balance; focusing on concentration, centralization, control, precision, fluidity, and diaphragmatic breathing.
Comparator #1 (control)	25	No intervention

Characteristics of included studies	Arthropathies, post viral					
Study ID	**de Oliveira 2019**					
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	Patients continued to receive follow-up at the rheumatology outpatient clinic for their routine treatment consultations for Chikungunya fever.				
Is practitioner/instructor certified?	Yes	Include in subgroup A		Pilates sessions conducted by a physical education professional trained in the Pilates method		
Is there an inactive comparator?	Yes	Comparison=control		See comparator #1		
Outcomes (meaure, description, measurement tool, timing)	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Primary	Pain intensity	baseline, end of treatment (12 wks)	0-10 visual analogue scale	higher score means worse pain	
2	Secondary	Functional capacity	baseline, end of treatment (12 wks)	Health Assessment Questionaire	higher score means worsening disability	fine-motor movements of the upper extremities, locomotor activities of the lower extremities, and activities that involve both.
3	Secondary	Quality of life	baseline, end of treatment (12 wks)	SF-12 Physical component score	higher score means better QoL	

Characteristics of included studies	Arthropathies, post viral				
Study ID	**de Oliveira 2019**				
4	Secondary	Quality of life	baseline, end of treatment (12 wks)	SF-12 Mental Component score	higher score means better QoL
5	Secondary	Joint function	baseline, end of treatment (12 wks)	Range of motion (shoulder, wrist, knee, ankle joints)	higher score means better range of motion
6	--				
7	--				
8	--				
9	--				

Characteristics of included studies	Arthropathies, post viral
Study ID	**de Oliveira 2019**
10	--
11	--
12	--
13	--
14	--
Method of analysis	
Statistics	Numerical variables were represented by measures of central tendency (mean) and dispersion measures (standard deviation or interquartile range); the association between the categorical variables was verified through the chi-square test and Fisher's exact test. The Kolmogorov–Smirnov normality test was performed for quantitative variables ($n \geqslant 30$) and the Shapiro–Wilk normality test for quantitative variables ($n < 30$). Intragroup outcomes were compared using Student's t-test for paired samples (normal distribution) and Wilcoxon (non-normal distribution); intergroup outcomes were compared using Student's t-test for unpaired samples (normal distribution) and Mann–Whitney (non-normal distribution). Unadjusted effect sizes and their 95% confidence intervals (CIs) were also calculated; the continuous results of the outcomes were transformed into dichotomous variables, using the minimal, clinically important difference defined for each variable (reached outcome/did not reach outcome), and the relative risk, relative risk reduction, absolute risk reduction, and number needed to treat were calculated. The level of significance considered was 95%.
Population analysed	Intent-to-treat Modified. 9/51 (17.6%) participants were lost to follow-up and no inluded in the final analysis
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.

Characteristics of included studies	Arthropathies, post viral
Study ID	**de Oliveira 2019**
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	All domains are some concerns expect bias due to randomisation, which was low.

Characteristics of included studies	Spondylopathies	
Study ID	**Altan 2012**	
Study references	Altan L, Korkmaz N, Dizdar M, Yurtkuran M. Effect of Pilates training on people with ankylosing spondylitis. Rheumatology International. 32:2093-2099. 2012.	
Study design	RCT	
Author affiliation	At least two authors affiliated with tertiary institutes in Turkey. Other author affiliations not specified.	
Source of funds	Not specified.	
Declared interests of study authors	No conflict of interest.	
Setting / provider	Rheumatology Clinic	
Country(s) / region	Turkey	
Enrolment period	Not specified.	
Length of treatment / followup	end of treatment (12 weeks); followup (24 weeks)	
Description of population	*N=*	*Description*
# participants	55	Participants diagnosed with ankylosing spondylitis
details	*Inclusion criteria:* men and women aged between 28 and 69 years (mean 45.23) with a duration of disease 2-22 years (mean 8.84). None of the patients had systemic problems. Patients were allowed to continue taking previous medication (requested not to use supplementary drugs or change usual dosage of medication throughout the study period). *Exclusion criteria:* active peripheral arthritis, total spinal ankylosis, ESR over 50mm/h, CRP more than 10 times the normal value, change to treatment in the last 2 months prior to the study.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	30	Pilates program. 1 hour sessions given by a certified trainer three times a week for 12 weeks. Exercise program followed the basic principles of Pilates method but particularly movements with low and medium diffculty levels were chosen to adapt the program to the physical capacity of the patients. Our protocol comprised 9 modules: postural education, search for neutral position, sitting exercise, antalgic exercises, stretching exercises, proprioceptivity improvement exercises, and breathing education. Resistance bands and 26 cm Pilates balls were used as supportive equipment
Comparator #1 (control)	25	Standard treatment program - usual care and usual physical activity

Characteristics of included studies	Spondylopathies					
Study ID	**Altan 2012**					
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	Patients were allowed to continue taking prescribed medication				
Is practitioner/instructor certified?	Yes	Include in subgroup A		Certified trainer		
Is there an inactive comparator?	Yes	Comparison=control		See comparator #1		
Outcomes (meaure, description, measurement tool, timing)	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Primary	Functional capacity	baseline, end treatment (12 wks), followup (24 wks)	Bath Ankylosing Spondylitis Functional Index (BASFI)	Higher score means worse function	10 questions assess the degree of functional limitation in people with AS.
2	Secondary	Disease activity	baseline, end treatment (12 wks), followup (24 wks)	Bath Ankylosing Spondylitis Disease Activity Index (BASDAI)	Higher score means worse disease activity	6 questions related to fatigue, pain, swelling, morning stiffness.
3	Secondary	Spinal mobility	baseline, end treatment (12 wks), followup (24 wks)	Bath Ankylosing Spondylitis Metrology Index (BASMI)	Higher score mean more severe the patient's limitation of movement due to their AS. Differences of >1 reflect true clinical change.	Measures cervical rotation, tragus to wall distance, lumbar side flexion, modified Schober's, and Intermalleolar disance.

Characteristics of included studies	Spondylopathies					
Study ID	**Altan 2012**					
4	Secondary	Chest expansion	baseline, end treatment (12 wks), followup (24 wks)	Chest circumference		Increase in chest circumference at the level of the fourth intercostal after maximum inspiration following previous forced expiration
5	Secondary	Disease specific-QoL	baseline, end treatment (12 wks), followup (24 wks)	Ankylosing Spondylitis Quality of Life (ASQOL)	Total scores range from 0–18, with a higher score indicating poor quality of life.	18 questions (yes or no).
6	--					
7	--					
8	--					
9	--					

Characteristics of included studies	Spondylopathies	
Study ID	**Altan 2012**	
10	--	
11	--	
12	--	
13	--	
14	--	
Method of analysis		
Statistics	All statistical calculations under supervision of staff biostatistician using SPSS 16.0 program. Shapiro-Wilk test used to test the normality of the parameters; Wilcoxon test used for the intra-group comparisons; T-test and Mann-Whitney U test used for comparisons between groups after calculating the percent changes for measured values and the difference scores. Categorical variables compared using chi-square test and Fischer's exact test. Any P values less than 0.05 considered significant.	
Population analysed	Intent-to-treat	Modified. 2/55 participants with missing data not included in the final analysis. One participant in Pilates group discontinued after he complained of increased back pain and 1 patient in Control group failed to come for control evaluations.
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.	

Characteristics of included studies	Spondylopathies
Study ID	**Altan 2012**
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Some concerns raised related to bias in measurement of the outcome and selective reporting.

Characteristics of included studies	Spinal deformities, kyphosis		
Study ID	**Junges 2012**		
Study references	1.Junges S. A randomized clinical trial comparing posture and respiratory functions of women with kyphosis. European Geriatric Medicine. 2012;1):S68. 2.Junges S, Dias Molina R, Valle Gottlieb MG, da Silva Filho IG. Efeito de 30 semanas do Método Pilates na composição corporal de mulheres adultas com cifose. Fisioterapia Brasil. 2016;17(1):59-65. 3.Junges S, Gottlieb MG, Baptista RR, Quadros CBd, Resende TdL, Gomes I. Effectiveness of pilates method for the posture and flexibility of women with hyperkyphosis. Rev bras ciênc mov. 2012;20(1):21-3.		
Study design	RCT	pseudorandomised	
Author affiliation	Six authors affliated with a tertiary institutions in Brazil.		
Source of funds	Not specified		
Declared interests of study authors	Not specified		
Setting / provider	local community of Porto Alegra	This study is affiliated with Universidade Católica do Rio Grande do Sul.	
Country(s) / region	Rio Grande do Sul, Brazil		
Enrolment period	Not specified		
Length of treatment / followup	30 weekes		
Description of population	*N=*	*Description*	
# participants	41	Hyperkyphosis	
details	*Inclusion criteria:* Women over 45 years of age with hyperkyphosis *Exclusion criteria* : BMI >30, previous or actual engagement in Pilates' classes, a kyphosis angle smaller than 45º, and vertebrae compression fracture or some other spine disease detected by radiological diagnosis. Other reasons for excluding from the study were an attendance rate lower than 30% or engagement in another type of physical activity while in the research program.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	22	Pilates training was carried out in twice a week in 60-minute sessions, for a total of 30 weeks. Basic level Pilates were used, with the degree of difficulty gradually increasing. The focus was on keeping a neutral prone posture. Exercises were carried out in a open and closed sequence. Three stages: Weeks 0-6 = adaptation, general basic level; Weeks 7-26 = inclusion of specific exercises to strengthen and stretch. Training resistance was gradually incrase with the use of springs and variations. Weeks 27-30 = maintenance period which involved exercises using specific devices of the method (Cadillac, Reformer, Wunda Chair, Wall Unit, Spine Corrector, Ladder Bar, Circles fit), as well as floor exercises without any device.	
Comparator #1 (control)	19	No active or placebo intervention was prescribed for the control group. Controls were asked to carry on their normal activities for the next 30 weeks	

Characteristics of included studies	Spinal deformities, kyphosis					
Study ID	**Junges 2012**					
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Not specified	Include in subgroup C		Training of all participants was provided by the same instructor, but certification not specified.		
Is there an inactive comparator?	Yes	Comparison=control		See comparator #1		
Outcomes (meaure, description, measurement tool, timing)	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Aesthetics (Postural assessment)	Baseline, end of treatment (30wks)	Cervical-thoracic distance - right/left profile		
2	Not specified	Aesthetics (Postural assessment)	Baseline, end of treatment (30wks)	Height of right/left shoulder - back		
3	Not specified	Aesthetics (Postural assessment)	Baseline, end of treatment (30wks)	Height of right/left scapula - back		

Characteristics of included studies	Spinal deformities, kyphosis					
Study ID	**Junges 2012**					
4	Not specified	Body composition	Baseline, end of treatment (30 weeks)	BMI (height, weight)		
5	Not specified	Body composition	Baseline, end of treatment (30 weeks)	Body fat % (skin-fold)		
6	Not specified	Body composition	Baseline, end of treatment (30 weeks)	Waist-hip ratio		
7	Not specified	Deformitiy progression	Baseline, end of treatment (30 weeks)	Degree of curvature (Cobb angle)	Higher is worse	
8	Not specified	Flexibilty/Range of motion	Baseline, end of treatment (30 weeks)	Cervical extension, flexion	Higher score means better flexibility	Not a reliable measure
9	Not specified	Flexibilty/Range of motion	Baseline, end of treatment (30 weeks)	Cervical rotation right, left	Higher score means better flexibility	Not a reliable measure

Characteristics of included studies	Spinal deformities, kyphosis					
Study ID	**Junges 2012**					
10	Not specified	Flexibilty/Range of motion	Baseline, end of treatment (30 weeks)	Trunk extension, flexion	Higher score means better flexibility	Not a reliable measure
11	Not specified	Flexibilty/Range of motion	Baseline, end of treatment (30 weeks)	Trunk lateral flexion right, left	Higher score means better flexibility	Not a reliable measure
12	Not specified	Flexibilty/Range of motion	Baseline, end of treatment (30 weeks)	Hip flexion, extension right, left	Higher score means better flexibility	Not a reliable measure
13	Not specified	Flexibilty/Range of motion	Baseline, end of treatment (30 weeks)	Hip Abduction right, left	Higher score means better flexibility	Not a reliable measure
14						
Method of analysis						
Statistics	Data were collected directly in a database developed for the study, in Access 2003, and analyzed using the SPSS program, version 17. The descriptive analysis was performed by frequencies, medians, means and standard deviations. Frequencies of the qualitative variables were compared between the groups using the chi-square test or Fisher's exact test (when an expected value was smaller than 5 it was obtained in the chi-square test). Student's t test for paired samples was used for comparing the means of quantitative variables before and after the intervention. The comparisons of the means of variables measured before the intervention and the mean differences (final values less the initial values) between the groups were carried out by Student's t test for independent samples, taking into consideration the equality of the variances determined by Levene's test. P less than 0.05 was considered significant.					
Population analysed	Intent-to-treat	Assumed modified. Insufficient information to make judgement. 3/25 excluded in Pilates group and 6/25 on control group not included in the analysis. Reasons not provided.				
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.					

Characteristics of included studies	Spinal deformities, kyphosis
Study ID	**Junges 2012**
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk due to missing outcome data; **some concerns with** the randomisation process, deviations from intended interventions and selection of the reported result.

Characteristics of included studies	Spinal deformities, lordosis	
Study ID	**Kudchadhar 2019**	
Study references	Kudchadkar G, Gurudut P, Welling A. Cp,[arative effect of mat Pilates and egoscue exercises in asymptomatic individuals with lumab hyperlordosis: A randomised controlled trial. Indian Journal of Physical Therapy and Research 2019: 1:79-88. 2019.	
Study design	RCT	
Author affiliation	Three authors affiliated with a tertiary institution in India.	
Source of funds	The author(s) received no financial support for the research, authorship, and/or publication of this article.	
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	University	
Country(s) / region	Belagavi, Karnataka, India	
Enrolment period	Not specified	
Length of treatment / followup	4 weeks	
Description of population	*N=*	*Description*
# participants	51	Hyperlordosis
details	*Inclusion criteria:* 18-40 years old with lumbar hyperlordosis, positive prone hip extension test, no physical complaints at spine and anterior pelvic tilt angle of >13° *Exclusion criteria:* any history of back injury, low back pain having localised or radiating pain, have undergone treatment for low back pain in past 6 months, and practised any kind of exercise or sports activity within last 6 months	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	17	Mat Pilates three times a week for 4 weeks. Different sets of exercises each week with each exercise performed 5 times.
Comparator #1 (control)	--	--

Characteristics of included studies	Spinal deformities, lordosis					
Study ID	**Kudchadhar 2019**					
Comparator #2 (other)	17	Egoscue exercises three times a week for 4 weeks; 10 exercises which included static back alone and with breathing, abdominal contraction while in the static back position, abductor press, overhead extension, elbow curls on wall, static wall, upper spinal twist, pelvic tilts, supine groin progressive, and air bench exercises with increasing number of repetitions each week (3, 5, 15 and 20 times).				
Comparator #3 (other)	17	Lumbar stabilisation exercises three time a week for 4 weeks; included crook lying, crook lying with one leg extended and resting down on couch, prone lying with arms at the side and head turned to opposite side, quadruped position with head in neutral, supine lying with one knee flexed resting on couch and other knee flexed to be held without support, supine lying with both the legs extended and one leg raise, sitting on chair erect, plank position, sitting erect on Bobath ball with increasing number of repetitions each week (3, 5, 15 and 20 times).				
Co-interventions	51	Stretching for Hamstring muscle, Rectus femoris muscle, Iliopsoas muscle, Tendoachillis muscle				
Is practitioner/instructor certified?	Not specified	Include in subgroup C		No details of practitioner/instructor provided.		
Is there an inactive comparator?	No	Comparison=other		See comparator #2 and #3		
Outcomes (meaure, description, measurement tool, timing)	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Degree of lumbar lordosis	baseline, end of treatment (4 wks)	Index of lordosis (61 cm Surveyors flexi curve)	Maximum width and the total length of the curve	θ° = 4(arc tan [2H/L]), where L = vertical line joining the T12 and S2 vertebrae and H = maximum width that is the deepest part of the curvature
2	Not specified	Percentage of lumbar lordosis	baseline, end of treatment (4 wks)	Index of lordosis (61 cm Surveyors flexi curve)	IL = lumbar width/lumbar length × 100	
3	Not specified	Anterior pelvic tilt	baseline, end of treatment (4 wks)	Pelvic inclinometer	measured in degrees	

Characteristics of included studies	Spinal deformities, lordosis				
Study ID	**Kudchadhar 2019**				
4	Not specified	Exercise tolerance	baseline, end of treatment (4 wks)	Borg's scale	Score 6–20 (6=no exertion, 20-maximum exertion)
5	--				
6	--				
7	--				
8	--				
9	--				

Characteristics of included studies	Spinal deformities, lordosis
Study ID	**Kudchadhar 2019**
10	--
11	--
12	--
13	--
14	--
Method of analysis	
Statistics	Normality distribution assessed using the Krukals-Wallis test. Comparison between groups using the independent t-test/Mann-Whitney U-test and within groups with paired t-test/Wilcoxon sign rank test. Comparison of the idfference in pre-post is done by ANOVA P<0.05 considered significant.
Population analysed	Intent-to-treat All randomised participants included in the analysis
Missing data	There were no deviations or dropouts. Information to conduct PP analysis not available.

Characteristics of included studies	Spinal deformities, lordosis
Study ID	**Kudchadhar 2019**
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Some concerns with randomisation, related to baseline imbalances and selective reporting of results.

Characteristics of included studies	Spinal deformities, forward head		
Study ID	**Lee 2016b**		
Study references	Lee SM, Lee CH, O'Sullivan D, Jung JH, Park JJ. Clinical effectiveness of a Pilates treatment for forward head posture. Journal of Physical Therapy Science. 2016;28(7):2009-13.		
Study design	RCT	pseudorandomised	
Author affiliation	Three author affliated with a tertiary institutions in The republic of Korea.		
Source of funds	Not specified		
Declared interests of study authors	Not specified		
Setting / provider	local community	The study is affiliated with the Pusan National University Medical Center.	
Country(s) / region	Busan, Republic of Korea		
Enrolment period	Not specified		
Length of treatment / followup	2.5 months		
Description of population	*N=*	*Description*	
# participants	28	Forward head	
details	*Inclusion criteria:* Sedentary females (age 20 to 39 years) with Forward head posture *Exclusion criteria:* any spinal problems, pain or dysfunction or a visual analogue pain score above 3 of the neck and shoulder region, temporomandibular disease, as well as any other confounding health problems. Additionally any participants with experience in pilates and who were not sedentary were excluded from the study.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	14	Pilates group performed exercise 50 min per day, three days a week, with an intensity of 11–15 rating of perceived exertion for ten weeks. The Pilates sessions focused on balance and posture-related major muscle group-stretching (neck extensors, pectoral muscles and deep neck flexors, shoulder retractors, back and abdominal muscles), with the additional of co-activation of the core muscles (through breathing technique). TheraBands were used to more effectively strengthen the muscles. Any motions that caused pain during exercise was stopped until pain subsided.	
Comparator #1 (control)	--	--	

Characteristics of included studies	Spinal deformities, forward head					
Study ID	**Lee 2016b**					
Comparator #2 (other)	14	Combined exercise group performed exercise 50 min per day, three days a week, with an intensity of 11–15 rating of perceived exertion for ten weeks. The exercises focused on stretching and strengthing, similar to the Pilates group, without co-activation of core muscles. TheraBands were also used to strengthen muscles.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Not specified	Include in subgroup C		All sessions were supervised by either pilates or exercise 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	Range of motion	Basleline, end of treatment (10 weeks)	Cervical extension, flexion		
2	Not specified	Range of motion	Basleline, end of treatment (10 weeks)	Cervical rotation right, left		
3	Not specified	Function/disability	Basleline, end of treatment (10 weeks)	Neck disability index		

Characteristics of included studies	Spinal deformities, forward head			
Study ID	**Lee 2016b**			
4	Not specified	Pain	Basleline, end of treatment (10 weeks)	Visual Analog Scale
5	--			
6	--			
7	--			
8	--			
9	--			

Characteristics of included studies	Spinal deformities, forward head	
Study ID	**Lee 2016b**	
10	--	
11	--	
12	--	
13	--	
14	--	
Method of analysis		
Statistics	Statistical analyses were performed using PASW Statistics for Windows, version 18.0, and p<0.05 were considered statistically significant differences. To test for the homogeneity of each group, an independent t-test was used before intervention. To verify the interaction between the groups and periods, we used split-plot one-way repeated measures analysis of variance (ANOVA). In addition, post hoc tests were used to analyze the significant differences between each factor in the group before and after intervention	
Population analysed	Intent-to-treat	Modified. Participants with missing data not included. 2/14 participants in the Pilates group dropped out. Reasons not specified.
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.	

Characteristics of included studies	Spinal deformities, forward head
Study ID	**Lee 2016b**
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	High risk due to selective reporting. Some concerns related to randomisation, deviations from the intervention and missing data.

Characteristics of included studies	Spinal deformities, kyphosis		
Study ID	**Navega 2016**		
Study references	Navega MT, Furlanetto MG, Lorenzo DM, Morcelli MH, Tozim BM. Effect of the Mat Pilates method on postural balance and thoracic hyperkyphosis among elderly women: a randomized controlled trial. Rev bras geriatr gerontol. 2016;19(3):465-72.		
Study design	RCT	pseudorandomised	
Author affiliation	Five authors affliated with a tertiary institutions in Brazil.		
Source of funds	Fundação de Amparo à Pesquisa do Estado de São Paulo (Research Support Foundation of the State of São Paulo) (FAPESP) for the granting of Scientific Initiation grants, process nº 11/12585-8.		
Declared interests of study authors	Not specified		
Setting / provider	local community	This study is affiliated with Faculdade de Filosofia e Ciências of the Universidade Estadual Paulista Júlio de Mesquita Filho	
Country(s) / region	São Paulo, Brasil		
Enrolment period	Not specified		
Length of treatment / followup	2 months		
Description of population	*N=*	*Description*	
# participants	39	Hyperkyphosis	
details	*Inclusion criteria:* Female participants aged between 60 and 75 years; an angel of at least 40 degrees in curvature of the spin at the thoracic height of the sagittal plane; present for at least 75% of the training sessions and lectures; *Exclusion criteria:* neurological or motor sequale, cognitive deficits, signs of nerve compression, ankylosing spondylitis, rheumatoid arthritis, vertebral tumors, vertebral fractures or cauda equina syndrome.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	14	The volunteers were trained in the Mat Pilates methodology over a period of eight weeks. They attended one hour sessions twice a week over a total of 16 sessions. Training groups were kept to a maximum of nine volunteers.	
Comparator #1 (control)	17	The control group attended four lectures. The lectures lasted approximately 45 minutes. Lectures run by the two physical therapists that administered the training sessions.	

Characteristics of included studies	Spinal deformities, kyphosis					
Study ID	**Navega 2016**					
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Not specified	Include in subgroup C		Administered by the two physical therapists that administered the training sessions.		
Is there an inactive comparator?	Yes	Comparison=control		See comparator #1		
Outcomes (meaure, description, measurement tool, timing)	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Balance	Baseline, end of treatment (8wks)	One-leg stand, left		
2	Not specified	Balance	Baseline, end of treatment (8wks)	One-leg stand, right		
3	Not specified	Thoracic kyphosis	Basleline, end of treatment (8wks)	Computed biophotogrammetry	Angle of the spine	

Characteristics of included studies	Spinal deformities, kyphosis
Study ID	**Navega 2016**
4	--
5	--
6	--
7	--
8	--
9	--

Characteristics of included studies	Spinal deformities, kyphosis	
Study ID	**Navega 2016**	
10	--	
11	--	
12	--	
13	--	
14	--	
Method of analysis		
Statistics	Exploratory statistical techniques were applied to analyze the data. After applying the ShapiroWilk test to verify the normality and homogeneity of the data, the paired Student's t test and the Wilcoxon test were applied to analyze the data in order to evaluate intra-group variables. The Mann-Whitney test was adopted for analysis of the inter-group variables. A significance level of 5% (p<0.05) was adopted to interpret the data.	
Population analysed	Intent-to-treat	Modified. Participants with missing data not included. Over the duration of the study, five volunteers decided to opt out of the control group (22.7%) and three from the Pilates group (17.6%). Treatment adherence considered within the trial context: Pilates group participants were not present for 14.70% of the duration of the training period, whereas the Control group did not participate in 25.00% of the lecture series.
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.	

Characteristics of included studies	Spinal deformities, kyphosis
Study ID	**Navega 2016**
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk due to missingness of the outcome data. Some concerns related to randomisation, deviations from the intervention and selective reporting.

Characteristics of included studies	Spinal deformities, scoliosis (nonstructural)		
Study ID	**Alves de Araújo 2010**		
Study references	1. Alves de Araújo, Bezerra dSE, Bragade MD. The effectiveness of the Pilates method: Reducing the degree of non-structural scoliosis, and improving flexibility and pain in female college students. Journal of Bodywork and Movement Therapies. 2012;16(2):191-8. 2. Araújo MEAd, Silva EBd, Vieira PC, Cader SA, Mello DBd, Dantas EHM. Redução da dor crônica associada à escoliose não estrutural, em universitárias submetidas ao método Pilates. Motriz rev educ fís (Impr). 2010;16(4):958-66.		
Study design	RCT		
Author affiliation	Six author affliated with a tertiary institutions in Brazil.		
Source of funds	Not specified		
Declared interests of study authors	Not specified		
Setting / provider	University	The study is affiliated with the University Center of Maranhao	
Country(s) / region	Maranhao, Brazil		
Enrolment period	01/15/2009		
Length of treatment / followup	12 weeks		
Description of population	*N=*	*Description*	
# participants	31	Scoliosis	
details	*Inclusion criteria:* age between 18 and 25 years, sedentary lifestyle, presence of non-structural dorsoelumbar scoliosis back with rightward convexity (SRC) or leftward convexity (SLC), muscle shortening of the posterior chain, pain in a segment of the vertebral column, psychomotor skills, availability (for 1 h twice a week) and willingness to participate in the study.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	20	A protocol of therapeutic exercises based on the Pilates method was carried out twice a week for 60 min per session for three months. Protocol was divided into 3 steps: warm up (8-minutes of walking at comfortable intensity on treadmill; 5 minutes stretching); specific exercises (carried out with Swiss balls, FlexBalls, and equipment (cadilac, reformer, step chair, ladder-barrel), relaxation with ball (3 movements with 3 repetitions aimed at metabolic recovery). The Pilates exercises were adapted to each participant over initial 2 weeks, and consisted of 12 exercises (10 repetitions of each) with controlled (full descriptions provided over 4 pages). Perceived exertion scale used in all training sessions (61 to 80 intensity)	
Comparator #1 (control)	11	Attention control. The control group had weekly meetings with the researcher, who 'ensured that they maintained the desired conditions for this group'.	

Characteristics of included studies	Spinal deformities, scoliosis (nonstructural)					
Study ID	**Alves de Araújo 2010**					
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	None specified				
Is practitioner/instructor certified?	Yes	Include in subgroup A		Patients were verbally and manually guided by physiotherapist in all sessions. Assumed trained in Pilates method.		
Is there an inactive comparator?	Yes	Comparison=control		See comparator #1		
Outcomes (meaure, description, measurement tool, timing)	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Flexibility	Baseline, end of treatment (12 wks)	Lumbar Range of motion - flexion (goniometer)		not a reliable measure
2	Not specified	Pain	Baseline, end of treatment (12 wks)	0-10 numeric rating scale (Borg CR 10)	Higher score means worse pain	
3	Not specified	Deformity progression*	Baseline, end of treatment (12 wks)	Degree of curvature (Cobb angle)*		

Characteristics of included studies	Spinal deformities, scoliosis (nonstructural)
Study ID	**Alves de Araújo 2010**
4	--
5	--
6	--
7	--
8	--
9	--

Characteristics of included studies	Spinal deformities, scoliosis (nonstructural)	
Study ID	**Alves de Araújo 2010**	
10	--	
11	--	
12	--	
13	--	
14	--	
Method of analysis		
Statistics	To determine means and standard deviations of the responses of each patient group, we used descriptive statistics. For inferential statistics, we used 2x2 ANOVA with repeated measures, with the first factor being the group and the second factor (the repeated measures, pre and post-therapy) being the Cobb angle, degree of flexibility or pain level. In the case of a statistically significant interaction (pre- vs. post-therapy), we used t tests with unequal sample sizes (SPSS 18). The level of significance was set at 0.05. Statistical analysis was performed blind.	
Population analysed	Intent-to-treat	Difficult to judge. All recruited participants appear to be included in analyses. Imbalance (2:1 ratio) suggests control goup data are missing and simply not included.
Missing data	No mention of missing data. Information to conduct PP analysis not available.	

Characteristics of included studies	Spinal deformities, scoliosis (nonstructural)
Study ID	**Alves de Araújo 2010**
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk due to deviation from the intervention and missing data. Some concerns with randomisation process and selection of the reported result.

Characteristics of included studies	Spinal deformities, scoliosis	
Study ID	**Kim 2016**	
Study references	Kim G, Hwangbo PN. Effects of Schroth and Pilates exercises on the Cobb angle and weight distribution of patients with scoliosis. Journal of Physical Therapy Science 2016 Mar;28(3):1012-1015. 2016.	
Study design	RCT	pseudorandomised
Author affiliation	Two authors affliated with a tertiary institutions in The republic of Korea.	
Source of funds	Not specified	
Declared interests of study authors	Not specified	
Setting / provider	University, Department of Physical Therapy	
Country(s) / region	Gyeongsangbuk-do, Republic of Korea	
Enrolment period	Not specified	
Length of treatment / followup	12 weeks	
Description of population	*N=*	*Description*
# participants	24	Scoliosis patients with a Cobb angle of ≥20°
details	*Inclusion criteria:* Scoliosis patients with a Cobb angle of ≥20° *Exclusion criteria:* Participants who had neurological findings or an operation, those who recently received surgical treatment, those who wore an orthosis, or those who were periodically taking medicine	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	12	60 minute Pilates exercise sessions were performed three times a week for 12 weeks. Each 60-min session of the Pilates exercise consisted of preparation (10 min); the main exercise divided into spinal correction exercises, core-strengthening exercises, and balance exercises (40 min); and wrap-up (5 min). The Pilates exercise was applied along with Pilates trunk breathing.
Comparator #1 (control)	--	--

Characteristics of included studies	Spinal deformities, scoliosis					
Study ID	**Kim 2016**					
Comparator #2 (other)	12	60 minute Schroth exercise sessions were performed three times a week for 12 weeks. Each 60-min session consisted of preparation (cat walking and breathing exercise: 10 min), stretching (stretching the chest part: 5 min), the main exercise (lying right click concave, lying aside static postural control training, sitting posture adjustment exercise, and muscle cylinder: 40 min), and wrap-up (moving the ribs: 5 min)1). The Schroth exercise was applied in accordance with the bending shape of each subject, along with three-dimensional Schroth rotational breathing.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Not specified	Include in subgroup C				
Is there an inactive comparator?	No	Comparison=other		See comparator #2		
Outcomes (meaure, description, measurement tool, timing)	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Primary	Deformity progression	Baseline, end of treatment (12 wks)	Degree of curvature (Cobb angle)		
2	Primary	Deformity progression*	Baseline, end of treatment (12 wks)	Radiographic (Risser+ staging)*		
3	Primary	Deformity progression*	Baseline, end of treatment (12 wks)	Weight distribution - Convex		not a reliable measure

Characteristics of included studies	Spinal deformities, scoliosis				
Study ID	**Kim 2016**				
4	Primary	Deformity progression*	Baseline, end of treatment (12 wks)	Weight distribution - Concave	not a reliable measure
5	--				
6	--				
7	--				
8	--				
9	--				

Characteristics of included studies	Spinal deformities, scoliosis	
Study ID	**Kim 2016**	
10	--	
11	--	
12	--	
13	--	
14	--	
Method of analysis		
Statistics	An intragroup comparison was conducted on the changes in the Cobb angle and weight distribution by using SPSS 18.0. A paired t-test was performed for the intragroup comparison, and an independent t-test was done for the intergroup comparison. The significance level was set to 0.05.	
Population analysed	Intent-to-treat	All recruited participants appear to be included in analyses.
Missing data	No mention of missing data. Information to conduct PP analysis not available.	

Characteristics of included studies	Spinal deformities, scoliosis
Study ID	**Kim 2016**
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk except due to missing information about conduct of the trial, missing data. Concerns about randomisation process and selective reporting.

Characteristics of included studies	Osteoporosis		
Study ID	**Angin 2015**		
Study references	Angin E, Erden Z, Can F. The effects of clinical pilates exercises on bone mineral density, physical performance and quality of life of women with postmenopausal osteoporosis. Journal of Back and Musculoskeletal Rehabilitation. 2015;28:849-58.		
Study design	RCT	Pseudo RCT	
Author affiliation	Three authors are affliated with tertiary institutions in Cypruss and Turkey.		
Source of funds	Not specified		
Declared interests of study authors	Not specified		
Setting / provider	Tertiary institution.	The study was performed with the permission of the from Hacettepe University Non Invasive Clinic Research Ethics Committee.	
Country(s) / region	Ankara, Turkey		
Enrolment period	Not specified		
Length of treatment / followup	24 weeks		
Description of population	*N=*	*Description*	
# participants	41	Postmenopausal women with osteoporosis	
details	*Inclusion criteria* : Women aged 40 - 69 years of age who hadn't menstruated for over 1 year, routinely take Fosamax 70mg per week and participants who are partial to undertaking regular physical exercise for the intervention. *Exclusion criteria* : history of having fractured their upper or lower extremities, endoprothesis or fixation materials for any joints of upper and lower extremities, coronary or heart disease or heart insufficiency, diagnosed with a kidney, liver or inflammatory disease, restrictive and obstructive lung disease, been exercising regularly for the past 6 months, major problems in their vision, communication or hearing.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	22	Participants underwent 60 min sessions, 3 days a week for 24 weeks. Each session consisted of both a Pilates component and a physical training phase that included warm up, main exercise program and cooling phases. . The Pilates session involved the 5 key elements under the main principles of pilates: neck, shoulder, rib cage, lumbar-pelvic regions and were asked to maintain the posture characteristics of these spots while controlling breathing during the move. The exercises were gradually made more difficult every three weeks depending on adaptation. After the 6th week, green Thera Band was included in the exercise program. After a one week workout with the green band, the following week blue Thera Band were included in the program. After the 18th week, Pilates balls were included in the exercise. With exercises performed against resistance, the exercise's strengthening effect was improved.	
Comparator #1 (control)	19	No intervention	

Characteristics of included studies	Osteoporosis					
Study ID	**Angin 2015**					
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	41	Not specified. However, given that weekly Fosamax use was an inclusion criteria, it is likely that participants would have continued this standard of care throughout the trial period.				
Is practitioner/instructor certified?	Not specified	Include in subgroup C		Not specified.		
Is there an inactive comparator?	Yes	Comparison=control		See comparator #1		
Outcomes (meaure, description, measurement tool, timing)	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Bone mineral density T-score	Baseline, end of treatment (24 wks)	Densiometry	"Lumbar" measurement. Measurement details of T-score are not provided.	
2	Not specified	Bone mineral density(g/cm2)	Baseline, end of treatment (24 wks)	Densiometry	"Lumbar" measurement. A higher reading indicates more bone mineral density	
3	Not specified	Functional mobility	Baseline, end of treatment (24 wks)	Six-minute walk test	Further distance means better performance.	Distance travelled in the 6 minute period.

Characteristics of included studies	Osteoporosis					
Study ID	**Angin 2015**					
4	Not specified	Pain, at rest	Baseline, end of treatment (24 wks)	Visual Analogue Scale	Not specified.	
5	Not specified	Pain, while moving	Baseline, end of treatment (24 wks)	Visual Analogue Scale	Not specified.	
6	Not specified	Pain	Baseline, end of treatment (24 wks)	Questionnaire of the European Foundation for Osteoporosis (Qualeffo-41)	A score of 0 means excellent health status, a score of 100 means very poor health status.	Subdomains include: pain; physcial function activities of daily living; physical function jobs around the house; physical function mobility; social function; general health status; mental function.
7	Not specified	Daily activities	Baseline, end of treatment (24 wks)	QUALEFFO-41	A score of 0 means excellent health status, a score of 100 means very poor health status.	
8	Not specified	House work	Baseline, end of treatment (24 wks)	QUALEFFO-41	A score of 0 means excellent health status, a score of 100 means very poor health status.	
9	Not specified	Mobility	Baseline, end of treatment (24 wks)	QUALEFFO-41	A score of 0 means excellent health status, a score of 100 means very poor health status.	

Characteristics of included studies	Osteoporosis				
Study ID	**Angin 2015**				
10	Not specified	Social activities	Baseline, end of treatment (24 wks)	QUALEFFO-41	A score of 0 means excellent health status, a score of 100 means very poor health status.
11	Not specified	General health	Baseline, end of treatment (24 wks)	QUALEFFO-41	A score of 0 means excellent health status, a score of 100 means very poor health status.
12	Not specified	Mental functions	Baseline, end of treatment (24 wks)	QUALEFFO-41	A score of 0 means excellent health status, a score of 100 means very poor health status.
13	--				
14	--				
Method of analysis					
Statistics	In order to specify the minimum number of subjects to be included in the study, we performed a power analysis. For each group, α: 0.05, β: 0.20 (for power 80%), the result has been determined to be N = 19.The statistical analyses regarding this study were made via the use of the program SPSS-16.0 for Windows. In demographics, the data regarding gender, percentage values were calculated. For age, height, weight, body mass index and education the mean ± standard deviation (X ± SD) values were calculated. For the comparisons within the group, before and after exercise, the Wilcoxon Test was used, where for the comparisons between groups the Mann Whitney-U test was used.				
Population analysed	Intent-to-treat	Modified. 3 participants from the comparator group were lost to follow up (6.8%) and not included in the analysis.			
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.				

Characteristics of included studies	Osteoporosis
Study ID	**Angin 2015**
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk related to concerns regarding baseline differences, suggesting a problem with randomisation. Some concerns with droppouts, outcome measurement and selective reporting.

Characteristics of included studies	Osteoporosis		
Study ID	**Kucukcakir 2013**		
Study references	Kucukcakir N, Altan, Korkmaz N. Effects of Pilates exercises on pain, functional status and quality of life in women with postmenopausal osteoporosis. Journal ofBodywork and Movement Therapies. 2013;17:204-11.		
Study design	RCT	Pseudo RCT	
Author affiliation	Three authors are affliated with tertiary institutions in Turkey.		
Source of funds	Not specified.		
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	Not specified.		Not specified.
Country(s) / region	Bursa, Turkey.		
Enrolment period	Not specified.		
Length of treatment / followup	12 months.		
Description of population	*N=*	*Description*	
# participants	70	Postmenopausal women with osteoporosis	
details	*Inclusion criteria* : diagnosis of postmenopausal osteoporosis *Exclusion criteria* : history of fractures; on drugs leading to secondary osteoporosis, including antiepileptics, steroids, lithium, heparin and thyroid hormone; systemic disease; condition limiting the ability to perform exercises; unwillingness to participate in an exercise programs.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	35	Pilates sessions lasted 60 mins, performed 2 times per week, for 1 year. Pilates exercise program consisted of nine exercise modalities: postural education, maintaining neutral position, sitting exercises, antalgic exercises, stretching exercises, proprioceptive training, and respiratory training. Exercise bands and exercise balls 26 inch diameter were used as assistive equipment." Equipment used for Pilates sessions: exercise mat; exercise ball.	
Comparator #1 (control)	--	--	

Characteristics of included studies	Osteoporosis					
Study ID	**Kucukcakir 2013**					
Comparator #2 (other)	35	Unbalanced support surface exercise: the subjects conducted balance exercises for a total of 40 minutes standing on an aero-step (TOGU, Germany). They adapted to the base of support and lightly flexed their muscles for five minutes, stood on both feet balancing the body for five minutes, stood on both feet moving the center of the body for five minutes, stood on one foot for five minutes, conducted squats for five minutes, walked in place for five minutes, maintained a squatting position for five minutes, and conducted cool-down exercise for five minutes."				
Comparator #3 (other)	--	--				
Co-interventions						
Is practitioner/instructor certified?	Not specified	Include in subgroup C		Not specified		
Is there an inactive comparator?	No	Comparison=other		See comparator #2		
Outcomes (meaure, description, measurement tool, timing)	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Pain intensity	Baseline, end of treatment (1 year)	Visual Analogue Scale (0-10)	Higher score indicates more pain.	
2	Not specified	Functional mobility	Baseline, end of treatment (1 year)	Six-minute walk test	Further distance signifies better performance.	Distance travelled in the 6 minute period.
3	Not specified	Muscle strength	Baseline, end of treatment (1 year)	Sit-to-stand test	A higher number indicates better performance.	Number of times a participant stands up from chair.

Characteristics of included studies	Osteoporosis					
Study ID	**Kucukcakir 2013**					
4	Not specified	Quality of life- disease specific	Baseline, end of treatment (1 year)	Questionnaire of the European Foundation for Osteoporosis (Qualeffo-41)	A score of 0 point indicates excellent health status, a score of 100 points indicates very poor health status.	Subdomains include: pain; physcial function activities of daily living; physical function jobs around the house; physical function mobility; social function; general health status; mental function.
5	Not specified	Quality of life	Baseline, end of treatment (1 year)	Short Form-36	36 items total (0-100) A higher score indicates better wellbeing	Subdomains include: physcial functioning; physical role limitation; emotional role limitation; bodily pain; social functioning; mental health; vitality; general health.
6	Not specified	Falls	Baseline, end of treatment (1 year)	Number of falls	Number of falls experienced by patients during the one-year study period were recorded.	
7	--	--				
8	--	--				
9	--	--				

Characteristics of included studies	Osteoporosis	
Study ID	**Kucukcakir 2013**	
10	--	--
11	--	--
12	--	--
13	--	--
14		
Method of analysis		
Statistics	As described in study: "Statistical analysis was performed by a biostatistician using the Statistical Package for Social Sciences (SPSS, Inc., Chicago, IL, USA) version 13.0. The ShapiroeWilk test was used to test the normality of the data. The Wilcoxon test was used for within-group comparisons. Between-group comparisons of difference scores and/or percent changes were performed using a t-test or the ManneWhitney U test. A p value <0.05 was considered statistically significant."	
Population analysed	Intent-to-treat	Modified. Participants with missing data not included in the final analysis. A total of 5/35 (14%) participants in each group (total 10/70) were lost to follow up. Three participants in the Pilates discontinued due to unwillingness to participate.
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.	

Characteristics of included studies	Osteoporosis
Study ID	**Kucukcakir 2013**
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk related to trial conduct. Some concerns with randomisation process, missing data, outcome measurement and selective reporting.

Characteristics of included studies	Osteoporosis		
Study ID	**Oksuz 2014**		
Study references	Oksuz S, Unal E, Dizmek P, Ozcan DA. The effects of clinical Pilates exercises on kinesophobia in women with osteoporosis. Health Professionals in Rheumatology Abstracts. 2014; AB1175-HPR. Oksuz S, Unal E. The effect of the clinical pilates exercises on kinesiophobia and other symptoms related to osteoporosis: Randomised controlled trial. Complementary Therapies in Clinical Practice. 2017;26:68-72. NCT02716844 Effect Of Exercises On Kinesiophobia, And Other Symptoms Related to Osteoporosis. https://ichgcp.net/clinical-trials-registry/NCT02716844.		
Study design	RCT		
Author affiliation	Three authors are affliated with tertiary institutions in Turkey.		
Source of funds	The author(s) declared that no funding was provided for this study.		
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	Not specified.		Not specified.
Country(s) / region	Ankara, Turkey.		
Enrolment period	January 2015 - March 2016.		
Length of treatment / followup	1.5 months.		
Description of population	*N=*	*Description*	
# participants	47	Postmenopausal women with osteoporosis	
details	*Inclusion criteria* : woman diagnosed with osteoporosis between the ages 50-75 years; physically active less than 3 times per week; mineral density of the hip and lumbar bones measured by Dual Energy X-Ray absorptiometry with a T score of less than 2.5 standard deviations. *Exclusion criteria* : history of fractures; history of joint fractures or fixation of the joints at the lower extremities or the spine; any neurological or muscle diseases; inability to continuously attend the exercise program; any secondary diseases resulting in decreased mobility or functional status; visual, hearing or mental problems that could prevent communication.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	20	Pilates sessions lasted 60 mins, performed 3 times per week, for 6 weeks. A special session was organised for each patient to learn about the five main areas of focus for clinical Pilates (i.e. the neck, shoulder, chest, lumbopelvic posture, and breath control [during movement of these regions]). Patients qualified for group training only if they managed to successfully perform a session of clinical Pilates. Patients who qualified were asked to continue with their exercises, by performing them three times per week (for 6 weeks). Exercise sessions were 1 h in duration, including awarm-up period, a period in which to perform the main exercises, and a cool-down period. The exercise sessions were also designed to increase in difficulty over the trial, commensurate with the patient's accomplishments at each stage and in accordance with the structure of the clinical Pilates program (which progresses from closed-to open-chain kinetic exercises).	
Comparator #1 (control)	20	The control group patients were assessed using the same tests, but they were not instructed to perform any exercises; rather, they were asked to continue with their normal daily routines.	

Characteristics of included studies	Osteoporosis					
Study ID	**Oksuz 2014**					
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions		Not specified.				
Is practitioner/instructor certified?	Not specified	Include in subgroup C		Not specified		
Is there an inactive comparator?	Yes	Comparison=control		See comparator #1		
Outcomes (meaure, description, measurement tool, timing)	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Primary	Kinesiophobia (fear of falling)	baseline, end of treatment (6 wks)	Tampa Kinesiophobia Scale	A lower score indicates a lower level of kinesiophobia than at baseline.	A self-report questionnaire.
2	Secondary	Pain intensity	baseline, end of treatment (6 wks)	Visual Analogue Scale (0-10)	A lower score indicates less pain than experienced at baseline.	Pain intensity of patients in the mornings, at rest and during performance of activities.
3	Secondary	Pain, multidimentional	baseline, end of treatment (6 wks)	The Short-Form McGill Pain Questionnaire	A lowe/negative score indicates less pain than experienced at baseline.	Multidimensional evalution on pain (6-point Likert scale) Subdomains: pain at rest, pain experienced whilst undertaking study and the intensity of their pain.

Characteristics of included studies	Osteoporosis					
Study ID	**Oksuz 2014**					
4	Secondary	Pain disability	baseline, end of treatment (6 wks)	The Pain Disability Index	A lowe score indicates less pain influence on daily activities than experienced at baseline.	Influence of pain on daily activities.
5	Secondary	Functional disability	At baseline and at 6 week follow-up.	The Oswestry Low Back Pain Disability Scale	A lower score indicates less functional disability caused by lower back pain than experienced at baseline.	A self-report questionnaire.
6	Secondary	Balance stability	baseline, end of treatment (6 wks)	Berg Balance Test	A higher score indicates better performance on test and less risk of falling than when assessed at baseline.	Test administered and measured by trialists.
7	Secondary	Functional mobility	baseline, end of treatment (6 wks)	Timed Up and Go Test	A lower/negative score indicates better functional balance and mobility than assessed at baseline.	Patient stands up and walks 3 m, turns around, walk backs to the chair and sits down. Activity is repeated three times and the shortest performance time is recorded.
8	Secondary	Strength and endurance	baseline, end of treatment (6 wks)	Chair Sit and Stand Test	A higher/positive score indicates better strength and endurance of lower extremity proximal muscles than assessed at baseline.	Total number of times that the patient achieves a full standing position within 30 seconds.
9	Secondary	Flexibility, lower extremities	baseline, end of treatment (6 wks)	Chair Sit and Reach Test	A lower/negative score indicates better functional flexability of lower limbs than assessed at baseline.	The distance between each patient's fingers and toes.

Characteristics of included studies	Osteoporosis					
Study ID	**Oksuz 2014**					
10	Secondary	Flexibility, upper extremities.	baseline, end of treatment (6 wks)	Back Scratch Test	A lower/negative score indicates better functional flexability of upper limbs than assessed at baseline.	
11	Secondary	Quality of life- disease specific	baseline, end of treatment (6 wks)	Questionnaire of the European Foundation for Osteoporosis (Qualeffo-41)	A score of 0 means excellent health status, a score of 100 means very poor health status.	Self-report questionnaire
12	Secondary	Anxiety and depression	baseline, end of treatment (6 wks)	Hospital Anxiety and Depression Scale	A lower/negative score indicates a lower level of depression and anxiety than at baseline.	Self-report questionnaire
13	Secondary	Functional impairment	baseline, end of treatment (6 wks)	Health Assessment Questionnaire	A lower score indicates a lower level of functional impairment caused by rheumatic diseases than at baseline.	Self-report questionnaire
14	Secondary	Satisfaction with life and well-being	baseline, end of treatment (6 wks)	Satisfaction with Life Scale	A higher score indicates a better life satisfaction and well-being than at baseline.	Self-report questionnaire
Method of analysis						
Statistics	As described in study: "Power analysis was carried out to determine the minimum number of subjects to be taken into the study. In each group, for a power analysis of 80% with a: 0.05, b:0.20, subject number was found to be 20 [14]. Statistical analysis of the study data was done using SPSS for Windows software (ver. 15.0; SPSS Inc., Chicago, IL, USA). The eligibility of normally-distributed variables was evaluated using visual (histograms and probability graphics) and analytical (Shapiro-Wilk test) methods. Mean ± standard deviation (x ± SD) values for age, height, weight and body mass index (BMI) were calculated. As the normal distribution assumption was not satisfied for all evaluation items in the between-groups analyses, these data compared using the Mann-Whitney U test. Similarly, because the normal distribution assumption for all intragroup assessment items was not satisfied, these data were compared using the Wilcoxon test. Statistical significance for all analyses was considered as p < 0.05."					
Population analysed	Intent-to-treat	Modified. Participants with missing data not included in the final analysis. Seven participants dropped out of the study (15%). It is not specifed which of the two groups these participants dropped out of and why they left the study with the authors stating: "7 patients quit the study for various reasons".				
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.					

Characteristics of included studies	Osteoporosis
Study ID	**Oksuz 2014**
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk related to trial conduct. Some concerns with randomisation process, missing data, outcome measurement and selective reporting.

Characteristics of included studies	Menopausal symptom or complaint	
Study ID	**Ahmadinezhad 2017**	
Study references	1.Ahmadinezhad M, Kargar M, Vizeshfar F, Hadianfard MJ. Comparison of the Effect of Acupressure and Pilates-Based Exercises on Sleep Quality of Postmenopausal Women: A Randomized Controlled Trial. Iranian Journal of Nursing and Midwifery Research. 2017;22(2):140-6. 2.Irct2014042017344N. Pilates exercise and acupressure effect on anxiety and sleep quality in postmenopausal women. http://wwwwhoint/trialsearch/Trial2aspx?TrialID=IRCT2014042017344N1. 2014.	
Study design	RCT	
Author affiliation	Four author affliated with a tertiary institution in Iran.	
Source of funds	This study was financially supported by Vice Chancellor for Research Affairs, Shiraz University of Medical Sciences (Grant No: 6982)	
Declared interests of study authors	The authors declare no conflicts of interest.	
Setting / provider	Medical clinics	This study is affiliated with Shiraz University of Medical Sciences.
Country(s) / region	Shiraz, Iran	
Enrolment period	May 2014 to September 2014	
Length of treatment / followup	6 weeks	
Description of population	*N=*	*Description*
# participants	108	Healthy women (40+ yrs) with confirmed menopause
details	*Inclusion criteria:* age ranging 40–60 years; willingness to participate in the study; cessation of menstrual periods for at least 12 months before the reference date; natural menopause; lack of any diseases including insulin-dependent diabetes, cancer, lupus, heart failure, severe pulmonary diseases, anxiety-producing diseases, mental and physical disabilities and chronic pain; **scored 5 or above on the Pittsburgh Sleep Quality Index** (PSQI), having full consciousness; and an acceptable ability of listening and speaking. **Trial registry also indicates that participants had anxiety score of 20 or higher** *Exclusion criteria:* **absence of more than two sessions** and acute diseases requiring hospitalization.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Menopausal symptom or complaint					
Study ID	**Ahmadinezhad 2017**					
Intervention	36	The patients in the Pilates exercise group participated in an exercise training program of three 1-hour sessions per week for 6 consecutive weeks. No further information provided.				
Comparator #1 (control)	36	Participants in the control group received no intervention				
Comparator #2 (other)	36	The participants of the acupressure group received acupressure intervention 3 times a week for 6 weeks, so that their wrist acupoints (hand Shenmen) was pressed by a finger pressure of 3 kg/cm2 continuously for 5 minutes. No further information provided.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Not specified	Include in subgroup C		Not specified		
Is there an inactive comparator?	Yes	Comparison=control		See comparator #1		
Outcomes	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*
1	Primary	Sleep quality, global score	baseline, end of treatment (6 wks)	Pittsburgh Sleep Quality Index (PSQI) - total score	Higher score means worse sleep quality. Total score great than 5 clinically relevant.	
2	Primary	Sleep quality	baseline, end of treatment (6 wks)	Pittsburgh Sleep Quality Index (PSQI) - Sleep quality	Higher score means worse sleep quality. Total score great than 5 clinically relevant.	

Characteristics of included studies	Menopausal symptom or complaint					
Study ID	**Ahmadinezhad 2017**					
3	Primary	Sleep latency	baseline, end of treatment (6 wks)	PSQI - Sleep latency	Higher score means worse sleep quality.	
4	Primary	Sleep duration	baseline, end of treatment (6 wks)	PSQI - Sleep duration	Higher score means worse sleep quality.	
5	Primary	Sleep efficiency	baseline, end of treatment (6 wks)	PSQI - Sleep efficiency	Higher score means worse sleep quality.	
6	Primary	Sleep disturbances	baseline, end of treatment (6 wks)	PSQI - Sleep disturbances	Higher score means worse sleep quality.	
7	Primary	Use of sleep medication	baseline, end of treatment (6 wks)	PSQI-Use of sleeping medication	Higher score means worse sleep quality.	
8	Primary	Daytime dysfunction	baseline, end of treatment (6 wks)	PSQI-Daytime dysfunction	Higher score means worse sleep quality.	
9	Primary	Anxiety	baseline, end of treatment (6 wks)	Speilberger State-Trait Anxiety Inventory (STAI)	Higher score means worse anxiety	Listed in the trial registry but not report in the study
10	--					
11	--					
12	--					
Method of analysis						

Characteristics of included studies	Menopausal symptom or complaint	
Study ID	**Ahmadinezhad 2017**	
Statistics	The collected data were analyzed using SPSS software, version 16 (version 16, SPSS, Inc, chicago, USA). Statistical descriptive tests, Chi-square test, independent and paired t-tests, one-way analysis of variance (one-way ANOVA) and post-hoc multiple comparisons (Tukey's or Dunnett's), as well as non-parametric tests were used as appropriate. The significance level was set at <0.05.	
Population analysed	Intent-to-treat	N analysed not specified. It is assumed all participants included in the analysis, but missing data possible. The trial protocol states participants who miss more than 2 sessions were to be excluded. There is no indication that any participants were excluded for this reasons.
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	High risk of bias in one or more key domains	
Summary (descriptive)	High risk due to selective reporting. One primary outcome (anxiety) is missing from the report. It is possibly omitted due to non-result. Authors also do not mention anything about the exclusion of participants who missed more than two sessions and there is no indication of the N analysed for each group, possible overstating th effect of intervention. Some concerns with randomisation, trial conduct and outcome measurement.	

Characteristics of included studies	Menopausal symptom or complaint	
Study ID	**Campos de Oliveira 2018**	
Study references	1.Campos de Oliveira L, Gonçalves de Oliveira R, de Almeida Pires-Oliveira DA. Effects of the Pilates exercise compared to whole body vibration and no treatment controls on muscular strength and quality of life in postmenopausal women: A randomized controlled trial. Isokinetics and Exercise Science. 2018;26(2):149-61. 2.Campos de Oliveira L, Gonçalves de Oliveira R, de Almeida Pires-Oliveira DA. Effects of Whole-Body Vibration Versus Pilates Exercise on Bone Mineral Density in Postmenopausal Women: A Randomized and Controlled Clinical Trial. Journal of Geriatric Physical Therapy. 2019;42(2):E23-E31. 3.Nct. Effects of Whole Body Vibration and Pilates on Bone Mineral Density in Postmenopausal Women. https://clinicaltrialsgov/show/NCT02769143. 2016.	
Study design	RCT	
Author affiliation	Three authors affliated with a tertiary institution in Brazil.	
Source of funds	Not specified	
Declared interests of study authors	The authors declare no conflicts of interest.	
Setting / provider	local community	This study is affiliated with the Northern University of Paraná.
Country(s) / region	Jacarezinho, PR, Brazil	
Enrolment period	Started in 2016	
Length of treatment / followup	26 weeks	
Description of population	*N=*	*Description*
# participants	Campos de Oliveira 2018	Healthy women (40+ yrs) with confirmed menopause
details	*Inclusion criteria:* a) post-menopausal, clinically confirmed, for at least 12 months aged between 40-70 years; b) not practicing physical exercise for at least six months; c) agreement not to practice another type of exercise during the research; d) ability to perform activities of daily living without assistance; e) presentation of a medical release indicating fitness for exercise; and f) score > 19 in the Mini-Mental State Examination. *Exclusion criteria:* a) musculoskeletal dysfunctions in the spine or lower limbs in the previous six months; b) fracture in the vertebral column or in the lower limbs after 40 years of age; c) prosthesis in the lower limbs or implants in the vertebral column; d) secondary causes of loss of bone mass; e) other metabolic bone diseases or diseases that affect bone metabolism; f) history of cancer in the previous five years; g) vascular alterations, epilepsy, or seizures; h) arrhythmia; i) the use of a pacemaker; j) eye disease affecting the retina; k) cardiorespiratory diseases; l) diseases of the neuromuscular system; m) labyrinthitis or vertigo; n) hospitalization in the previous six months for surgical reasons; o) thyroid alteration; p) smoking; q) frequent use of alcoholic beverages; r) use of supplements based on calcium or vitamin D, isoflavone, medication to increase bone mineral density or to increase muscle mass in the previous 12 months; and s) inability to tolerate WBV for five minutes.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Menopausal symptom or complaint					
Study ID	**Campos de Oliveira 2018**					
Intervention	17	The Pilates exercises occurred three times a week, on nonconsecutive days, for six months (78 sessions). Each session lasted 60 minutes. The following equipment was used: Cadillac, Reformer, Ladder Barrel, Wall Unit, Chair, Spine Corrector and Small Barrel. Twenty-one strengthening and stretching exercises were selected for the main body segments: a) lower limbs b) flexors, extensors, and lateral flexors of the trunk; and c) upper limbs. Two exercise protocols were applied, each performed for three months, maintaining the same sequence of strengthening and stretching, as well as the same body segments but changing the order of equipment. All exercises were performed in a series of ten repetitions, with a one-minute rest interval between exercises. The intensity of the overload in Pilates is mainly determined by the use of springs, which were modified according to the evolution of strength of each participant. The Borg CR10 scale was used to determine effort.				
Comparator #1 (control)	17	The control group did not perform any type of intervention. The participants maintained their usual routine related to physical activity, eating habits, not using supplements or medications that could affect bone or muscle mass, and not starting any type of physical exercise, according to the procedure also adopted with the other intervention groups.				
Comparator #2 (other)	17	The Whole Body Vibration group was exposed to whole body vibration for five minutes on a side-alternating type vibratory platform.Whole body vibrations occurred three times a week, on nonconsecutive days, for six months (78 sessions). A frequency of 20 Hz (1 Hz = 1 oscillation/second) and a peak-to-peak displacement of 4 mm (with reference to the second toe) were used, resulting in a magnitude of 31.5 m/s2 or 3.2 g (gravity: 1 g = 9.8 m/s2).				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Not specified	Include in subgroup C		No mention of who provided the interventions		
Is there an inactive comparator?	No	Comparison=other				
Outcomes	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*
1	Primary	Bone mineral density (BMD)	Baseline, end of treatment (26 wks)	dual-energy x-ray absorptiometry	lumbar spine (L1-L4)	
2	Primary	Bone mineral density (BMD)	Baseline, end of treatment (26 wks)	dual-energy x-ray absorptiometry	proximal femur (total hip, femoral neck, and trochanter)	

Characteristics of included studies	Menopausal symptom or complaint					
Study ID	**Campos de Oliveira 2018**					
3	Primary	Bone mineral density (BMD)	Baseline, end of treatment (26 wks)	dual-energy x-ray absorptiometry	Intertrochanter, Ward's area	
4	Secondary	Physical performance	Baseline, end of treatment (26 wks)	Isokinetic muscular strength knee extensors 60° & 180° (N/m)	Higher score means better muscular strength	
5	Secondary	Physical performance	Baseline, end of treatment (26 wks)	Isokinetic muscular strength knee flexors 60° & 180° (N/m)	Higher score means better muscular strength	
6	Secondary	Balance	Baseline, end of treatment (26 wks)	force platform		Listed in the trial registry but not report in the study
7	Secondary	Functional mobility	Baseline, end of treatment (26 wks)	Timed up and Go	Higher score means worse functional mobility	Listed in the trial registry but not report in the study
8	Secondary	Fear of falling	Baseline, end of treatment (26 wks)	Falls efficacy Scale- International		Listed in the trial registry but not report in the study
9	Secondary	QoL- Gobal	Baseline, end of treatment (26 wks)	SF-36 individual domain scores (0-100)	Higher score means better QoL	
10	Not specified	Adverse events	Baseline, monthly, end of treatment (26 wks)	Incidence of falls, Incidence of fractures		
11	Not specified	Adverse events	Baseline, monthly, end of treatment (26 wks)	Other (dizziness, cramps, spasms, elevated blood pressure)		
12	Not specified	Adverse events	Baseline, monthly, end of treatment (26 wks)	Pain (delayed onset muscle soreness, pain in limbs, etc)		
Method of analysis						

Characteristics of included studies	Menopausal symptom or complaint
Study ID	**Campos de Oliveira 2018**
Statistics	Parametric data are presented as mean and standard deviation (SD), and non-parametric data as median and the respective interquartile range (25th and 75th percentiles). The normality of the data was assessed by the Shapiro-Wilk test. The Student t test for independent samples was used to compare the number of participants' absences during the interventions (PG vs. VG). The homogeneity of variances was determined by the Levene test. One-way ANOVA was used for data with normal distribution (age, weight, height, BMI, and isokinetic muscular strength) otherwise Kruskal-Wallis test (time of menopause and quality of life) was used. To examine differences between groups for isokinetic muscular strength, covariance analysis (ANCOVA) was applied, with the post-intervention data used as dependent variables and the pre-intervention data as adjustment covariates. As a post hoc, the Bonferroni test was used in multiple comparisons between pairs (PG vs. VG, PG vs. CG, and VG vs. CG). For the isokinetic muscular strength variables, the effect sizes between-group were calculated using Cohen's d, which were considered small (0.20), medium (0.50), or large (0.80) [47]. To examine between-group differences in quality of life after the interventions, the Kruskal-Wallis test was used. For all tests, the level of significance was 95% ($p < 0.05$). Analyzes were processed in the SPSS 20.0 program (Chicago, IL, USA), except for effect size calculations (Cohen's d), which were processed in the GPower 3.1 program (Franz Faul, Universita Ä Kiel, Germany).
Population analysed	Intent-to-treat: Authors included all randomised participants in the analysis (missing post-intervention data on two CG participants were imputed by the group mean). Subsequently, a PP analysis was performed, excluding the two CG participants who dropped out of the study. As the results were similar, only the ITT analysis is presented in published report. (no data provided)
Missing data	Missing post-intervention data on two CG participants were imputed by the group mean. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk due to concerns about selective reporting of results. Mutiple analyses post-hoc. Many secondary outcomes not mentioned or reported. Some concerns with measurement of the outcome.

Characteristics of included studies	Menopausal symptom or complaint		
Study ID	**Lee 2016a**		
Study references	Lee H, Caguicla JM, Park S, Kwak DJ, Won DY, Park Y, et al. Effects of 8-week Pilates exercise program on menopausal symptoms and lumbar strength and flexibility in postmenopausal women. Journal of Exercise Rehabilitation. 2016;12(3):247-51.		
Study design	RCT	pseudorandomised	
Author affiliation	Six authors affliated with a tertiary institution in Korea		
Source of funds	Not specified		
Declared interests of study authors	The authors declare no conflicts of interest.		
Setting / provider	local community	This study is affiliated with the Korea University.	
Country(s) / region	Sejong, Korea		
Enrolment period	Not specified		
Length of treatment / followup	8 weeks		
Description of population	*N=*	*Description*	
# participants	74	Healthy women (45+ yrs) with confirmed menopause	
details	*Inclusion criteria:* Women aged 45-60 years old who were in the menopausal stage for ≥1 yr. The subjects had not participated in any formal exercise programs and had not received medication for menopausal symptoms within the past 6 months. Additionally, the subjects had no medical history of diseases such as musculoskeletal disorders, cardiovascular disease, or metabolic disorders.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Menopausal symptom or complaint					
Study ID	**Lee 2016a**					
Intervention	45	The Pilates exercises were performed 3 times a week for 8 weeks and consisted of 7–10 min for warm-up, 35–40 min for the main program (Pilates Academy International), and 5–7 min for the cooldown. Session were modified in accordance with the participants' capabilities. Relaxing music was played during the program. The main program consisted of exercises that emphsize the 6 principles of Pilates such as the Hundred, Roll Up, Leg Stretch (single and double), Leg Circles (single and double), Rolling like a Ball, Spin Stretch Forward, Saw, Teaser, Swan Dive, Crisscross, Coccyx Curl, Curl Up, and Swimming. Each exercise was repeated 10–15 times for 2–5 sets, with a 10-second rest per repetition and 60 seconds between sets. The rating of perceived exertion (RPE) was used to gradually increase the program intensity; Phase 1 (RPE, 9–11), phase 2 (RPE, 9–13), and phase 3 (RPE, 9–11).				
Comparator #1 (control)	29	The control group did not receive any inervention.				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Not specified	Include in subgroup C		No mention of who provided the intervention		
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*
1	Not specified	Vasomotor symptoms	Baseline, end of treatment (8 weeks)	Menopausal symptoms questionnaire (MSQ)- vasomotor subscale	Higher score means more severe symptoms	Scores range from 0 (no symptoms) to 6 (symptoms are very severe)
2	Not specified	Mental/Psychological symptoms	Baseline, end of treatment (8 weeks)	MSQ-Mental/Psychological subscale	Higher score means more severe symptoms	Scores range from 0 (no symptoms) to 6 (symptoms are very severe)

Characteristics of included studies	Menopausal symptom or complaint					
Study ID	**Lee 2016a**					
3	Not specified	Physical health	Baseline, end of treatment (8 weeks)	MSQ-Physical subscale	Higher score means more severe symptoms	Scores range from 0 (no symptoms) to 6 (symptoms are very severe)
4	Not specified	Urogenital health	Baseline, end of treatment (8 weeks)	MSQ-urogenital subscale	Higher score means more severe symptoms	Scores range from 0 (no symptoms) to 6 (symptoms are very severe)
5	Not specified	Physical performance	Baseline, end of treatment (8 weeks)	Lumbar extension machine	Higher score means better lumbar strength	Participant extends back against upper back pad, gradually increasing tension for 2-3 seconds up to maximum and holding for 10 seconds
6	Not specified	Physical performance	Baseline, end of treatment (8 weeks)	Flexibility (sit and reach test)	Higher score means better flexibility	
7	Not specified	Physical performance	Baseline, end of treatment (8 weeks)	Flexibility (trunk lift test)	Higher score means better flexibility	
8	--					
9	--					
10	--					
11	--					
12	--					
Method of analysis						

Characteristics of included studies	Menopausal symptom or complaint	
Study ID	**Lee 2016a**	
Statistics	SPSS used to calculate the mean and standard deviation for each variable. A two-way repeated measures analysis of variance was performed to investigate the difference between the two groups. All statistical significance levels were P<0.05	
Population analysed	Other (provide details)	Not specified. No indication of enrolment / randomisation process (No CONSORT)
Missing data	No information provided.	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	High risk of bias in one or more key domains	
Summary (descriptive)	High risk of bias due to missing information about the trial conduct (deviations from intended intervention) and number of participants analysed (missing outcome data).	

Characteristics of included studies	Postpartum	
Study ID	**Mirmohammadali 2012**	
Study Reference	1.Mirmohammadali M, Ashrafinia F, Rajabi H, Amelvalizadeh M, Haghighi KS, Kazemnejad A. Effect of exercise on quality of sleep in post-partum women: HAYAT. 18 (1) (no pagination), 2012. Date of Publication: 2012.; 2012. 2.Ashrafinia F, Mirmohammadali M, Rajabi H, Kazemnejad A, Sadeghniiat Haghighi K, Amelvalizadeh M. Effect of Pilates exercises on postpartum maternal fatigue. Singapore Medical Journal. 2015;56(3):169-73. 3.Ashrafinia F, Mirmohammadali M, Rajabi H, Kazemnejad A, Sadeghniiat Haghighi K, Amelvalizadeh M, et al. The effects of Pilates exercise on sleep quality in postpartum women. Journal of Bodywork and Movement Therapies 2014 Apr;18(2):190-199. 2014. IRCT No. 201102275912N2	
Study design	RCT cluster design	
Author affiliation	Seven authors affliated with a tertiary institution in Iran.	
Source of funds	Thanks to Tehran University of Medical Sciences, Iran, for financial support	
Declared interests of study authors	The authors declare no conflicts of interest.	
Setting / provider	Home-based setting	This study was approved by the Human Ethics and Care Committee at Tehran University of Medical Sciences (HECE No. 10301) and Iranian Registry of Clinical Trials (IRCT No. 201102275912N2).
Country(s) / region	Rafsanjan, Iran	
Enrolment period	April 2009 to September 2009	
Length of treatment / followup	2 months	
Description of population	*N=*	*Description*
# participants	80	Postpartum women
details	*Inclusion criteria:* Iranian, age between 18-35 years, primigravida, vaginal delivery, and full term delivery, as well as no history of physical or mental diseases or drug abuse. Participants all signed an informed consent form. *Exclusion criteria:* immigrants, women suffering from postnatal depression (Edinburgh postnatal depression score < /= 10), hospitalisation of the infants, and failure to perform the exercises for 3 consecutive sessions, or having more than 5 interrupted sessions.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	40	**Pilates home exercises** consisting of a set of 13 movements: bridging; hundred; roll up; one leg circle (both ways); rocker with closed legs; single straight leg stretch; double leg stretch; spine stretch forward; single leg kick; side kick up and down; side kick circles; rest position (stretch and relaxation); and curling. The assigned exercises were to be carried out early in the mornings for 30 min, preferrably after breastfeeding, five days a week; starting 72 h to 1 week after delivery and continuing for 8 weeks. Participants performed 3–5 repetitions of the 13 movements at the start, and to add two more repetitions for each movement every week until the end of the intervention. Participants received training for the exercises in four sessions over 3 week period prior to delivery. The participants were also given **a video, an educational booklet and a CD** for training purposes and were visited by the staff every two weeks for review, at which time they discussed and reviewed a daily exercise diary that was kept by the participant.
Comparator #1 (control)	40	ONE educational session on postnatal care was given to the control group. The control group was required provide information regarding any physical activities beyond their routine daily activities for exclusion. All the participants were followed up by weekly phone calls for further consultations.

Characteristics of included studies	Postpartum					
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	None specified				
Is practitioner/instructor certified?	No	Include in subgroup B		The participants in the intervention group were trained in four sessions by a professional trainer in sport physiology and through training videos.		
Is there an inactive comparator?	Yes	Comparison=control		See comparator #1. Considered to be "attention control" (not active)		
Outcomes (meaure, description, measurement tool, timing)		***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Not specified	Sleep quality	Baseline (24 hrs after birth), mid (4 weeks), end of treatment (8 weeks)	PSQI - Sleep quality	Higher score means worse sleep quality	
2	Not specified	Sleep latency	Baseline (24 hrs after birth), mid (4 weeks), end of treatment (8 weeks)	PSQI - Sleep latency	Higher is worse	
3	Not specified	Sleep duration	Baseline (24 hrs after birth), mid (4 weeks), end of treatment (8 weeks)	PSQI - Sleep duration	Higher is worse	
4	Not specified	Sleep efficiency	Baseline (24 hrs after birth), mid (4 weeks), end of treatment (8 weeks)	PSQI - Sleep efficiency	Higher is worse	
5	Not specified	Sleep disturbances	Baseline (24 hrs after birth), mid (4 weeks), end of treatment (8 weeks)	PSQI - Sleep disturbances	Higher is worse	
6	Not specified	Daytime dysfunction	Baseline (24 hrs after birth), mid (4 weeks), end of treatment (8 weeks)	PSQI-daytime dysfunction	Higher is worse	
7	Not specified	Global sleep quality	Baseline (24 hrs after birth), mid (4 weeks), end of treatment (8 weeks)	PSQI- global score	Higher score means worse sleep quality	
8	Not specified	Fatigue	Baseline (24 hrs after birth), mid (4 weeks), end of treatment (8 weeks)	Multidimensional Fatigue Inventory	Higher scores represent higher degree of fatigue	Subdomains - general, physical and mental fatigue, reduced activity, reduced motivation
9	--					

Characteristics of included studies	Postpartum
10	--
Method of analysis	
Statistics	Data were analyzed using SPSS.16. Descriptive statistical tests, independent t-test and Chi-square test were used to compare the differences of demographic variables between the two groups, where applies. The mean score of all 7 sleep quality components was calculated for each time point, which was then analyzed by Analysis of Variance with repeated measures, followed by post hoc Bonferroni tests. The data are expressed as mean SD. b Z 0.2 and p < 0.05 were considered as test power and significance, respectively.
Population analysed	Per protocol No consort provided. Mentions participants who missed 3 consecutive sessions or had 5 interrupted sessions were excluded.
Missing data	No information provided. Information to conduct ITT or mITT analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk related to exclusion of participants and extent of missing data (not known) that may bias results in favour of the intervention.

Characteristics of included studies	Chronic pain (fibromyalgia)
Study ID	**Altan 2009**
Study Reference/s	Altan L, Korkmaz N, Bingol U, Gunay B. Effect of pilates training on people with fibromyalgia syndrome: a pilot study. Archives of Physical Medicine & Rehabilitation. 2009;90(12):1983-8.
Study design	RCT
Author affiliation	Four author affliated with a tertiary institutions in Turkey.
Source of funds	Not specified
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	Rheumatology clinic Under the auspices of Najafabad Branch, Islamic Azad University.
Country(s) / region	Bursa, Turkey
Enrolment period	Not specified
Length of treatment / followup	12 weeks treatment, followup at 24 weeks
Description of population	*N=* *Description*
# participants	50 Women with fibromyalgia
details	*Inclusion criteria:* Diagnosis of Fibromyalgia according to the American College of Rheumatology criteria were included in the study. None of the participants had an accompanying rheumatoid disease, unstable hypertension, severe cardiopulmonary problems, or any psychiatric disorder affecting participant compliance. All participants were instructed to discontinue nonsteroidal anti-inflammatory drugs throughout the study period. The participants who had been begun antidepressive and/or sedative drugs at or prior to 1 month before the start of the study were allowed to continue their medication. They also were allowed to take acetaminophen when they had severe pain. For a more accurate pain assessment, patients were asked to not take acetaminophen on the morning of the assessment day. *Exclusion criteria:* Not reported
Description of intervention/ comparator (as per TIDIER checklist)	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Chronic pain (fibromyalgia)						
Study ID	**Altan 2009**						
Intervention	25	A Pilates exercise program of 1 hour was given by a certified trainer to 25 participants 3 times a week for 12 weeks. Resistance bands and 26cm Pilates balls were used as supportive equipment. The protocol comprosed 9 modules focused on postural education, neutral positions, sitting exercise, antalgic exercises, stretching, breathing and proprioception					
Comparator #1 (control)	--	--					
Comparator #2 (other)	25	Participants were given a home exercise relaxation/stretching program. The participants were instructed about this program of 1 hour 3 times a week for 12 weeks.					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	Yes	Include in subgroup A		Certified trainer - but details not provided			
Is there an inactive comparator?	No	Comparison=other		See comparator #2			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Chronic pain (fibromyalgia)					
Study ID	**Altan 2009**					
1	Primary	Pain	Baseline, end of treatment (12 wks), followup (24 wks)	Visual analogue scale (0-10)	Higher score means worse pain	
2	Primary	QoL - disease specific	Baseline, end of treatment (12 wks), followup (24 wks)	Fibromyalgia Impact Questionnaire (FIQ)	Higher score means greater impact of fibromyalgia on the participant.	
3	Not specified	Tenderness	Baseline, end of treatment (12 wks), followup (24 wks)	number of tender points	Higher score means more tenderpoints, thus greater tenderness	
4	Not specified	Pain threshold	Baseline, end of treatment (12 wks), followup (24 wks)	Pain threshold - alogometry	Not specified	
5	Not specified	Pain tolerance	Baseline, end of treatment (12 wks), followup (24 wks)	Pain tolerance - alogometry	Not specified	
6	Not specified	Strength and endurance	Baseline, end of treatment (12 wks), followup (24 wks)	Chair test	Higher score means better leg strength and endurance	
7	Not specified	QoL - general	Baseline, end of treatment (12 wks), followup (24 wks)	Nottingham Health Profile	Higher score means worse general health	
8	--					
9	--					
10	--					

Characteristics of included studies	Chronic pain (fibromyalgia)
Study ID	**Altan 2009**
11	--
12	--
13	--
Method of analysis	
Statistics	Statistical calculations used the SPSS 16.0 program. Posttreatment changes occurring in each group compared with pretreatment values using Wilcoxon test. Results between the 2 groups compared using Mann-Whitney U test after calculating the percentage changes for measured values and the difference scores for overall score values. We used Bonferroni correction for primary outcomes. Any P value less than .025 was considered significant.
Population analysed	Intent-to-treat Modified. One participant (comparator group) with missing information not included in the final analysis
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Some concerns related to knowledge of the intevention received and some missing information (allocation concealment, no statistical analysis plan).

Characteristics of included studies	Chronic pain (fibromyalgia)		
Study ID	**de Medeiros 2020**		
Study Reference/s	1.de Medeiros SA, de Almeida Silva HJ, do Nascimento RM, da Silva Maia JB, de Almeida Lins CA, de Souza MC. Mat Pilates is as effective as aquatic aerobic exercise in treating women with fibromyalgia: a clinical, randomized and blind trial. Advances in Rheumatology. 2020;60(1):21. 2.De Almeida Silva HJ, De Almeida Lins CA, Nobre TTX, De Sousa VPS, Caldas RTJ, De Souza MC. Mat Pilates and aquatic aerobic exercises for women with fibromyalgia: A protocol for a randomised controlled blind study: BMJ Open. 9 (2) (no pagination), 2019. Article Number: e022306. Date of Publication: 01 Feb 2019.; 2019.		
Study design	RCT		
Author affiliation	Six author affliated with a tertiary institutions in Brazil.		
Source of funds	This study was partly financed by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil (CAPES) – Master's degree scholarship, Finance Code 001.		
Declared interests of study authors	The authors declare that they have no competing interests.		
Setting / provider	Clinical physiotherapy school	Clinical school is affiliated with FACISA/UFRN in Santa Cruz, Rio Grande do Norte.	
Country(s) / region	Brazil		Santa Cruz, Brazil
Enrolment period	Not specified		
Length of treatment / followup	12 weeks		
Description of population	*N=*	*Description*	
# participants	42	Women with fibromyalgia	
details	*Inclusion criteria:* Women with fibromyalgia diagnosis were selected according to the 2010 American College of Rheumatology classification criteria, between 18 and 60 years of age and with pain between 3 and 8 on the Visual Analogue Pain Scale (VAS) were included. *Exclusion criteria:* Women with uncontrolled hypertension, decompensated cardiorespiratory disease, history of exerciseinduced syncope or arrhythmias, decompensated diabetes, severe psychiatric illness, history of regular exercise (at least twice a week) in the last 6 months or any another condition that made the patient unable to perform physical exercises were excluded.		
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Chronic pain (fibromyalgia)					
Study ID	**de Medeiros 2020**					
Intervention	21	Mat Pilates method in a groups of up to 4 women. Each session lasted about 50 min and performed twice a week for 12 weeks. Swiss ball was used as equiment as part of three exercises. Details of 10 exercises provided in the protocol, including: swan, one leg-up-down, leg circles, single leg stretch, saw, side kicks, hundreds, pelvic lift on the ball, sit-up on the ball, stretching on the ball Exercise progression: sessions 1-8=1 set of 8 repetitions; sessions 9-18=2 sets of 10 repetitions; sessions 16 to 24= 3 sets of 8 repetitions				
Comparator #1 (control)	--	--				
Comparator #2 (other)	21	Aquatic aerobic exercises lasting about 40 minutes and performd twice a week for 12 weeks. Exercise progression: sessions 1-8=1 set of 8 repetitions; sessions 9-18=2 sets of 10 repetitions; sessions 16 to 24= 3 sets of 8 repetitions				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Not specified	Include in subgroup C		physiotherapists experienced in either technique. Certification not specified.		
Is there an inactive comparator?	No	Comparison=other		See comparator #2		
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*

Characteristics of included studies	Chronic pain (fibromyalgia)					
Study ID	**de Medeiros 2020**					
1	Primary	Pain intensity	Baseline, end of treatment (12 wks)	Visual analogue scale (0-10)	Higher score means more pain	
2	Secondary	QoL - disease specific	Baseline, end of treatment (12 wks)	Fibromyalgia Impact Questionnaire (FIQ)*	Higher the FIQ score, the greater is the impact of fibromyalgia on the participant.	
3	Secondary	QoL - global	Baseline, end of treatment (12 wks)	SF-36	Higher score means better quality of life	
4	Secondary	Sleep quality	Baseline, end of treatment (12 wks)	Pittsburgh Sleep Quality Index	Higher score means poorer sleep quality	
5	Secondary	Sleep quality	Baseline, end of treatment (12 wks)	Epworth Sleepiness Scale (0-24)	probablity of dozing; score higher than 10 means more drowsiness	Listed in protocol. Results not reported
6	Secondary	Functional mobility	Baseline, end of treatment (12 wks)	timed up and go		Listed in protocol. Results not reported
7	Secondary	Functional mobility	Baseline, end of treatment (12 wks)	six minute walk test		Listed in protocol. Results not reported
8	Secondary	Pain experience	Baseline, end of treatment (12 wks)	Pain-related Catastrophising Thoughts Scale	Higher score means greater presence of catstrophic thoughts	Outcome not listed in protocol, but reported in study report
9	Secondary	Kinesiophobia	Baseline, end of treatment (12 wks)	Fear Avoidance Beliefs Questionnaire-Work (0-42)	Fears and beliefs related to occupational activities. Higher is worse	Outcome not listed in protocol, but reported in study report
10	Secondary	Kinesiophobia	Baseline, end of treatment (12 wks)	Fear Avoidance Beliefs Questionnaire-Physcial activities (0-24)	Relates to reducing fears and beliefs related to physical activities. Higher is worse	Outcome not listed in protocol, but reported in study report

Characteristics of included studies	Chronic pain (fibromyalgia)
Study ID	**de Medeiros 2020**
11	--
12	--
13	--
Method of analysis	
Statistics	Normal distribution tested with Kolmogorov-Smirnov test and Levene Test. Difference betweeen groups calculated using the ANOVA mixed model, which incorporates the intervention groups (MPG x AAEG), time (baseline, 12 weeks) and the groupx time interaction. When significant F value found, the Bonferroni post-hoc test applied to identify the idfferences. ITT used to assess ther response, with the last evaluation carried forwward as needed. Level of significance was accepted at 5% (95% CIs).
Population analysed	Intent-to-treat: Data were analysed by using an ITT model (LOCF). Authors present the ITT results with no mention of impact of missing data. The 3/21 follow-up losses in the Pilates group and 2/21 losses in the AAEG group. Authors also note “Treatment adherence percentage was 85.7% for the MPG and 90.5% for the AAEG groups"
Missing data	Last observation carried forward (LOCF) method was used to addressing missing data. Data to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Some concerns related to trial conduct and measurement of the outcome.

Characteristics of included studies	Chronic pain (fibromyalgia)	
Study ID	**Ekici 2014**	
Study Reference/s	1.Ekici G, Unal E, Akbayrak T, Vardar-Yagli N, Yakut Y, Karabulut E. Effects of active/passive interventions on pain, anxiety, and quality of life in women with fibromyalgia: Randomized controlled pilot trial. Women & Health. 2017;57(1):88-107. 2.Ekici G, Unal E, Akbayrak T, Yatli NV, Yakut Y. Active versus passive therapy in females with fibromyalgia; "pilates exercises and connective tissue massage": A randomized controlled pilot trial. [Turkish, English]. Fizyoterapi Rehabilitasyon. 2014;1):S14-S5.	
Study design	RCT	pseudorandomised
Author affiliation	Six authors affliated with tertiary institutions in Brazil.	
Source of funds	Not specified	
Declared interests of study authors	Not specified	
Setting / provider	Outpatient clinics	Affiliated with the Department of Physiotherapy and Rehabilitation, Faculty of Health Sciences, Hacettepe University, Ankara.
Country(s) / region	Ankara, Turkey	
Enrolment period	Jan-Aug 2013	
Length of treatment / followup	4 weeks	
Description of population	*N=*	*Description*
# participants	36	Women with fibromyalgia
details	*Inclusion criteria:* female; being over 25 years old; meeting the criteria for FM as defined by the American College of Rheumatology (ACR; Wolfe et al. 1990); having moderate pain (>5 based on the Visual Analogue Scale; VAS) before the baseline visit; having pain in the neck and shoulder region; and never having been treated for FM. *Exclusion criteria:* infection, fever, increased tendency to bleed, severe physical impairment, inflammatory disease, cardiopulmonary disorders, uncontrolled endocrine disorders, allergic disorders, pregnancy, malignancy, severe psychiatric illnesses, and factors known to affect autonomic function or medication usage. The participants were asked not to use any analgesics, muscle relaxants, non-steroidal anti-inflammatories, and antidepressants during the 3 days before the first appointment, during the treatment, and at the end of the treatment.	
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Chronic pain (fibromyalgia)					
Study ID	**Ekici 2014**					
Intervention	21	The Pilates group performed Pilates exercises three times per week over a 4 week period. Each session lasted one hour. Sessions included 20-minute warmup and cooldown (10 minutes each) and 40 minutes of Pilates Exercises. Intensity increased from 5 repetitions up to 10, with higher-level exercises introduced according to the groups progress.				
Comparator #1 (control)	--	--				
Comparator #2 (other)	22	The control group received connective tissue massages three times per week during a 4-week period. Each session was between 5-20 minutes. CTM was applied in a sitting postiion, without back support. Thighs and feet were fully supported, with pillow on lap for forearm support. MIddle fingers were used bilaterally, with CTM starting in the lumbo-scracl area and progressing to the lower thoracic, scapular, inter-scapular, and cervico-occipital sections according to the vascular reponse.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Yes	Include in subgroup A		Certified and experienced trainer with minimum 16 years of clinical experience.		
Is there an inactive comparator?	No	Comparison=other		See comparator #2		
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*

Characteristics of included studies	Chronic pain (fibromyalgia)				
Study ID	**Ekici 2014**				
1	Not specified	Anxiety	Baseline, end of treatment (4wks)	State-Trait Anxiety Inventory	Higher score means high anxiety
2	Not specified	Anxiety	Baseline, end of treatment (4wks)	Fibromyalgia Impact Questionnaire (FIQ) - anxiety	Higher score means a greater impact of fibromyalgia on the participant
3	Not specified	Depression	Baseline, end of treatment (4wks)	FIQ - depression	Higher score means a greater impact of fibromyalgia on the participant
4	Not specified	Fatigue	Baseline, end of treatment (4wks)	FIQ - Fatigue	Higher score means a greater impact of fibromyalgia on the participant
5	Not specified	Functional capacity	Baseline, end of treatment (4wks)	FIQ - function	Higher score means a greater impact of fibromyalgia on the participant
6	Not specified	Functional capacity	Baseline, end of treatment (4wks)	FIQ - physical function	Higher score means a greater impact of fibromyalgia on the participant
7	Not specified	Pain	Baseline, end of treatment (4wks)	FIQ - pain	Higher score means a greater impact of fibromyalgia on the participant
8	Not specified	Stiffness	Baseline, end of treatment (4wks)	FIQ - stiffness (0–10)	Higher score means a greater impact of fibromyalgia on the participant
9	Not specified	Sleep qualiy	Baseline, end of treatment (4wks)	FIQ - morning rest	Higher score means a greater impact of fibromyalgia on the participant
10	Not specified	Pain threshold	Baseline, end of treatment (4wks)	Pain threshold - alogometry	Higher score means higher pain threshold

Characteristics of included studies	Chronic pain (fibromyalgia)				
Study ID	**Ekici 2014**				
11	Not specified	Pain tolerance	Baseline, end of treatment (4wks)	Pain tolerance - alogometry	Higher score means better pain tolerance
12	Not specified	Pain intensity	Baseline, end of treatment (4wks)	Visual analogue scale (0-10)	Higher score means more pain
13	Not specified	QoL - global	Baseline, end of treatment (4wks)	Nottingham Health Profile	Higher score means worse general health
Method of analysis					
Statistics	Data were analyzed by the Statistical Package for the Social Sciences (SPSS) Version 17. Results were expressed as mean ± standard deviation (SD) of each score. The Wilcoxon Rank test was used to analyze the data from baseline and at the end of treatment. The Mann-Whitney U-test was used to examine differences in outcome measures between the groups at baseline and at the end of treatment. To control for baseline differences between the two treatment groups in the baseline values of the four measures of interest (variables were not normally distributed), non-parametric Quade's rank analysis of the covariance test was used for controlling the effect of baseline values for NHP-SI, NHP-PM, NHP TOT, and pain intensity when examining differences between groups in the change in the values for these measures. Level of significance was accepted at .05.				
Population analysed	Other (provide details)	Not specified. No indication of missing data/loss to followup/droppouts. Assumed that all participants analysed, except those with missing outcome data			
Missing data	No information available.				
INTERNAL VALIDITY					
Overall risk of bias (select from list)	High risk of bias in one or more key domains				
Summary (descriptive)	High risk related to randomisation, trial conduct, and missing data. Some concenrs with outcome measurement and selective reporting. Significant between group differences were found in baseline values of NHP-SI, NHP-PM, NHP TOT, and pain intensity .				

Characteristics of included studies	Low back pain
Study ID	**Anand 2014**
Study Reference/s	Albert Anand U, Mariet Caroline P, Arun B, Lakshmi Gomathi G. A study to analyse the efficacy of modified Pilates based exercises and therapeutic exercises in individuals with chronic non specific low back pain: a randomized controlled trial. International Journal of Physiotherapy and Research 2014 May-Jun;2(3):525-529. 2014.
Study design	RCT
Author affiliation	Four authors are affliated with tertiary institutions in India.
Source of funds	Not specified
Declared interests of study authors	The authors have no conflicts of interest to disclose.
Setting / provider	Not specified
Country(s) / region	Tamil Nadu, India
Enrolment period	Not specified
Length of treatment / followup	8 weeks
Description of population	*N=* *Description*
# participants	30 Adults with low back pain more than 12 weeks.
details	*Inclusion criteria:* Subjects with moderate low back pain not more than 5 in Visual analog scale, age group from 18 yrs to 60 yrs, both sex were included, pain with more than 3 months of duration, patient doing normal ADL activity , working population (since they do their routine activity), BMI within normal limit, not taking part in any of the research studies and not taking physiotherapy for the past 2 months of duration (to avoid the carry over effect) and no psychological or yellow flag subjects *Exclusion criteria:* subjects with Intervertebral disc prolapsed, radiating pain, stenosis, severe spondylosis and spondylolesthesis, cardiovascular problems, tumors, Infection or fracture, Osteoporesis, Radicular syndrome, Inflammatory disorder, Structural deformity not optimal for exercises and psychologically unstable patients.
Description of intervention/ comparator (as per TIDIER checklist)	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Anand 2014**						
Intervention	15	Modified Pilates Based Exercises for 45 minutes and general flexibility exercises given for 15 minutes prior to the modified Pilates exercises over 8 weeks Exercises include Modified side kick , Modified one leg stretch, Modified shoulder bridge, The hundred (base level modification), Swimming (a modification from a four point base), Modified swan dive, Modified roll up, Modified spine twist, Double arm stretch, Modified one leg circle.					
Comparator #1 (control)	--	--					
Comparator #2 (other)	15	Therapeutic exercises given for 45 minutes and general flexibility exercises given for 15 minutes prior to the therapeutic exercises over 8 weeks. The back exercises includes pelvic bridging, prone straight leg raise, prone cobra, and prone arm rise (unilateral initially and bilateral later), dynamic strengthening Exercises, Stationary bicycle and Swiss ball Coordination Exercises.					
Comparator #3 (other)	--	--					
Co-interventions	30	All participants provided with a back care book - self explanatory anatomy, causes of back pain, self treatment measures, good/bad posture with pictures, what to do and what not to do. Explanation provided by on therapist on a one-to-one basis.					
Is practitioner/instructor certified?	Yes	Include in subgroup A		Each class was scheduled to last for 45 min and was led by a certified Pilates instructor.			
Is there an inactive comparator?	No	Comparison=other		See comparator #2			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Anand 2014**					
1	Not specified	Pain intensity	Baseline, end of treatment (8 wks)	Visual analogue scale	Higher score means worse pain	
2	Not specified	Functional disability	Baseline, end of treatment (8 wks)	Oswestry Disability Index (0-100)	Higher score means more disability in daily living activities	
3	--					
4	--					
5	--					
6	--					
7	--					
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain
Study ID	**Anand 2014**
11	--
12	--
13	--
Method of analysis	
Statistics	Analyses were performed using the SPSS statistical software package. Paired't' test were used for the measurement of pre-test and post-test values of group A and B. Unpaired 't' test were used to compare the post-test values of Group A and B. Probability values of less than 0.05 were considered significant.
Population analysed	Intent-to-treat No information provided (no consort). Assumed that all participants analysed, except those with missing outcome data
Missing data	No information available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk due to deviations from intended interventions and missing data were not reported. The prespecified analysis plan was not available nor were the authors intentions sufficiently descibed in the publication.

Characteristics of included studies	Low back pain	
Study ID	**Avila Ribeiro 2015**	
Study Reference/s	Avila Ribeiro I, Damé de Oliveira T, Redin Blois C. Effects of Pilates and Classical Kinesiotherapy on chronic low back pain: a case study. Fisioterapia em Movimento. 2015;28(4):759-65.	
Study design	RCT	pseudorandomised
Author affiliation	Three authors are affliated with tertiary institutions in Brazil	
Source of funds	Not specified	
Declared interests of study authors	Not specified	
Setting / provider	Outpatient clinic, tertiary hospital	The department is affiliated with the São Francisco de Paula University Hospital, which belongs to the Catholic University of Pelotas.
Country(s) / region	Pelotas, Brazil	
Enrolment period	Not specified	
Length of treatment / followup	2.5 months	
Description of population	*N=*	*Description*
# participants	5	Adults with low back pain for more than 12 weeks
details	*Inclusion criteria:* Patients were referred by the doctor in charge of the Department of Orthopedics and Traumatology of the HUSFP, after clinical diagnosis of chronic low back pain. Participants were adults aged 20-55 years, who had had low back pain for more than 12 weeks, and who accepted to participate in the study. *Exclusion criteria:* Patients with herniated disc, neurological disorders, ankylosing spondylitis, rheumatoid arthritis, root compression, spinal stenosis or fibromyalgia, as well as regular exercise practitioners were excluded from the study.	
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain					
Study ID	**Avila Ribeiro 2015**					
Intervention	3	Pilates method = 50 minutes sessions twice weekly for 10 weeks completing 20 sessions. They performed an exercise protocol based on the Pilates method, which included exercises focusing on the "power house" (in Pilates, this includes the abdominal, transversus abdominis, multifidus and pelvic floor muscles), which is responsible for static stabilization and body dynamics. The protocol also consisted of exercises for stretching the posterior and lateral chain muscles, as well as exercises for strengthening the abdominal muscles.				
Comparator #1 (control)	--	--				
Comparator #2 (other)	2	Classical kinesiotherapy = 50 minute sessions twice weekly for 10 weeks completing 20 sessions. They performed an exercise protocol consisting of ten Classical Kinesiotherapy exercises for strengthening the abdominal, trunk extensor, and gluteal muscles, and exercises for stretching the hamstring, psoas and paraspinal muscles.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Not specified	Include in subgroup C				
Is there an inactive comparator?	No	Comparison=other		See comparator #2		
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*

Characteristics of included studies	Low back pain				
Study ID	**Avila Ribeiro 2015**				
1	Not specified	Pain intensity	Baseline, end of treatment (10 wks)	Visual analogue scale (0-10)	Higher score means worse pain
2	Not specified	Functional disability	Baseline, end of treatment (10 wks)	Oswestry Disability Index (0-100)	Higher score means more disability in daily living activities
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				

Characteristics of included studies	Low back pain
Study ID	**Avila Ribeiro 2015**
11	--
12	--
13	--
Method of analysis	
Statistics	Baseline and post-treatment VAS pain intensity scores and Oswestry Disability Index scores were compared using the statistical software STATA 12.1. The Wilcoxon signed-rank test for paired data and the Wilcoxon rank-sum test for independent data. The level of significance was set at 5% ($p < 0.05$).
Population analysed	Intent-to-treat No information provided (no consort). Assumed that all participants analysed, except those with missing outcome data
Missing data	No information available.
INTERNAL VALIDITY Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	Failure to report on randomisation process and allocation concealment or baseline data had high risk of bias. Concerns were raised due to particpants being aware of their treatment allocation and the self-reported nature of outcome measures indicates particpants could have biased their responses. Concerns were also raised due to the pre-specified intentions were not available.

Characteristics of included studies	Low back pain
Study ID	**Bhaduria 2017**
Study Reference/s	Bhadauria EA, Gurudut P. Comparative effectiveness of lumbar stabilization, dynamic strengthening, and Pilates on chronic low back pain: randomized clinical trial. Journal of Exercise Rehabilitation. 2017;13(4):477-85.
Study design	RCT
Author affiliation	Authors are affliated with tertiary institutions in India
Source of funds	Not specified
Declared interests of study authors	The authors have no conflicts of interest to disclose.
Setting / provider	Outpatient clinic, tertiary hospital
Country(s) / region	Karnataka, India
Enrolment period	March 2016 to February 2017
Length of treatment / followup	0.75 months
Description of population	*N=* *Description*
# participants	44 Adults with low back pain for more than 12 weeks
details	*Inclusion criteria:* (a) all male and female adults between age group of 20–60 years, (b) subjects with nonspecific back pain >3 months, and (c) subjects willing to participate in the study. *Exclusion criteria:* (a) subjects with specific back pain (fracture, osteoporosis or degenerative changes, prolapse intervertebral disc, bone disorders, arthritis, tumour), (b) subjects with neurological involvement (radiculopathy, myelopathy), (c) subjects with previous spinal surgery, (d) subjects with spinal infections, and (e) subjects with severe psychiatric disorder.
Description of intervention/ comparator (as per TIDIER checklist)	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Bhaduria 2017**						
Intervention	15	Pilates group: Ten sessions of Pilates exercises for 3 weeks. The total therapy lasted for 60 min. In the first seesion, participants were trained to activate the pwerhouse, which represents the isometric contractions. This included finding neutral spine, breathing, engagiging pelvic floor and the transverse. Static positions were held for 10 seconds, and each exercsie performed for 10 repetitions. Exercise intensity (holding time and number of repetitions) were increased gradually based on participant performance.					
Comparator #1 (control)	--	--					
Comparator #2 (other)	15	Lumbar group: Ten sessions of lumbar stabilization exercises for 3 weeks. The total therapy lasted for 60 min. 16 exersicses presribed once, and were performed consecutively and inorder. Subjects practised 'hollowing' with a therapist providing verbal instructions and tactile feedback. Static positions were held for 10 seconds, and each exercsie performed for 10 repetitions. Exercise intensity (holding time and number of repetitions) were increased gradually based on participant performance.					
Comparator #3 (other)	14	Dynamic group: Ten sessions of dynamic strengthening exercises for 3 weeks. The total therapy lasted for 60 min. 14 exercises which activated the extensor (erector spine) and flexor (rectus abdominis) muscle groups. Static positions were held for 10 seconds, and each exercsie performed for 10 repetitions. Exercise intensity (holding time and number of repetitions) were increased gradually based on participant performance.					
Co-interventions	44	Hot moist pack (HMP) and interferential current (IFT) were given as a part of conventional treatment for all the participants. HMP applied for 15 minutes on low back region followed by IFT for 20 minutes.					
Is practitioner/instructor certified?	Yes	Include in subgroup A		A certified instructor with experience in PILATES was responsible for the entire training program.			
Is there an inactive comparator?	No	Comparison=other		See comparator #2 & 3			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Bhaduria 2017**					
1	Not specified	Pain intensity	Baseline, end of treatment (3 weeks)	Visual analogue scale (0-10)	Higher score mean more pain	
2	Not specified	Functional disability	Baseline, end of treatment (3 weeks)	Modified Oswestry Disability Index	Higher score means more disability in daily living activities	
3	Not specified	Core muscle strength	Baseline, end of treatment (3 weeks)	pressure biofeedback	Higher score means better core muscle strength	
4	Not specified	Range of motion, lumbar	Baseline, end of treatment (3 weeks)	Schober method	Higher score means better lumbar range of motion	
5	--					
6	--					
7	--					
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain	
Study ID	**Bhaduria 2017**	
11	--	
12	--	
13	--	
Method of analysis		
Statistics	Statistical analysis was done manually as well as using IBM SPSS Statistics ver. 20.0 (IBM Co., Armonk, NY, USA). Applied paired t-test was calculated by one-way analysis of variance (ANOVA) and P<0.005 was considered significant. Probability value less than 0.05 was considered statistically significant. The pair wise comparison of groups by Tukey multiple post hoc procedures. Nominal data from subject's demographic data i.e., age, body mass index (BMI), duration of symptoms was calculated by oneway ANOVA (Table 1). The normative values of outcome measure like VAS, MODQ, lumbar flexion and extension, core strength were analyzed using Kolmogorov–Smirnov test. Since all the pretest and posttest scores of different variables in study groups follow normal distribution therefore parametric test is applied.	
Population analysed	Intent-to-treat	No information provided (no consort). Assumed that all participants analysed, except those with missing outcome data. Data was not avaliable for all participants (18.2%) with two drop outs in the Pilates group.
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	High risk of bias in one or more key domains	
Summary (descriptive)	Data was not avaliable for all participants (18.2%) with two drop outs in the Pilates group health problem related which likely biased the outcome data. Concerns were raised due to particpants being aware of their treatment allocation and the self-reported nature of outcome measures indicates particpants could have biased their responses. Concerns were also raised due to the pre-specified intentions were not available.	

Characteristics of included studies	Low back pain
Study ID	**Brooks 2012**
Study Reference/s	1.Marshall PW, Kennedy S, Brooks C, Lonsdale C. Pilates exercise or stationary cycling for chronic nonspecific low back pain: does it matter? a randomized controlled trial with 6-month follow-up. Spine. 2013;38(15):E952-9. 2.Kennedy S. Exercise rehabilitation programs for chronic non-specific low back pain: A comparison of Pilates exercise and general aerobic exercise. Journal of Science and Medicine in Sport. 2012;15 (SUPPL.1):S80. 3.Brooks C, Kennedy S, Marshall PW. Specific trunk and general exercise elicit similar changes in anticipatory postural adjustments in patients with chronic low back pain: a randomized controlled trial. Spine. 2012;37(25):E1543-50.
Study design	RCT randomised in blocks of eights
Author affiliation	Authors are affliated with tertiary institutions in Australia
Source of funds	No funds were received in support of this work.
Declared interests of study authors	Not specified
Setting / provider	Local community
Country(s) / region	Sydney, Australia
Enrolment period	Not specified
Length of treatment / followup	8 weeks + 6 months followup
Description of population	*N=* *Description*
# participants	64 Adults with low back pain for more than 12 weeks
details	*Inclusion criteria:* males and females aged 18 to 50 years with ongoing recurrent LBP (>12 wk) located between the costal margins and inferior gluteal folds. *Exclusion criteria:* presence of a postural abnormality contributing to the diagnosis, pain radiating below the knee, known history of or currently symptomatic lumbar disc hernia or fracture (60% of participants had undergone magnetic resonance imaging and/or radiography in the last 2 yr), history of back surgery, diagnosed inflammatory joint disease, known severe osteoporosis, known metabolic or neuromuscular disease, pregnancy, recent (<3 mo) participation in an exercise program or any form of physical treatment (i.e., manipulation, mobilization, massage).
Description of intervention/ comparator (as per TIDIER checklist)	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Brooks 2012**						
Intervention	32	The specific trunk exercise group (SEG) performed Pilates. The SEG classes were 3 times per week for a total of 8 weeks. Every exercise class was between 50 and 60 minutes duration, and was supervised with a participant to instructor ratio of 10:1.					
Comparator #1 (control)	--	--					
Comparator #2 (other)	32	The stationary cycling exercise group (CEG) performed cycling using a bike. The CEG classes were 3 times per week for a total of 8 weeks. Every exercise class was between 50 and 60 minutes duration, and was supervised with a participant to instructor ratio of 10:1.					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	Not specified	Include in subgroup C		Both exercise programs were designed by instructors with more than 10 years experience in that type of programming.			
Is there an inactive comparator?	No	Comparison=other		See comparator #2			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Brooks 2012**					
1	Primary	Pain intensity	Baseline, end of treatment (8 weeks)	Visual analogue scale (0-10)	Higher score means more pain	
2	Primary	Functional disability	Baseline, end of treatment (8 weeks)	Oswestry Disability Index (0-100)	Higher score means more disability in daily living activities	
3	Primary	Pain catastrophising	Baseline, end of treatment (8 weeks)	Pain Catastrophising Scale (13-item)	Higher scores means more catastrophic thoughts or feelings	
4	Primary	Kinesiophobia	Baseline, end of treatment (8 weeks)	Fear Avoidance Beliefs Questionnaire		Examines beliefs about the potential harm of work or general physical activity to their back pain.
5	--					
6	--					
7	--					
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain
Study ID	**Brooks 2012**
11	--
12	--
13	--
Method of analysis	
Statistics	Data were analyzed using SPSS version 20 (IBM, New York, NY) with "intention-to-treat" principles. Comparison of baseline demographic and self-report variables between the groups was performed using independent samples t tests. To examine whether exercise differentially influenced selfreport variables measured at 8 weeks and 6 months, analysis of covariance procedures were used to compare dependent variables between exercise groups (SEG and CEG). Baseline scores of the dependent variable analyzed, age, sex, and duration of symptoms were entered as covariates. Effect sizes (d) proposed by Cohen (d = 0.8 is a large effect, d = 0.5 is moderate, and d = 0.3 a small effect), and 95% confidence intervals were calculated for changes in the dependent variables. A 30% or more reduction from baseline scores for the primary outcome variables (VAS, ODI) was considered a clinically meaningful improvement (CMI). Participants were dichotomized by CMI for ODI and VAS scores. A $\chi 2$ test was used to assess differences between the group regarding CMI.
Population analysed	Other (provide details): Data were analysed and reported using an ITT model (LOCF and Markov chain Monte Carlo). Re-analysis using only adherent participants (PP) also mentioned in text, but not complete for all outcomes/timepoints. SEG attendance was 21.8 ± 1.9 out of the 24 sessions (with 91% of participants completing at least 2/3 of exercise sessions), and CEG attendance was 19.0 ± 4.2 sessions (72% of participants adherent).
Missing data	Missing values (n = 2 at 8 wk, n = 12 at 6 mo) were replaced using 2 methods. The LOCF was used for participants who withdrew from the study within the first week of training, and multiple imputation analysis using the Markov chain Monte Carlo method 51 was used for participants who withdrew during the training intervention. Data suggest ITT at end of treatment (8 wks) overstates the effect for Oswestry disability index slightly: ITT (MD 6.8; 95% CI 0.9, 11.9; $p < 0.05$) and PP (MD 5.0; 95% CI -0.4, 10.5; $p = 0.069$) but not Pain (VAS): ITT (MD 1.1; 95% CI 0.1, 2.1; $p < 0.05$) and PP (MD 1.3; 95% CI 0.2, 2.4; $p = 0.022$)
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Some concerns due to trial conduct, missing outcome data that was not balance between groups, and measurement of the outcome.

Characteristics of included studies	Low back pain		
Study ID	**Cruz-Diaz 2015**		
Study Reference/s	Cruz-Diaz D, Martinez-Amat A, De la Torre-Cruz MJ, Casuso RA, de Guevara NM, Hita-Contreras F. Effects of a six-week Pilates intervention on balance and fear of falling in women aged over 65 with chronic low-back pain: A randomized controlled trial. Maturitas. 2015;82(4):371-6		
Study design	RCT		
Author affiliation	Six authors are affliated with tertiary institutions in Spain.		
Source of funds	The authors received no funding for this article		
Declared interests of study authors	The authors have no conflicts of interest to disclose.		
Setting / provider	Physical therapy unit		
Country(s) / region	Spain		Not specified
Enrolment period	Not specified		
Length of treatment / followup	1.5 months		
Description of population	*N=*	*Description*	
# participants	103	Women (>65 yrs) with chronic low back pain for more than 12 weeks	
details	*Inclusion criteria:* Community living women aged over 65 years seeking physiotherapy treatment for CLBP were eligible for recruitment. LBP for at least three months; absence of radiculopathy or other damages to the spine such as fractures, stenosis, or tumors; not being an habitual Pilates practitioner; and physical autonomy to perform basic daily activities.		
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Low back pain						
Study ID	**Cruz-Diaz 2015**						
Intervention	51	Pilates exercise training (two x 1 hour sessions per week) for 6 weeks. No other details provided.					
Comparator #1 (control)	52	No intervention					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	103	Physiotherapy delivered two times per week over 6 weeks. This included the application of Transcutaneus Electrical Nerve Stimulation with a pulse frequency of 100 Hz for 40 minutes and 20 minutes of massage and stretching of the low-back zone.					
Is practitioner/instructor certified?	Not specified	Include in subgroup C					
Is there an inactive comparator?	Yes	Comparison=control		Pilates as an adjunct to Physical therapy			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Cruz-Diaz 2015**					
1	Not specified	Fear of falling	Baseline, end of treatment (6wks)	Falls Efficacy Scale-International	Higher score means greater concerns with falling	16=total absence of concern, 64=extreme concern
2	Not specified	Functional mobility	Baseline, end of treatment (6wks)	Timed Up and Go Test	Higher score means poorer functional perfomance	Stand from chair, walk 3 metres, turn, and sit
3	Not specified	Pain intensity	Baseline, end of treatment (6wks)	Numeric pain rating scale (0-10)	Higher score means more pain	
4	--					
5	--					
6	--					
7	--					
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain
Study ID	**Cruz-Diaz 2015**
11	--
12	--
13	--
Method of analysis	
Statistics	Statistical analyses were performed using SPSS statistical software, version 17.0 (SPSS, Inc., Chicago, IL, USA). Mean values, standard deviations, number of cases, and the percentage of total for each variable of interest were calculated. Student's t test for independent samples and statistical Chi-square test were used to examine the differences between both study groups. A mixed variance analysis was employed in which therapeutic intervention (Pilates + physical therapy vs physical therapy) was the between-group factor and measurement time (pre-treatment – post-treatment) was the within-subject variable. Dependent variables were FoF, time to perform TUG test, and perceived low-back pain intensity. Separated analyses were performed for each dependent variable. A possible interaction between treatment × measurement time was examined. A p value below 0.05 was considered statistically significant. Intergroup effect sizes were calculated using Cohen's d. An effect size <0.2 reflects a negligible difference, ≥0.2 but ≤0.5 a small difference, ≥0.5 but ≤0.8 a moderate difference, and ≥0.8 a large difference
Population analysed	Intent-to-treat: Modified. Participants with missing data not included in the final analysis. There were 4/51 participants in the Pilates group and 2/52 participants in the control group lost to followup.
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Some concerns related to missing infomration on allocation concealment and concerns related to outcome measurement.

Characteristics of included studies	Low back pain		
Study ID	**Cruz-Diaz 2016**		
Study Reference/s	Cruz-Diaz D, Martinez-Amat A, Osuna-Perez MC, De la Torre-Cruz MJ, Hita-Contreras F. Short- and long-term effects of a six-week clinical Pilates program in addition to physical therapy on postmenopausal women with chronic low back pain: a randomized controlled trial. Disability & Rehabilitation. 2016;38(13):1300-8.		
Study design	RCT		
Author affiliation	Five authors are affliated with tertiary institutions in Spain.		
Source of funds	No funding or support was perceived with any author or collaborator.		
Declared interests of study authors	Not specified		
Setting / provider	Three community sport centers (gyms)		
Country(s) / region	Spain		Not specified
Enrolment period	Not specified		
Length of treatment / followup	12 months		
Description of population	*N=*	*Description*	
# participants	112	Women (45-75 yrs) with low back pain for more than 12 weeks	
details	*Inclusion criteria:* female; age between 45 and 75 years; suffering from LBP for at least three months; absence of radiculopathy or other damages to the spine such as fractures, stenosis, or tumors; not habitual Pilates practitioners; not receiving other physical therapy during the trial or immediately prior thereto; and enough physical autonomy to participate in the physical activities required by the study		
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Low back pain						
Study ID	**Cruz-Diaz 2016**						
Intervention	57	Pilates sessions were one hour long delivered twice per week for 6 weeks. Implements such as fitballs, magic rings and TheraBands were used as a component of the exercises					
Comparator #1 (control)	55	No intervention					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	112	Physical therapy consisted of the application of analgesic electrotherapy (40 minutes) and joint mobilization of the lumbar spine (10 minutes) over the 6 week treatment period.					
Is practitioner/instructor certified?	Yes	Include in subgroup A		The Pilates classes were performed with Pilates instructed physiotherapist with more than 5 years of experience.			
Is there an inactive comparator?	Yes	Comparison=control		Pilates as an adjunct to Physical therapy			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain				
Study ID	**Cruz-Diaz 2016**				
1	Primary	Pain intensity	Baseline, end of treatment (6wks)	Numeric pain rating scale (0-10)	Higher score means more pain
2	Secondary	Functional disability	Baseline, end of treatment (6wks)	Oswestry Disability Index (0-100)	Higher score means more disability in daily living activities
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				

Characteristics of included studies	Low back pain
Study ID	**Cruz-Diaz 2016**
11	--
12	--
13	--
Method of analysis	
Statistics	Sample size determination was performed with appropriate software based on Primary outcome (Epidat 2.0). The calculation was based on detecting between group differences of 1 point in NRS assuming a standard deviation of 1.5. A decrease of 1 point in NRS was regarded as clinically important. Using an alpha of 0.05 and a power of 80%, a sample size of at least 37 patients per group was estimated. To account for possible participant dropouts, we recruited 101 participants. Statistical analyses were performed using SPSS statistical software, version 17.0 (SPSS, Inc., Chicago, IL) and were conducted according to intention to treat. Mean and standard deviations were calculated for each variable. Normal distribution was evaluated using the Kolmogorov–Smirnov test. Student's t-tests were used to examine the differences in sociodemographic, medical and clinical features between the intervention and control groups at baseline. A mixed variance analysis was employed in which therapeutic intervention (Pilates + physical therapy versus physical therapy) was between group factor and measurement time (pre-treatment, post-treatment and follow-up) was the within subject variable. Dependent variables were perceived low back pain intensity and percentage in functional disability associated with low back pain. Separated analyses were performed with each dependent variable (pain and disability). A possible interaction between treatment measurement time was examined. A p value below 0.05 was considered statistically significant. Intergroup effect sizes were calculated according to Cohen's d statistic. An effect size <0.2 reflects a negligible difference, <0.2 but >0.5 a small difference, >0.5 but <0.8 a moderate difference, and >0.8 a large difference.
Population analysed	Intent-to-treat: Modified. Participants with missing data not included in the final analysis. There were 4/57 participants in the Pilates group and 5/55 participants in the control group lost to followup.
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Concerns were raised due to the proportion of participants who discontinued the intevention and the proportion of missing data (~10%) without analysis to adjust for missing data. In addition, particpants were likely aware of their treatment allocation and together with the self-reported nature of outcome measures may have biased the results of the outcomes. Concerns were also raised due to the pre-specified intentions were not available.

Characteristics of included studies	Low back pain
Study ID	**Cruz-Diaz 2017**
Study Reference/s	Cruz-Diaz D, Bergamin M, Gobbo S, Martinez-Amat A, Hita-Contreras F. Comparative effects of 12 weeks of equipment based and mat Pilates in patients with Chronic Low Back Pain on pain, function and transversus abdominis activation. A randomized controlled trial. Complementary Therapies in Medicine. 2017;33:72-7. * [query] study mentions NCT02371837 in publication but eligibility criteria, number of included patients, outcomes measures don't match.
Study design	RCT
Author affiliation	Five authors are affliated with tertiary institutions in Spain
Source of funds	The author(s) received no financial support for the research, authorship and/or publication of this article.
Declared interests of study authors	The authors had no conflicts of interest to disclose.
Setting / provider	Community sport centers (gyms)
Country(s) / region	Spain
Enrolment period	Not specified
Length of treatment / followup	12 weeks
Description of population	*N=* *Description*
# participants	102 Adults with low back pain for more than 12 weeks
details	*Inclusion criteria:* A history of at least twelve weeks of low back pain; age between 18 and 50; pain between 3 and 7 on a 10-cm visual analog scale; absence of radiculopathy or other damages to the spine such as fractures, stenosis, or tumors; not habitual Pilates practitioners; not receiving other physical therapy treatment during the trial or immediately prior thereto (previous 6 months); pregnancy and enough physical autonomy to participate in the physical activities required by the study
Description of intervention/ comparator (as per TIDIER checklist)	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Cruz-Diaz 2017**						
Intervention	34 in each Pilates group	Both exercise groups were carried out for 12 weeks; being 50 minute sessions, twice per week. They were performed in small group of 4 participants, and monitored by a Pilates expert physiotherapist. Training included warm-up, followed by a series of strength, flexibility and coordination exercises, then cool down including active stretching and myofascial release. 1. The Mat Pilates group 2. The equipment based (Reformer) Pilates group					
Comparator #1 (control)	34	Control group received no intervention					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	Yes	Include in subgroup A		Monitored by a Pilates expert physiotherapist			
Is there an inactive comparator?	Yes	Comparison=control		See comparator #1			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Cruz-Diaz 2017**					
1	Primary	Pain intensity	Baseline, mid (6 weeks) and end of treatment (12wks)	Visual analogue scale (0-10)	Higher score means worse pain	
2	Secondary	Functional disability	Baseline, mid (6 weeks) and end of treatment (12wks)	Roland-Morris Disability Questionnaire (24-item)	Higher score means more disability in daily living activities	0=no disability, 24=high disability
3	Secondary	Kinesiophobia	Baseline, mid (6 weeks) and end of treatment (12wks)	Tampa Scale of Kinesiophobia (17-item)	Higher score means more severe fear of movement/injury	0=absence of fear, 68=highest fear
4	Secondary	transversus abdominus activation	Baseline, mid (6 weeks) and end of treatment (12wks)	transversus abdominus thickness (real-time ultrasound)	% change in thickness at relaxation and activation	
5	--					
6	--					
7	--					
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain
Study ID	**Cruz-Diaz 2017**
11	--
12	--
13	--
Method of analysis	
Statistics	Data were analyzed using the SPSS version 23.0 statistical package (SPSS, Inc., Chicago, IL). The normal distribution of continuous variables was verified using the Kolmogorov-Smirnov test ($p < 0.05$). Mean and standard deviations were calculated for each variable. Between-groups variables were compared using the Student t-test or non-parametric equivalent, Mann–Whitney U test. To determine differences in the outcomes between groups over time repeated-measures ANOVA were performed. Mauchly's test was used to test the assumption of sphericity. When sphericity was not assumed, the GreenhouseGeisser adjustment was applied. When the F value was significant, the Bonferroni post hoc test was used to identify the differences. Sample size calculation was performed with ENE 3.0 (GlaxoSmithKline, Brentford, United Kingdom) based on related studies examining the effects of Pilates on back pain assuming a 20% improvement in the pain VAS score, with 80% power at the 0.05 level with an estimated drop out of 10% 36 subjects per group were required.
Population analysed	Intent-to-treat: Modified. Participants with missing data not included in the final analysis. There were 4/34 participants in the control group lost to followup.
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk of bias due to prespecified intentions do not match what is reported, suggesting selection in the reported reults. Some concerns relating to measurement of the outcome.

Characteristics of included studies	Low back pain	
Study ID	**Cruz-Diaz 2018**	
Study Reference/s	Cruz-Diaz D, Romeu M, Velasco-Gonzalez C, Martinez-Amat A, Hita-Contreras F. The effectiveness of 12 weeks of Pilates intervention on disability, pain and kinesiophobia in patients with chronic low back pain: a randomized controlled trial. Clinical Rehabilitation. 2018;32(9):1249-57. * [query] study mentions NCT02371837 in publication but eligibility criteria, number of included patients, outcomes measures don't match.	
Study design	RCT	
Author affiliation	Five authors are affliated with tertiary institutions in Spain	
Source of funds	The author(s) received no financial support for the research, authorship and/or publication of this article.	
Declared interests of study authors	The authors had no conflicts of interest to disclose.	
Setting / provider	Physical therapy unit	
Country(s) / region	Spain	
Enrolment period	Not specified	
Length of treatment / followup	12 weeks	
Description of population	*N=*	*Description*
# participants	64	Adults (18-50 yrs) with low back pain for more than 12 weeks
details	*Inclusion criteria:* A history of at least twelve weeks of low back pain; age between 18 and 50; absence of radiculopathy or other damages to the spine such as fractures, stenosis, or tumors; not habitual Pilates practitioners; not receiving other physical therapy treatment during the trial or immediately prior thereto (previous 6 months); pregnancy and enough physical autonomy to participate in the physical activities required by the study	
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Cruz-Diaz 2018**						
Intervention	32	The Mat Pilates group carried out 12 weeks of 50 minute sessions, twice per week of Pilates exercises with a mat. The exercises were monitored by a Pilates expert physiotherapist and included warm-up with breathing, Pilates exercsies, and cool down with stretching.					
Comparator #1 (control)	32	Control group received booklet about CLBP					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	Yes	Include in subgroup A		Monitored by a Pilates expert physiotherapist			
Is there an inactive comparator?	Yes	Comparison=control		See comparator #1			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Cruz-Diaz 2018**					
1	Primary	Functional disability	Baseline, mid (6 weeks) and end of treatment (12wks)	Roland-Morris Disability Questionnaire (24-item)	Higher score means more disability in daily living activities	0=no disabIlity, 24=high disability
2	Secondary	Pain intensity	Baseline, mid (6 weeks) and end of treatment (12wks)	Visual analogue scale (0-10)	Higher score means more intense pain	0=absence of pain, 10=great pain
3	Secondary	Kinesiophobia	Baseline, mid (6 weeks) and end of treatment (12wks)	Tampa Scale of Kinesiophobia (17-item)	Higher score means more severe fear of movement/injury	0=absence of fear, 68=highest fear
4	Secondary	transversus abdominus activation	Baseline, mid (6 weeks) and end of treatment (12wks)	transversus abdominus thickness (real-time ultrasound)	% change in thickness at relaxation and activation	
5	--					
6	--					
7	--					
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain
Study ID	**Cruz-Diaz 2018**
11	--
12	--
13	--
Method of analysis	
Statistics	Data were analyzed using the SPSS version 23.0 statistical package (SPSS, Inc., Chicago, IL). The normal distribution of continuous variables was verified using the Kolmogorov-Smirnov test ($p < 0.05$). Mean and standard deviations were calculated for each variable. Between-groups variables were compared using the Student t-test or non-parametric equivalent, Mann–Whitney U test. To determine differences in the outcomes between groups over time repeated-measures ANOVA were performed. Mauchly's test was used to test the assumption of sphericity. When sphericity was not assumed, the GreenhouseGeisser adjustment was applied. When the F value was significant, the Bonferroni post hoc test was used to identify the differences. Sample size calculation was performed with ENE 3.0 (GlaxoSmithKline, Brentford, United Kingdom) based on related studies examining the effects of Pilates on back pain assuming a 20% improvement in the pain VAS score, with 80% power at the 0.05 level with an estimated drop out of 10% 36 subjects per group were required.
Population analysed	Intent-to-treat: Modified. Participants with missing data not included in the final analysis. There were 2 participants in the control group lost to followup.
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk of bias due to prespecified intentions do not match what is reported, suggesting selection in the reported reults. Some concerns relating to measurement of the outcome.

Characteristics of included studies	Low back pain	
Study ID	**da Fonseca 2009**	
Study Reference/s	da Fonseca JL, Magini M, de Freitas TH. Laboratory gait analysis in patients with low back pain before and after a pilates intervention. Journal of Sport Rehabilitation. 2009;18(2):269-82.	
Study design	RCT	pseudorandomised
Author affiliation	3 authors are affliated with tertiary institutions in Brazil	
Source of funds	not specified	
Declared interests of study authors	not specified	
Setting / provider	College Physiotherapy Clinic	
Country(s) / region	Paraíba Valley University, São José dos Campos, Brazil	
Enrolment period	not specified	
Length of treatment / followup	not specified	
Description of population	*N=*	*Description*
# participants	28	Adults with low back pain for more than 6 months
details	*Inclusion criteria:* 18-59yrs, low back pain for at least 6 months, independent gait execution without the use of any support device (crutch, walking stick) *Exclusion criteria:* neurological disease, major visual deficits, true leg-length discrepancy greater than 2 cm, and history of ankylosing spondylosis, disc herniation, tumor, infection or fracture, cauda equina syndrome, spine-fusion surgery, or any lower extremity orthopedic surgery within 1 year of the beginning of the study	
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**da Fonseca 2009**						
Intervention	8	Pilates group performed 15 sessions of Pilates exercises for 60mins and had 2 sessions per week.					
Comparator #1 (control)	9	no-Pilates group continued with their normal activities and did not undergo any other type of treatment					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	--	Participants were allowed to continue medications taken for conditions not related to the study					
Is practitioner/instructor certified?	Yes	Include in subgroup A		taught by a certified Pilates instructor			
Is there an inactive comparator?	Yes	Comparison=control		See comparator #1			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**da Fonseca 2009**					
1	Primary	Gait analysis (left, right)	baseline, end of treatment (7 wks)	Gaitway System instrumented treadmill (Newtons)	Vertical ground-reaction force platform that holds a piezoelectric sensor system	first peak force, second peak force, middle support force, weigth acceptance rate, push-off rate
2	Not specified	Pain intensity	baseline, end of treatment (7 wks)	visual analog scale (0-10)	higher score means worse pain	
3	Not specified	Pain intensity	baseline, end of treatment (7 wks)	Likert scale (0-5)	5=excruciating, 4=horrible, 3=distressing, 2=uncomfortable, 1=mild, 0=no pain	
4	--					
5	--					
6	--					
7	--					
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain
Study ID	**da Fonseca 2009**
11	--
12	--
13	--
Method of analysis	
Statistics	Data are expressed as mean ± SD. Because the number of participants in this study is restricted to test whether the values of the data present normal distribution in the population, nonparametric tests were performed.32 However, nonparametric tests are trustworthy and conclusive for this number of participants. Differences between the control group and the low-back group were analyzed using a Mann–Whitney U test. A t test by Wilcoxon was used to identify any significant changes from preintervention to postintervention within the Pilates group and the noPilates group. Statistical significance was set at P = .05.
Population analysed	Intent-to-treat Not specified. Presumed all participants included in final analysis, except those with missing data.
Missing data	No information provided. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	Concerns were raised due to a lack of information relating to the randomisation and allocation conealment methods. High risk of bias due to missing CONSORT diagram and no information provided regarding deviations from inteneded interventions and missing data. Since the outcome assessor is also the participant and they are aware of their intervention, there are concerns relating to the measurement of the outcome. The lack of pre-specified intentions also had some concerns.

Characteristics of included studies	Low back pain	
Study ID	**Devasahayam 2016**	
Study Reference/s	Devasahayam AJ, Ho DRY, Leung EYS, Goh MR, Koh P. The effects of a novel pilates exercise prescription method on people with non-specific unilateral musculoskeletal pain: A randomised pilot trial. Proceedings of Singapore Healthcare. 2016;25(4):201-6.	
Study design	RCT	
Author affiliation	One author affliated with tertiary institutions in Canada. All authors affiliated with a hospital.	
Source of funds	This study was funded by the Changi Health Fund from Changi General Hospital, Singapore	
Declared interests of study authors	None declared	
Setting / provider	Outpatient physiotherapy clinic	
Country(s) / region	Singapore	
Enrolment period	Not specified	
Length of treatment / followup	1.5 months	
Description of population	*N=*	*Description*
# participants	24	Adults with chronic non-specific low back pain and longterm unilateral musculoskeletal injury to lower limb
details	*Inclusion criteria:* musculoskeletal injuries in only one of their lower limbs, along with chronic non-specific low back pain, were able to do rebound hopping on the affected lower limb and were aged 18–75 years. *Exclusion criteria:* (a) incurred lower-limb injuries within the last six weeks; (b) undergone surgery within the last 12 weeks; (c) ligament reconstruction or any surgery done on the affected lower limb within the last six months; (d) fractures to their lower limbs within the last 12 months; (e) any neurological condition; (f) any inflammatory joint conditions or lower back disorders, vestibular conditions, malignant conditions, or (g) any cognitive and/or visual impairments.	
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Devasahayam 2016**						
Intervention	14	Individualised Pilates exercises. The exercises sessions were 30 minutes, once per week, for six consecutive weeks.					
Comparator #1 (control)	--	--					
Comparator #2 (other)	10	Gym-based exercises determined as per participant needs using gym equipment such as the leg press, foam roller, wobble board and stationary bicycle. The exercises sessions were 30 minutes, once per week, for six consecutive weeks.					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	Yes	Include in subgroup A		Performed individualised exercises prescribed by Pilates-trained physiotherapists.			
Is there an inactive comparator?	No	Comparison=other		See Comparator #2			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Devasahayam 2016**					
1	Primary	Pain intensity	End of treatment (6wks)	Numerical rating scale (0-10)	Higher score means more pain	
2	Secondary	Perceived effect	End of treatment (6wks)	Global perceived effect scale (0-10)	Higher scores indicate a better recovery	
3	Secondary	Function (patient specific)	End of treatment (6wks)	Patient-specific functional scale	Higher score means greater ability to perform activity at pre-injury level	
4	--					
5	--					
6	--					
7	--					
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain
Study ID	**Devasahayam 2016**
11	--
12	--
13	--
Method of analysis	
Statistics	All statistical tests were performed using SPSS 23.0.0.0 (SPSS Inc., USA). The data were checked for normality prior to the analyses. The non-parametric tests were performed to find differences at baseline before the intervention.13 The pre to post-exercise changes within the control and experimental groups were analysed using the Wilcoxon signed-rank test. The level of statistical significance was set at P<0.05. The differences between the control and experimental groups were analysed using analysis of covariance (ANCOVA) as there were baseline differences between the groups.
Population analysed	Intent-to-treat Modified. Five participants in the experimental group and four in the the control group were lost to follow-up and not included in final asessment.
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	Some concerns regarding participants withdrawing from the trial after randomisation but before the start of the intervention which may have an effect on the outcome. High risk of bias due to a high proportion of missing data without any analysis to adjust for missingness. Since the outcome assessor is also the participant and they are aware of their intervention, there are concerns relating to the measurement of the outcome. The lack of pre-specified intentions also had some concerns.

Characteristics of included studies	Low back pain	
Study ID	**Donzelli 2006**	
Study Reference/s	Donzelli S, Di DE, Cova A, Galletti R, Giunta N. Two different techniques in the rehabilitation treatment of low back pain: a randomized controlled trial. Eura Medicophys. 2006;42(3):205-10.	
Study design	RCT	pseudorandomised
Author affiliation	4 authors are affliated with a tertiary institution in Italy and 1 is also affiliated with a pilates studio in Italy	
Source of funds	Not specified	
Declared interests of study authors	Not specified	
Setting / provider	Outpatient clinic	
Country(s) / region	Milan, Italy	
Enrolment period	October 2003 - March 2004	
Length of treatment / followup	6 months	
Description of population	*N=*	*Description*
# participants	40	Adults with low back pain for more than 12 weeks
details	*Inclusion criteria:* both sexes (mean age = 50.08yrs) with chronic low back pain without radicular symptoms	
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Donzelli 2006**						
Intervention	20	Pilates group: 10 consecutive sessions, each lasting approx. 60mins led by a rehabiliation therapist trained in the Pilates CovTech method. After completing the sessions the participants were given booklets for continuing at home the exercises they had learnt.					
Comparator #1 (control)	--	--					
Comparator #2 (other)	20	Back School group: 10 consecutive sessions, each lasting approx. 60mins led by a rehabiliation therapist trained in the Back School method. After completing the sessions the participants were given booklets for continuing at home the exercises they had learnt.					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	Yes	Include in subgroup A		led by a trained rehabiliation therapist			
Is there an inactive comparator?	No	Comparison=other		See Comparator #2			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Donzelli 2006**					
1	Primary	Pain intensity	Baseline, end of treatment (10 days), follow up (4wks, 12wks and 24wks)	Visual Analogue Scale (1-10)	Higher score means worse pain	
2	Primary	Functional disability	Baseline, end of treatment (10 days), follow up (4wks, 12wks and 24wks)	Oswestry Disability Index (0-100)	Higher score means more disability in daily living activities	
3	--					
4	--					
5	--					
6	--					
7	--					
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain
Study ID	**Donzelli 2006**
11	--
12	--
13	--
Method of analysis	
Statistics	Analysis of Variance (ANOVA) was used to test te distrbution of demographic and baseline characteristics. The X-squared test was used to determine the distribution of patients with occupational risk factors. Frequency tests were used in obtaining the results of the outcome measurements.
Population analysed	Intent-to-treat Not specified. Presumed all participants included in final analysis, except those with missing data.
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk of bias due to the lack of information regarding randomisation process and allocation concealment method and no useful baseline characteritics reported. High risk of bias due to deviations from intended interventions were not reported. Since the outcome assessor is also the participant and they are aware of their intervention, there are concerns relating to the measurement of the outcome. The lack of pre-specified intentions also riased some concerns.

Characteristics of included studies	Low back pain
Study ID	**Dsa 2014**
Study Reference/s	Dsa CF, Rengaramanujam K, Kudchadkar MS. To assess the effect of modified pilates compared to conventional core stabilization exercises on pain and disability in chronic non-specific low back pain-randomized controlled trial: Indian Journal of Physiotherapy and Occupational Therapy. 8 (3) (pp 202-207), 2014. Date of Publication: 2014.; 2014.
Study design	RCT
Author affiliation	One author affliated with tertiary institution in Saudi Arabia.
Source of funds	Self financed
Declared interests of study authors	The authors have no conflicts of interest to disclose.
Setting / provider	Outpatient physiotherapy department
Country(s) / region	Mangalore, India
Enrolment period	Study undertaken between June to December 2011
Length of treatment / followup	0.5 months
Description of population	*N=* *Description*
# participants	38 Adults with chronic non-specific low back pain for more than 12 weeks
details	*Inclusion criteria:* Chronic non-specific low back pain for at least 12 weeks, age between 18-45 years, patient is otherwise medically fit to perform exercises (Subjects with no systemic disease). *Exclusion critiera* : back pain attributed to any other pathology, malignancies, major surgery within the past years (Back surgery), radiating pain in the lower limbs (Neural involvement).
Description of intervention/ comparator (as per TIDIER checklist)	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain					
Study ID	**Dsa 2014**					
Intervention	17	Modified Pilates for a period of 2 weeks. Demonstration and explanation of exercises provided, along with explanation of the key elements, principles and lateral breathing technique in the Pilates group. Subjects were asked to tuck the abdomen in for all 8 repetition of exercise. Patients were called up and reminded to practice the exercise at home. Patients were also given instructions to tuck in the stomach in order to maintain a neutral spine position while doing their daily functional activities. Exercises were done on mat.				
Comparator #1 (control)	--	--				
Comparator #2 (other)	21	Core Stabilization exercises for a period of 2 weeks. Demonstration and explanation of exercises provided, along with explanation of the key elements, principles and diaphragmatic breathing in the conventional core group. Subjects were asked to tuck the abdomen in for 5 second for each exercise. Patients were called up and reminded to practice the exercise at home. Patients were also given instructions to tuck in the stomach in order to maintain a neutral spine position while doing their daily functional activities.				
Comparator #3 (other)	--	--				
Co-interventions	38	All participants received a hot moist pack. Moist heat was applied for 10 min duration for the lower back region before participants began their exercises as per their group allocation.				
Is practitioner/instructor certified?	Yes	Include in subgroup A		The researcher obtained a short training on Pilates		
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	Low back pain					
Study ID	**Dsa 2014**					
1	Not specified	Pain intensity	Baseline, end of treatment (2 wks)	Visual Analogue Scale (1-10)	Higher score means more pain	
2	Not specified	Functional disability	Baseline, end of treatment (2 wks)	Roland-Morris Disability Questionnaire (24-item)	Higher score means more disability in daily living activities	0=no disablity, 24=high disability
3	--					
4	--					
5	--					
6	--					
7	--					
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain
Study ID	**Dsa 2014**
11	--
12	--
13	--
Method of analysis	
Statistics	The results obtained were treated as mean (SD). The data normality distribution was tested by the Shapiro-Wilk test and the homogeneity of variance between the groups by the Levene test. The Student t test for independent samples was used in the comparison of the general characteristics between PILATES and CONTROL. Two-way analysis of variance for repeated measures was used to test the main effect of time (before and 4, 8, and 12 weeks of the intervention) and interaction time 3 group, reporting the F and p values. The Mauchly test was adopted to analyze the data sphericity. In case of sphericity violation, the degrees of freedom were adjusted using the Greenhouse-Geisser correction. Partial eta (h2p) was used to determine the size of the effect of treatment. When necessary, the Bonferroni post hoc test was used to determine where the significant differences occurred. The Spearman correlation was applied between postprandial glycemia and the GIFC. The level of significance adopted in this study was p # 0.05, and the analyses were performed using SPSS version 22.0 for Windows (SPSS, Inc., Chicago, IL).
Population analysed	Intent-to-treat Modified. One patient from the Pilates group and four from conventional core group droppout and were not included in post-intervention assessment.
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk of bias due to a high proportion of missing data and no was analysis reported to adjust for missing data. Concerns were raised due to deviations from the intervention were not balanced between the groups, which could be related to the trial context. Since the outcome assessor is also the participant and they are aware of their intervention, there are concerns relating to the measurement of the outcome. The lack of pre-specified intentions also riased some concerns.

Characteristics of included studies	Low back pain
Study ID	**Gladwell 2006**
Study Reference/s	Gladwell V, Head S, Haggar M, Beneke R. Does a Program of Pilates Improve Chronic Non-Specific Low Back Pain? Journal of Sport Rehabilitation. 2006;15(4):338-50.
Study design	RCT pseudorandomised
Author affiliation	4 authors are affliated with a tertiary institution in UK
Source of funds	Not specified
Declared interests of study authors	Not specified
Setting / provider	Local community
Country(s) / region	Colchester, England
Enrolment period	October 2003 - March 2004
Length of treatment / followup	1.5 months
Description of population	*N=* *Description*
# participants	49 Adults with low back pain for more than 12 weeks
details	*Inclusion criteria:* (1) low back pain for at least 12 weeks not attributable to any specific pathology located below scapulas and above the cleft of the buttocks, (2) between 18 and 60 years old, (3) patient is otherwise medically fit to perform physical training, (4) able to provide consent and understand study details and (5) patient can travel independently. *Exclusion criteria* : (1) back pain attributed to any specific pathology (i.e. disc herniation, tumour, infection or fracture), (2) patient is unable to walk without a walking aid, (3) patient already involved in regular Pilates classes, (4) Constant or severe back pain judged on clinicaql grounds due to nerve root irritation and (5) major surgery within the past year.
Description of intervention/ comparator (as per TIDIER checklist)	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain					
Study ID	**Gladwell 2006**					
Intervention	25	The Pilates group performed six one-hour classes of Pilates exercise (maximum class size = 12), one class per week. The basic principles of Pilates were explained and a handout was provided to participants for home reading. The exercises taught within a class were also repeated individually during two 30 minute sessions each week performed at home without supervision. Compliance with home based exercises was recorded in a diary.				
Comparator #1 (control)	24	The control group continued their normal exercise or activities, which included aerobics, swimming, gym work, cycling, golf, and walking over the 6 week examination.				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	Current drug treatment, including analgesics with both groups encouraged to make no changes to their normal exercise or activities. The type of analgesic was similar in both groups pre- and post-intervention				
Is practitioner/instructor certified?	Yes	Include in subgroup A		The program was taught by a certified Pilates Institute Instructor.		
Is there an inactive comparator?	No	Comparison=other		Over 60% of all the participants took part in regular physical activity		
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*

Characteristics of included studies	Low back pain					
Study ID	**Gladwell 2006**					
1	Primary	Pain intensity	Baseline, end of treatment (6 weeks)	Visual analogue scale (0-10)	Higher score means worse pain	
2	Primary	Functional disability	Baseline, end of treatment (6 weeks)	Oswestry Disability Index (0-100)	Higher score means more disability in daily living activities	
3	Primary	Perceived effect	Baseline, end of treatment (6 weeks)	Subjective Improvement symptom report	A decrease in score means postive improvements	
4	Not specified	Sports Functioning	Baseline, end of treatment (6 weeks)	Sports functioning questionnaire	Increase in score means a positive improvement	
5	Not specified	QoL-global	Baseline, end of treatment (6 weeks)	SF-12	Higher score means better quality of life	
6	Not specified	Static balance	Baseline, end of treatment (6 weeks)	Stork stand test (s)	Higher score means better balance	repeated three times on each leg, longest balance time for each leg recorded
7	Not specified	Flexibility	Baseline, end of treatment (6 weeks)	Sit and reach test	Higher value means greater shortening of muscles of the trunk and lower limbs	
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain	
Study ID	**Gladwell 2006**	
11	--	
12	--	
13	--	
Method of analysis		
Statistics		
Population analysed	Intent-to-treat	Modified. Missing data not included in the analysis. A total of 10/24 (41.7%) in the control group and 5/25 (20%) in the Pilates group did not complete the trial were lost to follow-up.
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	High risk of bias in one or more key domains	
Summary (descriptive)	High risk of bias due conduct of trial and high proportion of missing data that is not balanced between groups. Concerns were raised due to the authors not reporting the method used to generate the randomisation sequence and method of allocation sequence, measurement of the outcome, and selective reporting of results.	

Characteristics of included studies	Low back pain	
Study ID	**Gonzalez-Galvez 2019**	
Study Reference/s	Gonzalez-Galvez N, Marcos-Pardo PJ, Carrasco-Poyatos M. Functional improvements after a Pilates program in adolescents with a history of back pain: a randomised controlled trial [with consumer summary]. Complementary Therapies in Clinical Practice 2019 May;35:1-7. 2019.	
Study design	RCT	pseudorandomised
Author affiliation	Three authors are affliated with tertiary institutions in Spain.	
Source of funds	Not specified	
Declared interests of study authors	Not specified	
Setting / provider	Secondary school	
Country(s) / region	Murica, Spain	
Enrolment period	Not specified	
Length of treatment / followup	1.5 months	
Description of population	*N=*	*Description*
# participants	54	Students with back pain for more than 12 weeks
details	*Inclusion criteria:* (a) history of back pain in the past year that had hampered or limited activites for more than 3 months; and (b) physically active in school physical education sessions. Mean (SD) age 14.12 (0.4) years *Exclusion criteria:* (a) presenting any musculoskeletal, neurological, cardiological, metabolic, or rheumatic alteration at the moment of the measure and (b) missing more than one session of the programme. History of back pain in the past year was defined as having back pain during the past year that hampered or limited activities at school or during leisure time for more than 3 months.	
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Gonzalez-Galvez 2019**						
Intervention	27	Pilates exercise program implemented over 6 weeks, with 2 sessions/week (55 min/session). 20 basic exercises included hundreds, rollup, one leg kick, double leg kicks, swimming, bridge, hip lift, and mid-back bending.					
Comparator #1 (control)	--	--					
Comparator #2 (other)	27	Adolescents assigned to the control group did not receive any structured exercise programme but attended their usual physical education sessions. This included endurance, strength training, running, and other sport/games.					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	Yes	Include in subgroup A		The Pilates programme was developed at school and was conducted by the physical education teacher, who was certified in Pilates training.			
Is there an inactive comparator?	No	Comparison=other		See Comparator #2			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Gonzalez-Galvez 2019**					
1	Not specified	Flexibility	Baseline, end of treatment (6 wks)	toe touch test (-5 to 12 cm)	Higher value means greater shortening of muscles of the trunk and lower limbs	Used to evaluate hamstring extensibility
2	Not specified	Muscle endurance	Baseline, end of treatment (6 wks)	Bench trunk curl test	Number of complete cycles over 120s	Used to evaluate trunk flexor endurance
3	Not specified	Muscle endurance	Baseline, end of treatment (6 wks)	Sorensen test (s)	Higher score means more muscle endurance	Used to evaluate isometric trunk flexor endurance
4	Not specified	Body mass index	Baseline, end of treatment (6 wks)	Weight/height (kg/m2)		
5	--					
6	--					
7	--					
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain
Study ID	**Gonzalez-Galvez 2019**
11	--
12	--
13	--
Method of analysis	
Statistics	Statistical analysis was performed using the statistical package SPSS 21.0 for Windows. After analysing the normality of variables (Kolmogorov-Smirnov test), one-way analysis of variance was used to analyse the pretest measures. The post hoc test was evaluated for statistical significance (Bonferroni test for parametric and Mann-Whitney U test for nonparametric variables). The repeated-measures analysis of covariance was adopted to investigate the interaction between groups and time following three dependent variables: the BTC test, SOR test, and TT test. Sex was included as a covariable. An error of $p \leq 0.05$ was established.
Population analysed	Intent-to-treat Modified. Participants with missing data not included in the analysis. One participant in each group was not followed up.
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk of bias due to issues with the randomisation process. Baseline characteristics able to be judged.

Characteristics of included studies	Low back pain
Study ID	**Hasanpour-Dehkordi 2017**
Study Reference/s	Hasanpour-Dehkordi A, Dehghani A, Solati K. A Comparison of the Effects of Pilates and McKenzie Training on Pain and General Health in Men with Chronic Low Back Pain: A Randomized Trial. Indian Journal of Palliative Care. 2017;23(1):36-40.
Study design	RCT pseudorandomised
Author affiliation	Three authors are affliated with tertiary institutions in Iran.
Source of funds	Receieved no financial assistance.
Declared interests of study authors	The authors have no conflicts of interest to disclose.
Setting / provider	Physiotherapy clinic
Country(s) / region	Shahrekord, Iran
Enrolment period	Not specified
Length of treatment / followup	1.5 months
Description of population	*N=* *Description*
# participants	36 Adult men with low back pain for more than 12 weeks
details	*Inclusion criteria:* men aged 40–55 years in Shahrekord, South-West Iran, with chronic back pain, that is, history of more than 3 months of low back pain and no specific disease or other surgery. *Exclusion criteria:* low back arch or so-called army back, serious spinal pathology such as tumors, fractures, inflammatory diseases, previous spinal surgery, nerve root compromise in the lumbar region, spondylolysis or spondylolisthesis, spinal stenosis, neurological disorders, systemic diseases, cardiovascular diseases, and receiving other therapies simultaneously.
Description of intervention/ comparator (as per TIDIER checklist)	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Hasanpour-Dehkordi 2017**						
Intervention	12	The Pilates group participated in 18 one hour exercise sessions, three sessions a week for 6 weeks.					
Comparator #1 (control)	12	The control group underwent no treatment.					
Comparator #2 (other)	12	McKenzie group performed workouts one hour a day for 20 days. It encompassed 6 exercises, performed ten times.					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	No	Include in subgroup B		The participants in the experimental groups started training program under supervision of a sports medicine specialist.			
Is there an inactive comparator?	Yes	Comparison=control		See Comparator #1			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain				
Study ID	**Hasanpour-Dehkordi 2017**				
1	Not specified	Pain	Baseline, end of treatment (6 wks)	McGill Pain Questionaire (0-78)	Higher score means worse pain
2	Not specified	Psychological wellbeing	Baseline, end of treatment (6 wks)	General health questionnaire-28	Higher score means psychological wellbeing current mental state differs from his/her typical state
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				

Characteristics of included studies	Low back pain	
Study ID	**Hasanpour-Dehkordi 2017**	
11	--	
12	--	
13	--	
Method of analysis		
Statistics	Descriptive statistics were used for central tendency indicators such as mean (± standard deviation) and relevant diagrams were used to describe the data. Inferential statistics, one-way ANOVA and post hoc Tukey's test, were used to analyze the data. Data analysis was done by SPSS Statistics for Windows, Version 21.0 (IBM Corp. Released 2012. IBM Armonk, NY: IBM Corp). P < 0.05 was considered statistically significant.	
Population analysed	Intent-to-treat	Assumed modified. Participants with missing data not included in the analysis. No further information provided (no CONSORT).
Missing data	No information provided. Information to conduct PP analysis not available.	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	High risk of bias in one or more key domains	
Summary (descriptive)	High risk due to lack of information. Authors do not report method of allocation concealment, no useful baseline characteristics, no CONSORT or mention of missing data.	

Characteristics of included studies	Low back pain		
Study ID	**Kliziene 2017**		
Study Reference/s	Kliziene I, Sipaviciene S, Vilkiene J, Astrauskiene A, Cibulskas G, Klizas S, et al. Effects of a 16-week Pilates exercises training program for isometric trunk extension and flexion strength. Journal of Bodywork and Movement Therapies. 2017;21(1):124-32.		
Study design	NRSI	Nonrandomised controlled trial	
Author affiliation	Seven authors are affliated with tertiary institutions in Lithuania.		
Source of funds	Not specified		
Declared interests of study authors	There is no conflict of interest.		
Setting / provider	Physiotherapy clinic	Affliated with the University Kauna	
Country(s) / region	Lithuania		
Enrolment period	Not specified		
Length of treatment / followup	4 months		
Description of population	*N=*	*Description*	
# participants	54	Women with low back pain for more than 12 weeks	
details	*Inclusion criteria:* subjects had been suffering from chronic low back pain (cLBP) for no less than 3 months. Mean (SD) age 45.31 (4.31) years *Exclusion criteria:* The study did not include patients with neurological symptoms, spinal damage, cancer, or infectious diseases that could lead to cLBP, or those suffering from other diseases that could affect physical performance. None of the study participants had undergone surgery for cLBP.		
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Low back pain						
Study ID	**Kliziene 2017**						
Intervention	27	Pilates exercises were performed twice per week; the duration of each session was 60 min. The 10-exercise program lasted for 16 weeks and included warm up, main, cool down. Patients underwent a total of 32 exercise sessions.					
Comparator #1 (control)	27	No intervention.					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	Not specified	Include in subgroup C					
Is there an inactive comparator?	Yes	Comparison=control		See Comparator #1			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain				
Study ID	**Kliziene 2017**				
1	Not specified	Muscle strength	Baseline, end of treatment (16 weeks)	Dynamometer (extension, flexion)	Isometric force (gluteus medius, gluteus maximus, lateral hip - left and right)
2	Not specified	Muscle endurance	Baseline, end of treatment (16 weeks)	Bench trunk curl test (s)	
3	Not specified	Pain intensity	Baseline, end of treatment (16 weeks)	Visual analogue scale (0-10)	Higher score means worse pain
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				

Characteristics of included studies	Low back pain	
Study ID	**Kliziene 2017**	
11	--	
12	--	
13	--	
Method of analysis		
Statistics	Data analysis was performed using SPSS 22.0 software. The normality of the data was evaluated using the ShapiroeWilk test. Data were analysed by analysis of variance, and homogeneity of variances was tested using the Levene test. Differences between means were tested by the post-hoc Bonferroni criterion. The level of significance was $p < 0.05$	
Population analysed	Other (provide details)	No information to make a judgement
Missing data	No information provided. Information to conduct PP analysis not available.	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	Serious risk. The study has some important problems and is judged to be at serious risk of bias in at least ONE domain, but not a critical risk of bias in any domain	
Summary (descriptive)	Serious bias due to missing information. No information to make judgement on deviations from intended interventions or amount of missing data. No adjustment for any potential confounders.	

Characteristics of included studies	Low back pain	
Study ID	**Kofotolis 2016**	
Study Reference/s	Kofotolis N, Kellis E, Vlachopoulos SP, Gouitas I, Theodorakis Y. Effects of Pilates and trunk strengthening exercises on health-related quality of life in women with chronic low back pain. Journal of Back & Musculoskeletal Rehabilitation. 2016;29(4):649-59.	
Study design	RCT	
Author affiliation	Five authors are affliated with tertiary institutions in Brazil.	
Source of funds	Not specified	
Declared interests of study authors	The authors have no conflicts of interest to disclose.	
Setting / provider	Outpatient department	
Country(s) / region	Thessaly, Greece	
Enrolment period	Not specified	
Length of treatment / followup	8 weeks	
Description of population	*N=*	*Description*
# participants	120	Women with low back pain for more than 12 weeks
details	*Inclusion criteria* : Female, age 25–65 years, a new episode of non-specific LBP lasting more than 12 weeks, and an inability to resume daily activities in the last three weeks. *Exclusion criteria:* acute LBP, spinal stenosis or surgery, inflammatory disease affecting the spine, fracture, spondylolysis or spondylolisthesis, genetic spinal structure abnormality, acute LBP, pregnancy, use of medication that affects heart rate and/or blood pressure and pelvic girdle pain. Acute LBP incidents refer to those patients who experienced sudden LBP pain lasting less than 12 weeks.	
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Kofotolis 2016**						
Intervention	40	Mat Pilates exercise program - one-hour sessions, three days a week for eight weeks.					
Comparator #1 (control)	40	Participants did not participate in any form of organized exercise/physical activity except their daily life activities.					
Comparator #2 (other)	40	Trunk strengthening exercise program - one-hour sessions, three days a week for eight weeks.					
Comparator #3 (other)	--	--					
Co-interventions	--	None of the participants received additional physical therapy interventions during the study period.					
Is practitioner/instructor certified?	Not specified	Include in subgroup C		Two qualified exercise professionals each with 10 years experience delieveed either the Pilates or general exercise intervention			
Is there an inactive comparator?	Yes	Comparison=control		See Comparator #1			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Kofotolis 2016**					
1	Not specified	QoL-global	Baseline, end of treatment (4 wks), followup (1 & 3 mo)	SF-36 (individual domain scores presented)	Higher score means a better health state	
2	Not specified	Functional disability	Baseline, end of treatment (4 wks), followup (1 & 3 mo)	Roland-Morris Disability Questionnaire (24-item)	Higher score means more disability in daily living activities	0=no disablity, 24=high disability
3	--					
4	--					
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Characteristics of included studies	Low back pain
Study ID	**Kofotolis 2016**
11	--
12	--
13	--
Method of analysis	
Statistics	Normality of the data was examined using the Kolmogorov-Smirnov test. Cronbach's alpha values were calculated for each of the eight SF-36 subscales (Reported Health Transition is a single item) and for Roland Morris scores, for all four measurement occasions. Mauchly's test of sphericity was used to examine whether the variability of the changes in dependent variable scores between the different measurement occasions was constant. When this was not the case, and a conventional F-test appeared to be biased, the Greenhouse-Geisser correction to the F-test was used to interpret the results. Initially, a one-way MANOVA was calculated using as dependent variables participants' age, BMI, and scores of the nine SF-36 subscales along with Roland Morris scores, all assessed at Pre-measurement. The three groups were treated as the independent variable. Then, a repeated measures MANCOVA (3 groups × 4 measurements) was computed including all ten dependent variables (nine SF-36 scores plus Roland Morris scores) with age and BMI as covariates. Given significant interaction terms, the Student Neuman Keuls multiple comparison procedure was used to examine potential mean differences. Significance level was set at $P < 0.05$. To obtain an estimate of the magnitude of the change in each dependent variable for each group, the percent of improvement for each time point separately was computed, always in comparison to the respective value at pre-measurement. Additionally, Cohen's d effect sizes were calculated. The d values indicating a "small", "medium", and "large" effect size are 0.20, 0.50, and 0.80 respectively.
Population analysed	Intent-to-treat Modified. Participants with missing data not included in the analysis. Data were missing for the 19/120 (15.8%) participants who discontinued from their allocated intervention
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	Severe concerns of bias are raised due to a high rate of dropouts (15.8%) with no analysis presented to assess the impact of missing data and no reasons for drop outs. Some concerns are also raised due to participant reported outcomes. All other domains are assessed as low risk of bias.

Characteristics of included studies	Low back pain	
Study ID	**Lopes 2017**	
Study Reference/s	1.Lopes S, Correia C, Felix G, Lopes M, Cruz A, Ribeiro F. Immediate effects of Pilates based therapeutic exercise on postural control of young individuals with non-specific low back pain: A randomized controlled trial. Complementary Therapies in Medicine. 2017;34:104-10. 2.Lopes S, Costa R, Rodriguesa M, Correia C, Lopes M, Goncalves P, et al. Immediate effects of four mat pilates exercises on postural sway of young adults with low back pain. Atencion Primaria. 2014;46 (Supplement 5):55-6.	
Study design	RCT	
Author affiliation	Six authors are affliated with tertiary institutions in Brazil.	
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	The authors have no conflicts of interest to disclose.	
Setting / provider	University	
Country(s) / region	Portugal	
Enrolment period	Not specified	
Length of treatment / followup	Not specified	
Description of population	*N=*	*Description*
# participants	46	Students with non-specific low back pain for more than 12 weeks
details	*Inclusion criteria* : 18 years of age and older, history of non-specific low back pain lasting at least 12 weeks. *Exclusion criteria:* history of vestibular disorders, neurological, respiratory disease or spine surgery; structural spinal problems; medication or condition affecting balance; and regular practice of Pilates or any specific exercise program in the last 6 months.	
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Lopes 2017**						
Intervention	23	Pilates exercises were Individually delivered by physiotherapist. One, 20 minute session consisting of four Pilates exercises: single leg stretch, pelvic press, swimming and kneeling opposite arm and leg reach.					
Comparator #1 (control)	23	The control group Participants rested in the sitting position for the same period. At the end of the study, participants in the control group were offered the Pilates training program.					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	Yes	Include in subgroup A		Delivered by a physiotherapist with 5-year experience as a Pilates instructor.			
Is there an inactive comparator?	Yes	Comparison=control		See Comparator #1			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Lopes 2017**					
1	Not specified	Dynamic balance	Baseline and immediately after the session	Postural sway (Romberg test, force platform)	Centre of Pressure: right-left, forward-back, velocity, ellipse surface area	(cm) (cm/s) (cm2)
2	Not specified	Dynamic balance	Baseline and immediately after the session	Star Excursion Balance Test (%)	Single-leg stance, then reach with the free limb (anterior, posteromedial, posterolateral)	Sum of greatest reach distance normalised to 100 (best of 3 assessment trials)
3	Not specified	Pain intensity	Baseline and immediately after the session	Visual Analogue scale (0-10)	Higher score means more pain	
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Characteristics of included studies	Low back pain
Study ID	**Lopes 2017**
11	--
12	--
13	--
Method of analysis	
Statistics	Statistical analysis was performed using IBM SPSS statistics 21.0 (IBM Corporation, Chicago, USA). The normality of data distribution was tested with the Shapiro-Wilk test. Descriptive statistics were used to calculate the mean and standard deviation. Independent T-tests were used to compare groups at baseline, after the intervention and to compare changes within-group and between groups. Paired t-tests were performed to compare the mean differences between postural control measurements (before and after the intervention). Baseline associations among the assessed variables and correlations between changes in pain and postural control were tested with Pearson correlation. The effect size for between-group for the mean differences between the groups was calculated using Cohen d coefficient. Effect sizes of 0.2, 0.5 and 0.8 are considered to correspond to small, medium and large differences, respectively. With the 46 participants included in the analysis the posthoc power calculation showed an observed power of 98% for SEBT (composite); in addition, the power for each SEBT direction was 73%, 86% and 87% for the anterior, posteromedial, and posterolateral directions, respectively. For the postural sway variables, the observed power was 68% for CoPx, 93% for CoPy, 99% for total CoP displacement, 99% for velocity and 73.5% for CoP area. $P < 0.05$ was considered indicative of statistical significance.
Population analysed	Intent-to-treat All eligible participants included in the final analysis.
Missing data	No missing data. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Low risk of bias for all key domains
Summary (descriptive)	Appropriate randomisation and allocation concealment used and no drop outs reported in the study maintain the low risk of bias. In addition, outcome assessor are blinded to group allocation and no outcomes contain subjective components.

Characteristics of included studies	Low back pain
Study ID	**Mazloum 2018b**
Study Reference/s	Mazloum V, Sahebozamani M, Barati A, Nakhaee N, Rabiei P. The effects of selective Pilates versus extension-based exercises on rehabilitation of low back pain. Journal of Bodywork & Movement Therapies. 2018;22(4):999-1003.
Study design	RCT pseudorandomised
Author affiliation	Five authors are affliated with tertiary institutions in Iran.
Source of funds	Not specified
Declared interests of study authors	The authors have no conflicts of interest to disclose.
Setting / provider	University
Country(s) / region	Iran
Enrolment period	Not specified
Length of treatment / followup	6 weeks
Description of population	*N=* *Description*
# participants	60 Adults with low back pain for more than 12 weeks
details	*Inclusion criteria:* adults between the age of 18-55 years old, the diagnosis of physician regarding non-specific LBP, lasting signs and symptoms over three months, exercise indication for the subject based on clinical evaluation, the satisfaction of the person to participate in the study. *Exclusion criteria:* history of trauma to the spinal column, any misalignment or specific condition in the lumbar spine, Spondylosis or Spondylolisthesis, history of spinal surgery, neurological or psychological conditions, receiving physical therapy or other treatment interventions in the past six months.
Description of intervention/ comparator (as per TIDIER checklist)	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Mazloum 2018b**						
Intervention	20	Pilates exercises were delievered over 6 weeks, 3 days in a week.					
Comparator #1 (control)	20	The patients attending in control group were asked to continue their daily routine and received neither physical therapy treatment programs nor other medical cares.					
Comparator #2 (other)	20	Extension-based exercises were delivered over 6 weeks, 3 days in a week.					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	Not specified	Include in subgroup C		Supervised by a senior physical therapist.			
Is there an inactive comparator?	Yes	Comparison=control		See Comparator #1			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Mazloum 2018b**					
1	Not specified	Pain intensity	Baseline, end of treatment (6 wks)	Visual Analogue scale (0-10)	Higher score means worse pain	
2	Not specified	Functional disability	Baseline, end of treatment (6 wks)	Oswestry Disability Index (0-100)	Higher score means more disability in daily living activities	
3	Not specified	Lumbar Range of motion	Baseline, end of treatment (6 wks)	Modified Schober test (flexion, extension) (cm)	Maximal forward and backward bending	5cm below and 10 cm above the second sacral vertebra
4	Not specified	Lumbar curvature	Baseline, end of treatment (6 wks)	Flexible ruler (angle)	Target angle measured based on L1 to S2	
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10	--					

Characteristics of included studies	Low back pain	
Study ID	**Mazloum 2018b**	
11	--	
12	--	
13	--	
Method of analysis		
Statistics	Results are reported as means (±SDs). Descriptive statistical tests (e.g. Shapiro-Wilk test) were performed to check the normal distribution. To compare the three groups in term of demographic characteristics, one-way analysis of variance (ANOVA) was administrated. However, to compare the results in both post-test and follow-up periods between the three groups, Analysis of Covariance (ANCOVA) test was used; then Bonferroni Post-hoc test was used to perform an inter-group comparison of dependent variables ($P < 0.05$.).	
Population analysed	Intent-to-treat	Modified. Participants with missing data not included in the analysis. Four patients dropped out during treatment, a further 9 lost to followup due to 'personal problems'.
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias	
Summary (descriptive)	Concerns due to lack of information on randomisation process and allocation concealement. Concerns were also raised due to the high proportion of missing data (21.6%) and participant-reported outcomes likely to impact the results by favouring the intervention.	

Characteristics of included studies	Low back pain
Study ID	**Miyamoto 2011**
Study Reference/s	1.Miyamoto G, Costa L, Galvanin T, Cabral C. Efficacy of the addition of modified pilates exercises to a minimal intervention in patients with chronic low back pain: A randomized controlled trial. Physical Therapy. 2013;93(3):310-20. 2.Miyamoto GC, Costa LO, Galvanin T, Cabral CM. The efficacy of the addition of the Pilates method over a minimal intervention in the treatment of chronic nonspecific low back pain: a study protocol of a randomized controlled trial. Journal of Chiropractic Medicine. 2011;10(4):248-54.
Study design	RCT
Author affiliation	4 authors are affliated with a tertiary institution in Brazil and 1 is also affiliated with The George Institute for Global Health, Sydney
Source of funds	Not specified
Declared interests of study authors	Not specified
Setting / provider	Outpatient physical therapy department
Country(s) / region	São Paulo, Brazil
Enrolment period	June 2010 - August 2010
Length of treatment / followup	6 weeks
Description of population	*N=* *Description*
# participants	86 Adults with chronic non-specific low back pain for more than 12 weeks
details	*Inclusion criteria:* People with chronic nonspecific low back pain with a duration of at least 3 months and aged between 18 to 60 years old *Exclusion crtieria* : any contraindication for physical exercise (assessed with the Physical Activity Readiness Questionnaire), previous regular Pilates method training, pregnancy, serious spinal pathologies, previous or scheduled spine surgery, low back pain due to nerve root compromise, physical therapy treatment for CLBP in the previous 6 months, and inability to write or speak in Portuguese.
Description of intervention/ comparator (as per TIDIER checklist)	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Miyamoto 2011**						
Intervention	43	The modified Pilates method was based on 8 exercises aimed at improving breathing associated with core stability, posture, strengthening of specific muscles, and flexibility of the lower limbs and spinal muscle. The group received a 1-hour session, twice a week, over 6 weeks. Exercises followed the traditional Pilates principles of centering, concentration, control, precision, flow, and breathing. The exercises were tailored individually and progressed in difficulty in 3 levels (basic, intermediate, and advanced). The number of repetitions for each exercise was individualized for each patient and ranged from 5 to 10 repetitions.					
Comparator #1 (control)	43	The participants did not receive additional exercise, and they were instructed not to undergo treatment elsewhere during the period of the study. However, they had direct access to the physical therapist overseeing the intervention and, over the next 6 weeks, they received twice-weekly telephone calls for clarifications regarding the booklet instructions. After the 6-month follow-up, the intervention using the modified Pilates method also was offered to this group.					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	86	All participants received an educational booklet containing information about the anatomy of the spine and pelvis and the low back pain and recommendations regarding posture and movements involved in activities of daily living.					
Is practitioner/instructor certified?	Yes	Include in subgroup A		The physical therapist who provided the intervention is a certified Pilates instructor with 3 years of clinical experience			
Is there an inactive comparator?	Yes	Comparison=control		See Comparator #1			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Miyamoto 2011**					
1	Primary	Pain intensity	Basline, end of treatment (6 wks), follow up (24 wks)	Numerical pain rating scale (0-100)	Higher score means worse pain	
2	Primary	Functional disability	Basline, end of treatment (6 wks), follow up (24 wks)	Roland-Morris Disability Questionnaire (24-item)	Higher score means more disability in daily living activities	0=no disablity, 24=high disability
3	Secondary	Function (patient specific)	Basline, end of treatment (6 wks), follow up (24 wks)	Patient-Specific Functional Scale (0-10)	Higher score means greater ability to perform activity at pre-injury level	
4	Secondary	Perceived effect	Basline, end of treatment (6 wks), follow up (24 wks)	Global Perceived Effect Scale (-5 to +5)	Higher scores mean greater recovery from the condition	
5	Secondary	Kinesiophobia	Basline, end of treatment (6 wks), follow up (24 wks)	Tampa Scale for Kinesiophobia (17-68)	Higher score means more severe fear of movement/injury	
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10	--					

Characteristics of included studies	Low back pain
Study ID	**Miyamoto 2011**
11	--
12	--
13	--
Method of analysis	
Statistics	The following specifications were considered for all statistical analyses: a level of significance of 5%, statistical power of 80%, and follow-up loss of 15%. A sample of 86 participants was determined by a sample size calculation designed to detect a difference of 1 point in all outcome measures. Sample size calculations were lower than those suggested as minimal important change in order to increase the precision of the effects of the interventions. A higher difference to be detected would have dramatically reduced the sample size, and this has been one of the major limitations in trials that used Pilates as an intervention.
Population analysed	Intent-to-treat All randomised pariticipants were included in the final analysis.
Missing data	No missing data. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	All domains are considered low risk of bias except for measurement of the outcome. Self-reported outcomes are likely to induce bias as the partcipant is aware of the intervention they were receiveing. Some concerns are also raised due to significant differeneces noted at baseline.

Characteristics of included studies	Low back pain
Study ID	**Miyamoto 2016**
Study Reference/s	1.Amaral DDV, Miyamoto GC, Franco KFM, Dos Santos Franco YR, Bastos De Oliveira NT, Hancock MJ, et al. Examination of a Subgroup of Patients With Chronic Low Back Pain Likely to Benefit More From Pilates-Based Exercises Compared to an Educational Booklet. Journal of Orthopaedic & Sports Physical Therapy. 2020;50(4):189-97. 2.Miyamoto G, Ferro MK, dos SFY, Teixeira BdON, Diulgeroglo VAD, Nery CBA, et al. Effectiveness and cost-effectiveness of different weekly frequencies of, pilates for chronic low back pain: Randomized controlled trial. Physical Therapy. 2016;96(3):382-9. 3.Miyamoto GC, Franco KFM, van Dongen JM, dos Santos Franco YR, de Oliveira NTB, Amaral DDV, et al. Different doses of Pilates-based exercise therapy for chronic low back pain: a randomised controlled trial with economic evaluation [with consumer summary]. British Journal of Sports Medicine 2018 Jul;52(13):859-868. 2018.
Study design	RCT
Author affiliation	Nine authors are affliated with tertiary institutions in Brazil.
Source of funds	The Sao Paulo Research Foundation (FAPESP) provided a scholarship to the principal investigator of this study (G.C.M.) (2013/26321-8). The funder had no part in designing the study or in its implementation, data analysis, data interpretation, or presentation of the results.
Declared interests of study authors	Author conflict of interest is not specified for all authors. However, Data monitoring was performed by one author from the study who is not involved with data collection and has no conflict of interest.
Setting / provider	Local community
Country(s) / region	São Paulo, Brazil
Enrolment period	2014 to 2017
Length of treatment / followup	1.5 months, with followup at 12 months
Description of population	*N=* *Description*
# participants	296 Adults with low back pain for more than 12 weeks
details	*Inclusion criteria:* Included patients aged 18 to 80 years who had non-specific low back pain lasting for more than 3 months. *Exclusion criteria:* Pilates treatment for low back pain in the previous 3 months, serious spinal pathologies (eg, tumours, fractures and inflammatory diseases), nerve root compromise, previous or scheduled spinal surgery, any contraindication to physical exercise and pregnancy.
Description of intervention/ comparator (as per TIDIER checklist)	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Miyamoto 2016**						
Intervention	74	All patients received an individual exercise programme including ground exercises (with or without accessories, such as ball, magic circle and toning ball) and apparatus exercises (Barrel, Cadillac, Chair and Reformer—Metalife, Santa Catarina, Brazil) for 6weeks. Sessions lasted for one hour. The intervention was performed with one patient per physiotherapist (supervised individual treatment) and was provided by the same physiotherapist for each patient in all sessions. Pilates Group 1 = patients received treatment once a week (six treatment sessions) Pilates Group 2 = twice a week (12 treatment sessions) Pilates Group 3 = three times a week (18 treatment sessions)					
Comparator #1 (control)	73	The control group received an education booklet containing recommendations related to posture and movements of activities of daily living, information on low back pain and anatomy of the spine and pelvis. The group did not receive any additional treatment. Patients were informed that they would receive Pilates after the 12-month follow-up.					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	--	All participants received the advice contained within the education booklet.					
Is practitioner/instructor certified?	Yes	Include in subgroup A		All physiotherapists were certified in Pilates. As the physiotherapists were certified at different Pilates schools, they received specific training on the Pilates-based exercise programme for this study.			
Is there an inactive comparator?	Yes	Comparison=control		See Comparator #1			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Miyamoto 2016**					
1	Primary	Pain intensity	Basline, end of treatment (6wks), follow up (12 mo)	Pain Numerical Rating Scale (0–10)	Higher score means worse pain	
2	Primary	Functional disability	Basline, end of treatment (6wks), follow up (12 mo)	Roland-Morris Disability Questionnaire (24-item)	Higher score means more disability in daily living activities	0=no disablity, 24=high disability
3	Secondary	Perceived effect	Basline, end of treatment (6wks), follow up (12 mo)	Global perceived effect scale (0-10)	Higher scores indicate a better recovery	
4	Secondary	Function (patient specific)	Basline, end of treatment (6wks), follow up (12 mo)	Patient-specific functional scale (0-10)	Higher score means greater ability to perform activity at pre-injury level	
5	Secondary	Pain experience	Basline, end of treatment (6wks), follow up (12 mo)	Pain Catastrophising Scale (13-item)	Higher scores indicate higher pain catastrophising.	
6	Secondary	Kinesiophobia	Basline, end of treatment (6wks), follow up (12 mo)	Tampa Scale for Kinesiophobia (17-68)	Higher score means more severe fear of movement/injury	
7	Secondary	QoL-global	Basline, end of treatment (6wks), follow up (12 mo)	SF-6D	Higher score means better QoL	
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain
Study ID	**Miyamoto 2016**
11	--
12	--
13	--
Method of analysis	
Statistics	The mean effects of the interventions and the group differences for all outcomes were calculated using linear mixed models that incorporate terms for the treatment groups, time (follow-ups) and interaction terms 'treatment groups' versus 'time.' The term 'time' was coded as a categorical variable (ie, four variables were created for the categories baseline, 6-week, 6-month and 12-month follow-ups). The coefficients of treatment versus time interactions were equivalent to the estimates of the group differences. No interim analysis was performed. The analyses followed the intention-to-treat principle and used SPSS V.24 (IBM, Armonk, New York, USA) for all statistical analyses, and the level of significance was set at 5%.
Population analysed	Intent-to-treat — Modified. Author state if a participant dropped out of treatment, no additional outcome was collected, and the missing data were not replaced. No information on missing data provided.
Missing data	Assumed no missing data. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	All domains are considered low risk of bias except for measurement of the outcome. Self-reported outcomes are likely to induce bias as the partciiapnt is aware of the intervention they were receiveing.

Characteristics of included studies	Low back pain
Study ID	**Mostagi 2015**
Study Reference/s	Mostagi FQRC, Dias JM, Pereira LM, Obara K, Mazuquin BF, Silva MF, et al. Pilates versus general exercise effectiveness on pain and functionality in non-specific chronic low back pain subjects. J Bodyw Mov Ther. 2015;19(4):636-45.
Study design	RCT
Author affiliation	13 authors are affliated with tertiary institutions in Brazil.
Source of funds	CNPq (Grant #70/2009), Productivity Scholarship/2014 to the last author and PPSUS/Fund. Araucaria (Grant # 04/2012).
Declared interests of study authors	Not specified
Setting / provider	Local community and private health services
Country(s) / region	Londrina, PR, Brazil
Enrolment period	Not specified
Length of treatment / followup	2 months
Description of population	*N=* *Description*
# participants	22 Adults with low back pain for more than 12 weeks
details	*Inclusion criteria:* sedentary subjects that had not undergone physical therapy for at least six months. Presenting with an exclusive medical diagnosis of non-specific chronic low back pain over a period of more than 12 weeks and be 18-55 years old. *Exclusion criteria:* diagnosis of protrusion of the intervertebral disc, scoliosis, spondylolisthesis, previous spine surgery, radicular symptoms, inflammatory disease, rheumatic disease, cancer or pregnancy. To verify that the participants did not have structural deformities that would justify the pain, an x-ray examination was performed by an orthopaedic surgeon.
Description of intervention/ comparator (as per TIDIER checklist)	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Mostagi 2015**						
Intervention	11	Participants of the Pilates group performed a total of 16 sessions twice per week for eight weeks. A one-hour individual/private session was also included.					
Comparator #1 (control)	--	--					
Comparator #2 (other)	11	Participant of the general exercise group performed a total of 16 sessions twice per week for eight weeks. A one-hour individual/private session was also included. The exercises included stationary bicycling, trunk and lower limb stretching, spine mobilisation and trunk muscle strengthening.					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	No	Include in subgroup B		All exercises were prescribed by a licensed physical therapist with clinical experience in managing patients with low back pain.			
Is there an inactive comparator?	No	Comparison=other		See Comparator #2			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Mostagi 2015**					
1	Primary	Pain intensity	End of treatment (8wks)	Visual analogue scale (0-10)	Higher score means worse pain	
2	Secondary	Functional disability	End of treatment (8wks)	Quebec Back Pain Questionnaire (0-100)	Higher score means more disability in daily living activities	
3	Secondary	Flexibility	End of treatment (8wks)	Sit and reach (hip-joint angle)	Lower score means better flexibility	test performed thrice, with lowest hip angle included for analysis
4	Secondary	Muscle endurance	End of treatment (8wks)	Sorensen test (isometric trunk extension endurance) (s)	Higher score means more muscle endurance	
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Characteristics of included studies	Low back pain
Study ID	**Mostagi 2015**
11	--
12	--
13	--
Method of analysis	
Statistics	The variables were analysed for normal distribution using the ShapiroeWilk test. When the normality assumption was accepted, the data were presented as means and standard deviations (SD). Otherwise, the data were presented as medians and quartiles (25%e75%). The mean differences (MD) and 95% confidence intervals (CI) are presented. Additionally, the effect size was calculated to indicate the magnitude of treatment effect. Cohen's d was used to measure the effect size for both the PG and GEG for power analysis purposes. The effect size was classified as high, medium or low (Cohen, 1988). To determine statistical differences from baseline, a Student t-test or ManneWhitney U-test was employed according to the distribution of the data. To identify within-group differences, a mixed analysis of variance (mixed ANOVA) for repeated measures was used with syntax according to the multivariate model. The Box's M test was used to verify the equality of covariance matrices. Repeated measures ANOVA was used to compare data between groups. Mauchly's test was used to test the assumption of sphericity. When sphericity was not assumed, the Greenhouse-Geisser adjustment applied. When the F value was significant, the Bonferroni post hoc test was used to identify the differences. The statistical significance adopted for all tests was 5%. All statistics were performed according to intention-to-treat analyses.
Population analysed	Intent-to-treat: Modified. Participants with missing data not included in the analysis. 2 patients allocated to control group discontinued and 2 patients lost to followup (4/11). 1 patient lost to followup in the Pilates group (1/11).
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk due to deviations from the trial context not balanced and missing data (22.7%). Some concerns of outcome measurement bias.

Characteristics of included studies	Low back pain
Study ID	**Natour 2015**
Study Reference/s	1.Natour J, Baptista AS, Cazotti LA, Ribeiro LHC, Jones A. Pilates to treat chronic non-specific low back pain. Arthritis and Rheumatism Conference: Annual Scientific Meeting of the American College of Rheumatology and Association of Rheumatology Health Professionals. 2011;63(10 SUPPL. 1). 2.Natour J, Cazotti LA, Ribeiro LH, Baptista AS, Jones A. Pilates improves pain, function and quality of life in patients with chronic low back pain: a randomized controlled trial [with consumer summary]. Clinical Rehabilitation 2015 Jan;29(1):59-68. 2015.
Study design	RCT
Author affiliation	Five authors are affliated with tertiary institutions in Brazil.
Source of funds	This study was funded by grants provided by Fundacao Amparo a Pesquisa do Estado de Sao Paulo (2007/53423-5).
Declared interests of study authors	The authors have no conflicts of interest to disclose.
Setting / provider	Physical therapy unit
Country(s) / region	São Paulo, SP, Brazil
Enrolment period	Not specified
Length of treatment / followup	12 weeks
Description of population	*N=* *Description*
# participants	60 Adults with low back pain for more than 12 months
details	*Inclusion criteria:* diagnosis of chronic low back pain (defined as pain between the lower rib cage and gluteal folds for more than 12 months); nonspecific low back pain characterized by the absence of signs of a serious underlying condition (such as cancer, infection, or cauda equina syndrome), spinal stenosis or radiculopathy, or another specific spinal cause (such as vertebral compression fracture or ankylosing spondylitis), pain that becomes accentuated with physical effort, and is relieved with rest; male or female; aged 18 to 50 years; pain between four and seven on a 10-cm visual analog scale; and agreement to participate in the study. *Exclusion criteria:* diagnosis of low back pain due to other causes; fibromyalgia; prior spine surgery; lawsuit; having initiated or changed regular physical activity in the previous three months; body mass index > 30; and having undergone treatment with physical therapy or acupuncture in the previous three months.
Description of intervention/ comparator (as per TIDIER checklist)	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Natour 2015**						
Intervention	30	The pilates sessions took place in a studio. Classes lasted 50 minutes and followed a pre-established pilates protocol. Each class consisted of three to four patients and took place twice a week for a total of 90 days					
Comparator #1 (control)	30	Control group participants did not undergo any intervention					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	60	All patients continued medication treatment with use of non-steroidal antiinflammatory drug.					
Is practitioner/instructor certified?	Yes	Include in subgroup A		The pilates sessions took place in a studio with a certified, physical educator with 10 years of experience in the method.			
Is there an inactive comparator?	Yes	Comparison=control		See Comparator #1			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Natour 2015**					
1	Primary	Pain intensity	Baseline, end of treatment (12 wks)	Visual analogue scale (0-10)	Higher score means worse pain	
2	Secondary	Functional disability	Baseline, end of treatment (12 wks)	Roland-Morris Disability Questionnaire (24-item)	Higher score means more disability in daily living activities	0=no disablity, 24=high disability
3	Not specified	QoL-global	Baseline, end of treatment (12 wks)	SF-36 (0-100)	Higher score means better quality of life	
4	Not specified	Flexibility	Baseline, end of treatment (12 wks)	Sit and reach (cm)	Higher score means better flexibility	test performed twice, with greater distance recorded
5	Primary	Analgesic use	Baseline, end of treatment (12 wks)	Patient record (sodium diclofenac)		
6	--					
7	--					
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain	
Study ID	**Natour 2015**	
11	--	
12	--	
13	--	
Method of analysis		
Statistics	The Kolmogorov-Smirnov test was used to determine the normality of the data. The following tests were used: To determine the homogeneity of the sample at the initial evaluation - $\chi 2$ (categorical variables), Student's t test (parametric variables) and Mann-Whitney (non-parametric variables), To determine differences in the outcomes between groups over time - repeated-measures ANOVA with Bonferroni adjustments and a to know where this difference occurs a multiple comparisons test (Post Hoc) was conducted. Data for all patients were evaluated with intention-to-treat analysis. In cases of interrupted treatment, patients were asked to return for subsequent evaluations. For patients who refused to return, the last data collected were repeated for the subsequent evaluations.	
Population analysed	Intent-to-treat	Data were analysed by using a intention to treat model (LOCF). Three drop-outs occurred throughout the study (one in the control group and two in the experimental group). Authors present the ITT results with no further mention of PP analysis or mITT.
Missing data	Data from the last evaluation of missing data were repeated in the subsequent evaluations (i.e. last observation carried forward). Information to conduct PP analysis not available.	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias	
Summary (descriptive)	Some concerns relating to the measurement of the outcome and selective reporting.	

Characteristics of included studies	Low back pain
Study ID	**Notarnicola 2014**
Study Reference/s	Notarnicola A, Fischetti F, Maccagnano G, Comes R, Tafuri S, Moretti B. Daily pilates exercise or inactivity for patients with low back pain: a clinical prospective observational study. European journal of physical & rehabilitation medicine. 2014;50(1):59-66.
Study design	NRSI Nonrandomised controlled trial
Author affiliation	Seven authors are affliated with tertiary institutions in Italy.
Source of funds	Not specified
Declared interests of study authors	The authors certify that there is no conflict of interet to disclose.
Setting / provider	Local community
Country(s) / region	Bari, Italy
Enrolment period	Not specified
Length of treatment / followup	24 weeks
Description of population	*N=* *Description*
# participants	60 Adults with low back pain for more than 6 months
details	*Inclusion criteria:* aged older than 30 years, chronic low back pain without peripheral irridation for at least 6 months; neurological values within the normal range; negative Lasegue's test; negative Wassermann's test. *Exclusion criteria:* clinical history of spinal surgery; neurological values outside the normal range; radicular pain with positive Lasegue's and Wassermann's signs; structural deformities; stenosis of the vertebral channel; computed tomography or nuclear MRI documented disc hernia; RA or other rheumatologically related pathologies; conditions unrelated to the spine that mimic lubalgic symptoms.
Description of intervention/ comparator (as per TIDIER checklist)	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Notarnicola 2014**						
Intervention	30	The Pilates group performed one-hour lessons of Pilates exercises , 5 lessons per week during a 6 month period. Ball and rubber mat used during exercises.					
Comparator #1 (control)	30	The control group continued with their normal daily activities					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	Yes	Include in subgroup A		Pilates program was taught by a certified Pilates Institute instructor			
Is there an inactive comparator?	Yes	Comparison=control		See Comparator #1			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Notarnicola 2014**					
1	Not specified	Functional disability	Baseline, end of treatment (24wks)	Roland-Morris Disability Questionnaire (24-item)	Higher score means more disability in daily living activities	0=no disabllity, 24=high disability
2	Not specified	Functional disability	Baseline, end of treatment (24 wks)	Oswestry Disability Index (0-100)	Higher score means more disability in daily living activities	
3	Not specified	QoL-global	Baseline, end of treatment (24 wks)	SF-36	Higher score means better quality of life	
4	Not specified	Functional capacity	Baseline, end of treatment (24 wks)	Spinal Functional Sort Questionnaire	Higher score means greater ability to perform work tasks	
5	--					
6	--					
7	--					
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain	
Study ID	**Notarnicola 2014**	
11	--	
12	--	
13	--	
Method of analysis		
Statistics	The forms were entered into a database using software File Maker Pro 11. We used the STATA MP11 software to analyze the data. Data are expressed as mean and standard deviation (SD). We used chi-square test to compare the back pain with the smoking habits, carrying heavy loads, sporting activity and spine diseases in both groups. We verified all data were normally distributed. We used the t-student test for independent studies to compare the mean age, the mean number of days of back pain in the last 6 months at two different times between the two groups. To compare the results of the test carried out in each group at each time we used t-student for paired samples. To evaluate the influence of gender, age, smoking habits, carrying heavy loads, sporting activity, bone diseases, number of days of back pain and T1 values of all the scores we used a model for multiple logistical regression. For every test we considered a value of P <0.05 to be statistically significant.	
Population analysed	Other (provide details)	It is not clear if all patients were included in the analysis or if there was any missing data.
Missing data	No information provided.	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	Serious risk. The study has some important problems and is judged to be at serious risk of bias in at least ONE domain, but not a critical risk of bias in any domain	
Summary (descriptive)	Serious bias due to missing information. No information to make judgement on deviations from intended interventions or amount of missing data. No adjustment for any potential confounders.	

Characteristics of included studies	Low back pain
Study ID	**Pappas 2013**
Study Reference/s	Pappas E, Panou H, Souglis A. The effect of a pilates exercise programme using fitball on people suffering from chronic low-back pain in terms of pain reduction and function imrovement. Journal of Physical Education & Sport. 2013;13(4):606-11.
Study design	NRSI Nonrandomised controlled trial
Author affiliation	Three authors are affliated with tertiary institutions in Lithuania.
Source of funds	Not specified
Declared interests of study authors	Not specified
Setting / provider	Local hospitals, private clinics and private exercise areas
Country(s) / region	Athens, Greece
Enrolment period	Not specified
Length of treatment / followup	6 weeks
Description of population	*N=* *Description*
# participants	28 Adults with low back pain for more than 6 weeks
details	*Inclusion criteria:* Patients aged 20-60 years who suffered from chronic low-back pain (continuous for at least 6 weeks or recurring pain with at least two episodes in the last year). *Exclusion criteria:* Individuals with low-back pain due to tumor, infection, fracture, osteoporosis, structural deformation, acute compression of nerve roots, as well as individuals suffering from comorbidities, such as clinical indications of serious illness, significant weakness of legs, pregnancy, recent abdominal surgery, neuromuscular degenerative disorders and concomitant health problems that prevent the exercise. Patients should not have been subjected to surgery on the spine, while they should also be able to move independently and perform physical activity.
Description of intervention/ comparator (as per TIDIER checklist)	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Pappas 2013**						
Intervention	14	The experimental group practicing Pilates attended a total of twelve lessons lasting one hour for six weeks, divided in two lessons per week. The exercise classes consisted of 7 people and the exercise programme with Fitball.					
Comparator #1 (control)	14	Control group not specified					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	Yes	Include in subgroup A		Performed by a certified Pilates instructor.			
Is there an inactive comparator?	Yes	Comparison=control		See Comparator #1			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain				
Study ID	**Pappas 2013**				
1	Primary	Pain	Baseline, end of treatment (6 wks)	visual analogue pain scale Roland Morris	Authors report as VAS-RM pain scale. Assumed 0-10 VAS.
2	Primary	Functional disability	Baseline, end of treatment (6 wks)	Oswestry Disability Index (0-100)	Higher score means more disability in daily living activities
3	Secondary	Balance	Baseline, end of treatment (6 wks)	Stork stand test	Higher score means better dynamic balance
4	Secondary	Flexibility	Baseline, end of treatment (6 wks)	Sit and reach (cm)	Higher score means better flexibility
5	Not specified	Mood	Baseline, end of treatment (6 wks)	Modified Differential Emotions Scale (Positive)	Higher score means more positive emotions
6	Not specified	Mood	Baseline, end of treatment (6 wks)	Modified Differential Emotions Scale (Negative)	Higher score means more negative emotions
7	--				
8	--				
9	--				
10	--				

Characteristics of included studies	Low back pain	
Study ID	**Pappas 2013**	
11	--	
12	--	
13	--	
Method of analysis		
Statistics	The statistical analysis of the questionnaires was performed using the SPSS, version 20.0. Additionally, following the initial study hypotheses, we proceeded to check the equality of the mean values of numerical variables for each group separately before and after the experiment (dependent samples means test), as well as for the two groups together for every specific time (independent samples means test) to verify the existence of potential differences when implementing the intervention, and between the two groups as well. The parametric t-test is used for these tests, with a significance level of p <0.05, provided that the appropriate conditions occur. a) The individuals to be studied should be independent (Paired-samples t-test was used in the event of depended individuals), b) No sample should present extreme observations, c) Each population should follow normal distribution and d) Equal population variations. Test of Welch was used in cases where the latter condition is not met, whereas in cases where the second and/or third conditions had not been met, corrective attempts with appropriate transformation were performed (eg BoxCox, log, root and others). If the problem had still not been settled, then the initially desired control was implemented using non-parametric statistical tests (Mann-Whitney or Wilcoxon for dependent samples).	
Population analysed	Other (provide details)	It is not clear if all patients were included in the analysis or if there was any missing data.
Missing data	No information provided.	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	Serious risk. The study has some important problems and is judged to be at serious risk of bias in at least ONE domain, but not a critical risk of bias in any domain	
Summary (descriptive)	Serious bias due to missing information. No information to make judgement on deviations from intended interventions or amount of missing data. No adjustment for any potential confounders.	

Characteristics of included studies	Low back pain	
Study ID	**Patti 2016**	
Study Reference/s	Patti A, Bianco A, Paoli A, Messina G, Montalto MA, Bellafiore M, et al. Pain Perception and Stabilometric Parameters in People With Chronic Low Back Pain After a Pilates Exercise Program: A Randomized Controlled Trial. Medicine. 2016;95(2):e2414.	
Study design	RCT	
Author affiliation	Nine authors are affliated with tertiary institutions in Italy.	
Source of funds	The authors have no funding.	
Declared interests of study authors	The authors have no conflicts of interest to disclose.	
Setting / provider	University Sports centre	
Country(s) / region	Palermo, Italy	
Enrolment period	Not specified	
Length of treatment / followup	14 weeks	
Description of population	*N=*	*Description*
# participants	38	Adults with low back pain for more than 12 months
details	*Exclusion criteria:* Individuals with a positive diagnosis of spinal stenosis, radiculopathy, any other specific cause of spinal dysfunction and pain, or serious underlying condition, such as cancer or infection, were excluded.	
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Patti 2016**						
Intervention	19	Pilates matwork exercise program, thrice per week for 14 weeks under the supervision of an exercise specialist, and included hundreds, rollup, single leg stretch, spine stretch, and diapraghmatic breathing. Participants were not permitted to use nonsteroidal anti-inflammatory medications.					
Comparator #1 (control)	19	Not actively monitored. Participants continuing their own social activities and usual treatment, including the use of nonsteroidal anti-inflammatory medications.					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	Not specified	Include in subgroup C					
Is there an inactive comparator?	Yes	Comparison=control		See Comparator #1 (differences in NSAID use)			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Patti 2016**					
1	Not specified	Functional disability	End of treatment (14wks)	Oswestry Disability Index (0-100)	Higher score means more disability in daily living activities	
2	Not specified	Dynamic balance	End of treatment (14wks)	Romberg test (force platform) (eyes open)	Centre of Pressure: length of sway, ellipse surface area, right-left, forward-back	
3	Not specified	Dynamic balance	End of treatment (14wks)	Romberg test (force platform) (eyes closed)	Centre of Pressure: length of sway, ellipse surface area, right-left, forward-back	
4	--					
5	--					
6	--					
7	--					
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain
Study ID	**Patti 2016**
11	--
12	--
13	--
Method of analysis	
Statistics	Statistical analysis was performed using StatSoft's STATISTICA software (Windows, version 8.0; Tulsa, OK) and GraphPad Prism software (Windows, version 5.0; La Jolla, CA). Paired t test ($P < 0.05$) was used to detect significant differences in the posturography, before and after the Pilates' intervention. Before and after differences in ODI were evaluated using Wilcoxon matched pairs test.
Population analysed	Intent-to-treat All randomised pariticipants were included in the final analysis.
Missing data	No missing data. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Some concerns raised in the measurement of the outcome and reporting bias.

Characteristics of included studies	Low back pain		
Study ID	**Quinn 2011**		
Study Reference/s	Quinn K, Barry S, Barry L. Do patients with chronic low back pain benefit from attending Pilates classes after completing conventional physiotherapy treatment? Physiotherapy Ireland. 2011;32(1):5-12.		
Study design	RCT		
Author affiliation	Three authors are affliated with tertiary institutions in United Kingdom.		
Source of funds	Not specified		
Declared interests of study authors	Not specified		
Setting / provider	Physiotherapy department of University hospital		
Country(s) / region	United Kingdom	Not specified	
Enrolment period	April 2008 - September 2008		
Length of treatment / followup	2 months		
Description of population	*N=*	*Description*	
# participants	29	Adults with low back pain for more than 12 weeks	
details	*Inclusion criteria:* aged between 18-60 years, have chronic LBP (> 3 months duration) with no pain radiating below the knee and be willing to attend Pilates classes for 8 weeks. Subjects also had to have some residual pain (VAS >18mm) and have failed the Sahrmann Abdominal Test for core stability. *Exclusion criteria:* a significant other co-morbidity such as unstable cardiovascular system, uncontrolled epilepsy, Modified Zung Depression Index score >33/6914 or significant pain in other joints which would affect their ability to participate in class. Subjects were also excluded if they were pregnant, had spinal surgery in the past 12 months or were diagnosed with significant disc prolapse on MRI, severe scoliosis, inflammatory low back pain or had high level of disability (Roland Morris Disability Questionnaire <16/24). 29 patients were recruited into the study.		
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Low back pain						
Study ID	**Quinn 2011**						
Intervention	15	Subjects in the intervention group attended weekly, hour long modified mat Pilates classes for eight weeks. Attendance at least 6 out of 8 sessions was required to be defined as completing the intervention. Subjects in the intervention group were also advised to complete 15 minutes of Pilates exercise five days of the week at home. Compliance with home based exercise was monitored by a self-recorded diary.					
Comparator #1 (control)	14	Subjects in the control group received no further intervention for the eight week period. After completing the eight week follow up assessment, patients in the control group were given the option of attending the same Pilates course as the intervention group had completed.					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	Yes	Include in subgroup A		All classes were run by the chief investigator who was a chartered physiotherapist and a qualified Body Control Pilates instructor.			
Is there an inactive comparator?	Yes	Comparison=control		See Comparator #1			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Quinn 2011**					
1	Not specified	Pain intensity	Baseline, end of treatment (8 wks)	Visual analogue scale (0-100)	Higher score means worse pain	
2	Not specified	Functional disability	Baseline, end of treatment (8 wks)	Roland-Morris Disability Questionnaire (24-item)	Higher score means more disability in daily living activities	0=no disablity, 24=high disability
3	Not specified	Lumbopelvic control	Baseline, end of treatment (8 wks)	Sahrmann Abdominal Test (with pressure biofeedback)	Subject fails the test if pressure increases by more than 2 mm Hg during the test	
4	--					
5	--					
6	--					
7	--					
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain
Study ID	**Quinn 2011**
11	--
12	--
13	--
Method of analysis	
Statistics	Statistical Package for the Social Sciences (SPSS) version 15.0 was used to analyse data. Statistical significance was set at $p < 0.05$. Descriptive statistics were used to present the baseline characteristics of participants; and assessed using unrelated t-test for interval level data with a normal distributions or Mann-Whitley U for ordinal data. The Mann-Whitley U test was used to identify any significant changes between the groups in pain and disability pre and post intervention. The data from the SAT test consisted of numbers of subjects passing or failing the test in each group and initially the Chi-squared test was selected to assess for difference between the two groups. However the required assumptions for the Chi-squared test were not met so data has been presented as percentage values.
Population analysed	Intent-to-treat Groups were analysed on **an intention to treat basis (LOCF).** All subjects were included to avoid bias by omitting non compliers.
Missing data	Last known values were carried forward to replace missing values for any subjects who failed to attend for final assessment. No details on missing data were provided. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	All domains are considered low risk of bias except for bias in the measurement of the outcome. Self-reported outcomes comprise the primary objective of the study with likely bias arising from beliefs in the intervention. Some concerns also raised due to lack of information on the prespecified analysis plan.

Characteristics of included studies	Low back pain
Study ID	**Rajpal 2008**
Study Reference/s	Rajpal N, Arora M, Chauhan V. The study on efficacy of Pilates and McKenzie exercises in postural low back pain -- a rehabilitative protocol. Physiotherapy and Occupational Therapy Journal 2008 Jul-Sep;1(1):33-56. 2008.
Study design	RCT pseudorandomised
Author affiliation	3 authors are affliated with tertiary institutions in India
Source of funds	Not specified
Declared interests of study authors	Not specified
Setting / provider	Outpatient department
Country(s) / region	Balawala, Dehradun, India
Enrolment period	Not specified
Length of treatment / followup	1 month
Description of population	*N=* *Description*
# participants	32 Women with low back pain for more than 12 weeks
details	*Inclusion criteria:* Female subjects of age group 20-30 years with postural low back pain for 3 months, reduced abdominal muscle strength and the standing pelvic tilt angle of 9º or more *Exclusion criteria:* Sciatica or any nuerological deficiency, soft tissue injuries, spinal fractures, disc prolapse, back pain due to structural deformity, infeciton, tumour.
Description of intervention/ comparator (as per TIDIER checklist)	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Rajpal 2008**						
Intervention	17	The subjects were given Pilates exercises for one month. The exercises were done for 10 times with 10 seconds hold in between daily and included mat and Swiss ball exercises.					
Comparator #1 (control)	--	--					
Comparator #2 (other)	15	The subjects were taught postural correction and re-education (McKenzie Method). This procedure was repeated for 3 times daily, 15-20 times at each session					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	Not specified	Include in subgroup C					
Is there an inactive comparator?	No	Comparison=other		See Comparator #2			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Rajpal 2008**					
1	Not specified	Postural tilt	Baseline, end of treatment (4wks)	Standing pelvic tilt angle (degrees)	Digital inclinometer	
2	Not specified	Core muscle strength	Baseline, end of treatment (4wks)	Sphygmomanometer (transverse abdominus pressure biofeedback)		
3	Not specified	Pain intensity	Baseline, end of treatment (4wks)	Visual analogue scale (0-10)	Higher score means worse pain	
4	Not specified	Functional disability	Baseline, end of treatment (4wks)	Back performance scale score (Sock test, Pick-up test, Roll-up test, Fingertip to floor test and lift test)	Higher score means more disability in daily living activities	Each test scored on a 4-point Likert scale. 0=no activity limitation, 15=major activity limitation
5	--					
6	--					
7	--					
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain
Study ID	**Rajpal 2008**
11	--
12	--
13	--
Method of analysis	
Statistics	The data were analyzed using statistical tests, which were performed using SPSS 10.0 software package. Paired t-test was used to analyse the dependent variable .i.e. standing pelvic tilt angle, core strength, back performance scale score and VAS for within the group A and B. Unpaired t-test was used for analyzing the dependent variable .i.e. standing pelvic tilt angle, core strength, back performance scale score and VAS for between the group A and B. A 0.05 level of significance was used for all comparisons.
Population analysed	Intent-to-treat All randomised pariticipants were included in the final analysis.
Missing data	No missing data. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Some concerns rasied due to lack of information regarding randomisation process and allocation concealement. In addition, failure to provide an adequate pre specified analysis plan also raised some concerns of bias.

Characteristics of included studies	Low back pain
Study ID	**Rydeard 2006**
Study Reference/s	Rydeard R, Leger A, Smith D. Pilates-based therapeutic exercise: effect on subjects with nonspecific chronic low back pain and functional disability: a randomized controlled trial. Journal of Orthopaedic & Sports Physical Therapy. 2006;36(7):472-84.
Study design	RCT pseudorandomised
Author affiliation	3 authors are affliated with tertiary institutions in Canada, NewZealand and Hong Kong
Source of funds	not specified
Declared interests of study authors	not specified
Setting / provider	local community living in Hong Kong
Country(s) / region	Hung Hom, Hong Kong SAR, China
Enrolment period	subjects recruited over a 4-month period (not specified)
Length of treatment / followup	13
Description of population	*N=* *Description*
# participants	39 Adults with low back pain for more than 6 weeks
details	*Inclusion criteria:* physically active adults between 20 and 55 years of age, living in Hong Kong, with longstanding, persistent LBP (with or without leg pain) of greater than 6 weeks duration or recurring LBP (with at least 2 painful incidences per year) of sufficient intensity to restrict functional activity in some manner. *Exclusion criteria:* pregnant, had a past history of spinal surgery or spinal fracture, were diagnosed with inflammatory joint disease, systemic metabolic disorder, rheumatic disease, or chronic pain syndrome, showed evidence of overt neurological compromise or acute inflammatory process, or had difficulty understanding written or spoken English
Description of intervention/ comparator (as per TIDIER checklist)	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Rydeard 2006**						
Intervention	21	The Pilates Group received a treatment protocol consisting of training on specialised exercise apparatus in the clinic for three 1-hour sessions per week, and training in a 15-minute home program performed 6 days per week for 4 weeks. The apparatus used in the clinic consisted of a floor mat and a Pilates Reformer withstanding platform and jump-board attachments.					
Comparator #1 (control)	18	Control group received no specific exercise training and continued with usual care, defined as consultation with a physician and other specialists and healthcare professionals as necessary. They were not restricted from seeking any other treatment if they so wished. Subjects were instructed to continue to do what they were previously doing, including regular physical activity. For ethical reasons the CG had the option to receive, free of charge, the specific-exercise-training program 4 weeks later, after collection of posttreatment intervention outcome data from the main study					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	Not specified	Include in subgroup C		The clinic treatment protocol was provided in an individualized manner by 1 of 2 experienced physiotherapists			
Is there an inactive comparator?	Yes	Comparison=control		See Comparator #1			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Rydeard 2006**					
1	Not specified	Functional disability	baseline, end of treatment (4 wks), follwup (3-, 6-, and 12-month)	Roland-Morris Disability Questionnaire (24-item)	Higher score means more disability in daily living activities	0=no disablity, 24=high disability
2	Not specified	Pain intensity	baseline, end of treatment (4 wks), follwup (3-, 6-, and 12-month)	Numerical pain rating scale (0-100)	Higher score means worse pain	
3	--					
4	--					
5	--					
6	--					
7	--					
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain
Study ID	**Rydeard 2006**
11	--
12	--
13	--
Method of analysis	
Statistics	Statistical analysis was performed using SPSS software. Results were considered statistically significant if the P value was less than .05. Subject characteristics, such as height and body mass, were compared between groups prior to the treatment intervention using unpaired t tests. Gender distribution, nature of condition, area of symptoms, previous physiotherapy treatment, and the inclusion exercise therapy were compared with a nonparametric statistics. Duration of symptoms (years), however, was analyzed with a nonparametric test, considering the positively skewed nature of the data. Outcome measures following the 4-week treatment intervention period were compared between the 2 groups using an analysis of covariance according to the general linear model, with group (2 levels: CG and SETG) as main factor, prestest measurements as a covariate, and posttest measurements as dependent variable. RMQ/RMDQ-HK data were collected for the SETG immediately after and at 3, 6, and 12 months following the treatment intervention period.
Population analysed	Intent-to-treat: All randomised pariticipants were included in the final analysis (end of treatment). Follow-up information was not available for some participants as part of 'retention of treatment' analysis. Here, sensitivity analyses with ITT analyses were conducted to evaluate the retention of treatment effect.
Missing data	No missing data at end of treatment (4-weeks). Information to conduct PP analysis not available. *missing data of all randomized subjects were handled with the ‘‘last observation carried forward’’ (LOCF) imputation method and analyzed with a repeated-measures ANOVA on the different periods that data were collected, followed by post hoc analyses using Fisher’s least significant difference test. *To verify the robustness of the conclusions of the analysis, ITT analyses were conducted with 3 alternative approaches. The ANOVAs were carried out for the subjects with 1) a complete data set only, 2) the worst-case value was imputed to the missing data, and 3) the best-case value. Post hoc analyses were once again conducted using the Fisher least significant difference test.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Concerns due to primary outcomes participant-reported. As subjects were aware of the intervention they are receiving, there is a high chance that this could impact the results of the trial. In addition, the tight inclusion criteria meant that any Pilates treatment was likley to instigate positive results.

Characteristics of included studies	Low back pain	
Study ID	**Silva 2018**	
Study Reference/s	Silva PHBd, Silva DFd, Oliveira JKdS, Oliveira FBd. The effect of the Pilates method on the treatment of chronic low back pain: a clinical, randomized, controlled study. BrJP. 2018;1(1):21-8.	
Study design	RCT	pseudorandomised
Author affiliation	Four authors are affliated with tertiary institutions in Brazil.	
Source of funds	Not specified	
Declared interests of study authors	The authors have no conflicts of interest to disclose.	
Setting / provider	Physiotherapy centre	
Country(s) / region	Goiás, GO, Brazil	
Enrolment period	Not specified	
Length of treatment / followup	2 months	
Description of population	*N=*	*Description*
# participants	22	Adults with low back pain for more than 12 weeks
details	*Inclusion criteria:* clinical diagnosis of chronic back pain by the physicians of the different Primary Care Units of Senator Canedo - Goiás; with age from 30 to 60 years; of both gender; voluntary participation in the study; be literate and able to communicate verbally. E*xclusion criteria* : individuals with hypertension, severe neurologic, respiratory, cardiac, orthopedic diseases (fractures, instability, hernias, stenosis, and tumors), diagnosed by any clinical way and following a physiotherapeutic treatment in parallel to the present study.	
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Silva 2018**						
Intervention	11	Pilates exercises were carried out over 12 sessions between April and May 2016, twice a week, with 40 minutes duration of individual sessions. Exercises included spine stretch, spine twist, hundrens, one leg circle, plank, leg pull front, swimming, rocking, swan.					
Comparator #1 (control)	--	--					
Comparator #2 (other)	11	Conventional stretching and strengthening exercises were carried out over 12 sessions between April and May 2016, twice a week, with 40 minutes duration of individualized sessions.					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	Not specified	Include in subgroup C					
Is there an inactive comparator?	No	Comparison=other		See Comparator #2			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Silva 2018**					
1	Primary	Pain intensity	Baseline, end of treatment (8wks)	Visual Analogue scale (0-10)	Higher score means more pain	
2	Primary	Functional disability	Baseline, end of treatment (8wks)	Oswestry Disability Index (0-100)	Higher score means more disability in daily living activities	
3	--					
4	--					
5	--					
6	--					
7	--					
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain	
Study ID	**Silva 2018**	
11	--	
12	--	
13	--	
Method of analysis		
Statistics	Descriptive analyses were performed using frequency and per centage measures, central tendency (average) and variability (standard deviation) of the VAS score and the questionnaires. The inferential statistical analysis was performed using the Bio Estat 5.0 software, and the distribution normality was performed using the Shapiro-Wilk test. The differences in the average of the variables of the levels of pain and disability intragroup were analyzed using the Student's t-test for paired samples, and the CG and EG intergroup variables were analyzed using the Student's t-test for independent samples. The significance level considered was alpha=0.05.	
Population analysed	Per protocol	Modified. Participants with missing data and non-attendance at sessions not included in the analysis. 3/22 participants dropped out of the trial with out reason. A further 3/22 participants did not attend all sessions (total 27.3%)
Missing data	No imputations for missing data were made. Information to conduct mITT analysis is not available.	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	High risk of bias in one or more key domains	
Summary (descriptive)	High risk due to exclusion of participants from analysis. Some concerns about missing information about allocation concealment, outcome measurement and selective reporting.	

Characteristics of included studies	Low back pain	
Study ID	**Valenza 2017**	
Study Reference/s	Valenza MC, Rodriguez-Torres J, Cabrera-Martos I, Diaz-Pelegrina A, Aguilar-Ferrandiz ME, Castellote-Caballero Y. Results of a Pilates exercise program in patients with chronic non-specific low back pain: a randomized controlled trial. Clinical Rehabilitation. 2017;31(6):753-60.	
Study design	RCT	
Author affiliation	Five authors are affliated with tertiary institutions in Spain.	
Source of funds	The author(s) received no financial support for the research, authorship, and/or publication of this article.	
Declared interests of study authors	The authors have no conflicts of interest to disclose.	
Setting / provider	University	
Country(s) / region	Granada, Spain	
Enrolment period	Not specified	
Length of treatment / followup	2 months	
Description of population	*N=*	*Description*
# participants	54	Adults with low back pain for more than 12 weeks
details	*Inclusion criteria:* diagnosed with chronic non-specific low back pain (at least 3 months' duration) without leg pain, currently seeking care for low back pain, if they were aged between 18 and 70 years, had no medical contraindications to active exercise and did not suffer from concomitant somatic or psychiatric disorder, had no sign and symptoms associated with other conditions, such as nerve root compromise (at least 2 of the following signs: Weakness, reflex changes, or sensation loss, associated with the same spinal nerve), no previous spinal surgery or were not scheduled for surgery during the trial period.	
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Valenza 2017**						
Intervention	27	Pilates exercise program twice a week for 8 consecutive weeks. Each session lasted 45 minutes. The Pilates exercise program consisted of floor exercises using a 55-cm ball on a rubber mat. Exercises progress in difficulty and were individually adapted.					
Comparator #1 (control)	27	Usual activities and received educational advice in the form of a leaflet. Information included adivce on postural care, physical ativity, weights, sports, behaviour, false beliefs, pain-free activities and active lifestyle.					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	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	Low back pain					
Study ID	**Valenza 2017**					
1	Primary	Functional disability	Baseline, end of treatment (8wks)	Roland-Morris Disability Questionnaire (24-item)	Higher score means more disability in daily living activities	0=no disabllity, 24=high disability
2	Secondary	Functional disability	Baseline, end of treatment (8wks)	Oswestry Disability Index (0-100)	Higher score means more disability in daily living activities	
3	Not specified	Pain intensity	Baseline, end of treatment (8wks)	Visual analogue scale (0-10)	Higher score means worse pain	
4	Secondary	Lumbar Range of motion	Baseline, end of treatment (8wks)	Modified Schober test (flexion, extension) (cm)	Maximal forward and backward bending	5cm below and 10 cm above the second scaral vertebra
5	Secondary	Flexibility	Baseline, end of treatment (8wks)	Finger to floor (cm)	Higher value means greater shortening of muscles of the trunk and lower limbs	
6	Secondary	Balance	Baseline, end of treatment (8wks)	Single limb stance test (left, right) (s)	Higher score means better balance	
7	--					
8	--					
9	--					
10	--					

Characteristics of included studies	Low back pain
Study ID	**Valenza 2017**
11	--
12	--
13	--
Method of analysis	
Statistics	Statistical analyses were performed using the Statistical Package for Social Sciences soft ware, version 20.0 (IBM Corp, Armonk, NY). Descriptive statistics were used to determine par ticipant characteristics. Qualitative variables are presented as percentage (%) and quantitative vari ables as mean±standard deviation. Prior to statisti cal analysis, the Kolmogorov-Smirnov test was performed to assess the normality of continuous data. A repeated-measures per group ANOVA model on the different moments where data were collected (pre-post intervention), followed by post hoc analyses using Fisher's least significant differ ence test were conducted. The statistical analysis was conducted at 95% confidence level.
Population analysed	Intent-to-treat All randomised participants included in the analysis.
Missing data	No missing data. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Some concerns relating to measurement of the outcome and possible seletive reporting.

Characteristics of included studies	Low back pain
Study ID	**Wajswelner 2011**
Study Reference/s	1.Wajswelner H, Bennell K, Metcalf B. Clinical pilates for the management of chronic low back pain: A randomized controlled trial. Physiotherapy (United Kingdom). 2011;1):eS1318. 2.Wajswelner H, Metcalf B, Bennell K. Clinical pilates versus general exercise for chronic low back pain: randomized trial. Medicine & Science in Sports & Exercise. 2012;44(7):1197-205.
Study design	RCT
Author affiliation	3 authors are affliated with tertiary institutions in Australia
Source of funds	Funding for this trial was provided by DMA Clinical Pilates Physiotherapy in South Yarra, Melbourne, Victoria, Australia, and Pain of Back in Motion Physiotherapy in Brunswick, Melbourne, Victoria, Australia
Declared interests of study authors	The authors have no conflicts of interest to disclose.
Setting / provider	community volunteers
Country(s) / region	Melbourne, Victoria, Australia
Enrolment period	August 2009 - May 2010
Length of treatment / followup	6 weeks, with followup at 12 and 24 weeks
Description of population	*N=* *Description*
# participants	87 Adults with low back pain for more than 12 weeks
details	*Inclusion criteria:* Age between 18 and 70 yr, symptoms of pain or stiffness in the lower back with or without lower limb symptoms on most days of the week for more than 3 months (defined as chronic), average pain score in the past week at telephone screening >4 on an 11-point numeric rating scale (0 = no pain and 10 = worst pain possible), and good understanding of written and spoken English. *Exclusion criteria* : spinal surgery; fever, infection, night sweats or rigors; unexplained weight loss or loss of appetite; history of cancer or malignancy; cauda equina lesion, loss of bladder or bowel control, or saddle paresthesia; pregnancy or the possibility of pregnancy in the next 6 months; spinal fractures or diagnosed osteoporosis; spinal inflammatory disease such as ankylosing spondylitis, rheumatoid arthritis; comorbidities that would prevent exercise; previous participation in a clinical Pilates program or other regular therapeutic back exercise program in the last 6 months; inability to comply with trial requirements; or compensable back pain
Description of intervention/ comparator (as per TIDIER checklist)	*n=* *Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Wajswelner 2011**						
Intervention	44	Individualised Pilates program using reformer and trapeze equipment. After initial prescription, the participants attended group sessions (maximum number of four people) at one of the trial clinics twice a week (60 min) for the 6-wk duration of the program. All sessions were supervised by one of the project physiotherapists. Participants were also requested to perform a smaller number of daily home exercises (floor and simple props) and to continue with these during the follow-up period.					
Comparator #1 (control)	--	--					
Comparator #2 (other)	43	Individualised exercise program based on conventional physiotherapy; including stationary bike, weights, stretches, Theraband, Swiss ball and floor exercsies. The participants attended group sessions (maximum number of four people) at one of the trial clinics twice a week (60 min) for the 6-wk duration of the program. All sessions were supervised by one of the project physiotherapists. Participants were also requested to perform a smaller number of daily home exercises and to continue with these during the follow-up period.					
Comparator #3 (other)	--	--					
Co-interventions	--	Initial 1-h individual session with the physiotherapist whereby the exercise program was prescribed. The therapist could use up to two further 30-min individual sessions to ensure that the participant could perform all exercises safely and effectively.					
Is practitioner/instructor certified?	Yes	Include in subgroup A		The therapists had between 5 and 30 yr of clinical experience. All had completed advanced clinical Pilates training and one had also completed postgraduate research training			
Is there an inactive comparator?	No	Comparison=other		See Comparator #2			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain					
Study ID	**Wajswelner 2011**					
1	Primary	Functional disability	Baseline, end of treatment (6wks), followup (12 and 24 wks)	Quebec Back Pain Disability Scale (20-item)	Higher score means more disability in daily living activities	0=no disabllity, 100=high disability
2	Secondary	Pain Intensity	Baseline, end of treatment (6wks), followup (12 and 24 wks)	Numeric rating scale (0-10)	Higher score means worse pain	
3	Secondary	Function (patient specific)	Baseline, end of treatment (6wks), followup (12 and 24 wks)	Patient-Specific Functional Scale (3-items)	Higher score means better function (max score=30)	
4	Secondary	Pain confidence	Baseline, end of treatment (6wks), followup (12 and 24 wks)	Pain Self-efficacy Questionnaire	Higher score means more confidence in managing pain	
5	Secondary	Participant perceived global change in pain	Baseline, end of treatment (6wks), followup (12 and 24 wks)	5-point Likert scale	1=much worse, 2=slightly worse, 3=no change, 4=slightly better, 5=much better	
6	Secondary	Participant perceived global change in function	Baseline, end of treatment (6wks), followup (12 and 24 wks)	5-point Likert scale	1=much worse, 2=slightly worse, 3=no change, 4=slightly better, 5=much better	
7	Secondary	QoL - global	Baseline, end of treatment (6wks), followup (12 and 24 wks)	SF-36 (0-100)	Higher score means better health	
8	Secondary	Adverse events	during treatment	Daily logbook		
9	Secondary	Use of co-interventions	during treatment	Daily logbook		
10	--					

Characteristics of included studies	Low back pain
Study ID	**Wajswelner 2011**
11	--
12	--
13	--
Method of analysis	
Statistics	P < 0.05 was considered significant. Comparison of demographic, clinical characteristics, and participant expectation of treatment outcome between groups was performed using independent t-tests or W2 analysis as appropriate. All primary and secondary outcomes (except for global rating of change in pain and function) were measured using an essentially continuous scale. The mean change at each time point (6, 12, and 24 wk) was compared between groups using separate one-way ANCOVA adjusted for baseline values of the outcome. Results for these are presented as estimated mean differences with 95% confidence intervals (CI). For the global rating of change in pain and function, separate W2 analysis was used to compare responses between groups at each follow-up time point. The numbers of exercise classes attended and home exercise sessions performed as well as self-rated adherence were compared between groups using Mann–Whitney U tests. The proportion of participants considered adherent to the exercise program was compared between groups using W2 analysis.
Population analysed	Intent-to-treat: Modified. Assumed participants with missing data not included in the end of treatment analysis. At end of treatment there were 3/44 participants from the Pilates intervention and 1/43 from the exercise comparator group were lost to reassessment (<5%) At 6 month followup 14/44 participants from the Pilates intervention and 13/43 from the exercise comparator group dropped out of the study (31% of study population). A per-protocol analysis was also performed including only those participants who were deemed to be adherent to the exercise program, arbitrarily defined as completing 80% or more of the required exercise days.
Missing data	Authors state ITT used, but not clear how missing data were handled. 13 participants did not attend all sessions. The authors did a PP of the results of the primary outcomes (Quebec score) and found no significant difference between the two exercise groups at 6-wks (F=0.44, p=0.51). These results were similar to the ITT analysis (MD -3.5, 95% CI -7.3, 0.3; F=3.33, p=0.07)
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Serious concerns of bias raised due to deviations which are likley related to the trial context. Discontinuations arising from adverse events and participants feeling a lack of effect is likley to bias the results.

Characteristics of included studies	Low back pain	
Study ID	**Zeada 2012**	
Study Reference/s	Zeada MA. Effects of Pilates on low back pain and urine catecholamine. Ovidius University Annals, Series Physical Education and Sport/Science, Movement and Health 2012;12(1):41-47. 2012.	
Study design	RCT	pseudorandomised
Author affiliation	One author are affliated with tertiary institutions in Egypt	
Source of funds	Not specified	
Declared interests of study authors	Not specified	
Setting / provider	Not specified	The research was approved by Ethics and Deontology in Studies and Research of the Federal University of Vale do São Francisco (number 1.687.293).
Country(s) / region	Egypt	
Enrolment period	Not specified	
Length of treatment / followup	8 weeks	
Description of population	*N=*	*Description*
# participants	20	Adults with chronic low back pain (>3 months)
details	*Inclusion criteria:* Recurrent low back pain for longer than three months with no sign of abating, with or without pain into the lower limbs. Subjects were athletes, and fell into the age group of 20 to 25 years. *Exclusion criteria:* Previous spinal surgery, diagnosed inflammatory joint disease, Red flag signs and symptoms (these patients were sent for further investigations), motor or sensory neurological signs, no informed consent, inability to adhere to the exercise programme (these were subjects that were excluded as they anticipated that attendance would be problematic or difficult), previous or current participation in a Pilates or back class program.	
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Low back pain						
Study ID	**Zeada 2012**						
Intervention	10	Mat Pilate's exercises were eight-week period, four times per week. Standard program including footwork, hundrens, burdge, plank, rolling like a ball and side plank.					
Comparator #1 (control)	10	Control group recieved usual care					
Comparator #2 (other)	--	--					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	Not specified	Include in subgroup C					
Is there an inactive comparator?	Yes	Comparison=control		See Comparator #1			
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	

Characteristics of included studies	Low back pain				
Study ID	**Zeada 2012**				
1	Not specified	Muscle endurance	Baseline, end of treatment (8 wks)	Isometric trunk extension endurance (Sorensen test)	Higher score greater muscle endurance
2	Not specified	Flexion	Baseline, end of treatment (8 wks)	Giniometer	Higher score greater trunk flexibility
3	Not specified	Extension	Baseline, end of treatment (8 wks)	Giniometer	Higher score greater trunk extension
4	--	Functional disability	Baseline, end of treatment (8 wks)	Roland-Morris Disability Questionnaire (24-item)	Higher score means more disability in daily living activities
5	--	Severity of injury	Baseline, end of treatment (8 wks)	urine catecholamine	? Not clear if this is a vlaid measure
6	--				
7	--				
8	--				
9	--				
10	--				

Characteristics of included studies	Low back pain
Study ID	**Zeada 2012**
11	--
12	--
13	--
Method of analysis	
Statistics	All statistical analyses were calculated by the SPSS statistical package. The results are reported as means and standard deviations (SD). Differences between two groups were reported as mean difference ±95% confidence intervals (mean-diff ± 95% CI).Student's t test for independent samples was used to determine the differences in fitness parameters between the two groups. The p<0.05 was considered as statistically significant.
Population analysed	Intent-to-treat Presumed all randomised participants included in the analysis. (no CONSORT and N analysed not reported)
Missing data	No information provided.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk of bias due to lack of information regarding randomisation procedure. Failure to report information on the extent of missing data raised some concerns on the analysis method applied as well as no pre-specified analysis plan

Characteristics of included studies	Neck pain		
Study ID	**Cazotti 2015**		
Study Reference/s	de Araujo Cazotti L, Jones A, Roger-Silva D, Ribeiro LHC & Natour J. Effectiveness of the Pilates method in the treatment of chronic mechanical neck pain: a randomized controlled trial. Archives of Physical Medicine and Rehabilitation. 2018; 99: 1740-1746.		
Study design	RCT		
Author affiliation	All authors affiliated with tertiary institute in Brazil		
Source of funds	Thanks CAPES for granting a scholarship to L de Araujo Cazotti		
Declared interests of study authors	None declared		
Setting / provider	Rheumatology division outpatient clinic		
Country(s) / region	Sao Paulo, Brazil	Not specified	
Enrolment period	Not specified		
Length of treatment / followup	12 weeks, follow up at 6 months		
Description of population	*N=*	*Description*	
# participants	64	Adults with chronic mechaical neck pain	
details	*Inclusion criteria* : (1) individuals from either sex; (2) aged 18 to 65 years old; (3) with pain for more than 3 months, according to the Neck Pain Task Force criteria; (4) pain intensity between 3 and 8 cm on a 10 cm Numerical Pain Scale (NPS). *Exclusion criteria* : patients who had (1) a diagnosis of fibromyalgia; (2) spine trauma; (3) spine infection or inflammation; (4) neck pain radiating into the upper limbs; (5) started or changed physical activity supervised practices more than twice a week in the past 3 months. Also excluded were patients with visual impairments that could not be corrected by eye glasses, those with neurological diseases, those who had started or changed medication for pain in the past 3 months, those who had undergone joint injection in the past 3 months, and those with musculoskeletal diseases hindering the practice of Pilates and pregnant women.		
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Neck pain					
Study ID	**Cazotti 2015**					
Intervention	32	Pilates group sessions were conducted in a Pilates studio by a certified instructor. Each session lasted 60 minutes, twice per week for 12 weeks. Exercises included mat and equipment. The protocol included Pilates exercises performed on a mat and on the equipment (Reformer, Cadillac, Combo Chair, Spine, Corrector), with all exercises specifically designed for individuals with chronic mechanical neck pain. According to the exercise, spring intensity varied from heavy to very light to adjust the resistance of each movement performed on the equipment. The protocol was adapted depending on the physical fitness of each participant, and the repetitions varied from 6 to 12, respecting the patient reports of fatigue and pain, using 1 series for each exercise. To improve the physical fitness of participants and avoid adverse effects associated with the exercise, the protocol was divided into 3 stages: the first month, which included basic exercises to facilitate the adaptation of the participants to the principles of Pilates, and the second and third months, which included more difficult exercises. The complete protocol prioritized breathing exercises, spine mobility, and strengthening of the shoulder girdle muscles.					
Comparator #1 (control)	32	Control group received only pharmacological treatment throughout the study. These patients were not allowed the use of any adjuvant treatment for neck pain.				
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	64	All participants were instructed to use acetaminophen 750mg every 6 hours if they experienced pain.				
Is practitioner/instructor certified?	Yes	Include in subgroup A		Pilates sessions provided by certified instructor with 10 years experience in the Pilates Method.		
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	Neck pain					
Study ID	**Cazotti 2015**					
1	Primary	Pain	Baseline, mid (6 weeks), end of treatment (12 weeks), followup (6 months)	Numerical Pain Scale	Higher score means more pain	
2	Secondary	Function	Baseline, mid (6 weeks), end of treatment (12 weeks), followup (6 months)	Neck Disability Index	Higher score means more disability	
3	Secondary	Quality of life	Baseline, mid (6 weeks), end of treatment (12 weeks), followup (6 months)	Short Form Health Survey (SF-36)	Higher means better health status	
4	Secondary	Use of analgesics	Baseline, mid (6 weeks), end of treatment (12 weeks), followup (6 months)	Patient recorded spreadsheet		
5	--					
6	--					
7	--					
8	--					
9	--					
10	--					

Characteristics of included studies	Neck pain	
Study ID	**Cazotti 2015**	
11	--	
12	--	
13	--	
Method of analysis		
Statistics	Statistical analysis was performed using SPSS software. Repeated measures analysis of variance (ANOVA) was used to calculate the sample size. Assuming 80% power, 5% significance and a detectable difference of 2.0 cm on the NPS, the sample was calculated to need 27 participants per group. Taking into account possible dropouts, we included 32 participants in each group. The Kolmogorov-Smirnov test was used to evaluate the distribution of the variables. At baseline, sample homogeneity was evaluated using the following tests: the chi-square test for t categorical variables, Student's t test for quantitative variables with normal distribution, and the Mann-Whitney U test for quantitative variables without normal distribution. ANOVA with Bonferroni correction was performed to assess the intergroup and intragroup behavior over time.	
Population analysed	Intent-to-treat	The few participants who discontinued the intervention were invited to perform the assessments. For those who did not agree to participate, the last data were repeated in the subsequent assessments (LOCF)
Missing data	The few participants who discontinued the intervention were invited to perform the assessments. For those who did not agree to participate, the last data were repeated in the subsequent assessments (LOCF)	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias	
Summary (descriptive)	Some concenrs of bias raised due to participant-reported outcomes likely affecting the results by favouring the intervention. Some concerns were also raised due to deviations which are considered possibly related to the trial context and lack of information on a pre-specified analysis plan	

Characteristics of included studies	Neck pain	
Study ID	**Dunleavy 2016**	
Study Reference/s	Dunleavy K, Kava K, Goldberg A, Malek MH, Talley SA, Tutag-Lehr V and Hildreth J. Comparative effectiveness of Pilates and yoga group exercise interventions for chronic mechanical neck pain: quasi-randomised parallel controlled study. Physiotherapy. 2016; 102: 236-242.	
Study design	RCT pseudorandomised	
Author affiliation	6 authors affiliated with tertiary institutions in USA	
Source of funds	The study was funded by Wayne State University Eugene Applebaum College of Pharmacy and Health Sciences Faculty Research Award.	
Declared interests of study authors	None declared	
Setting / provider	Not specified	The study was approved by Wayne State University Institutional Review Board
Country(s) / region	USA	
Enrolment period	2010 and 2013	
Length of treatment / followup	4	
Description of population	*N=*	*Description*
# participants	88	Adults with chronic neck pain
details	*Inclusion criteria* : reported average Numeric Pain Rating Scale (NRS) scores ≥3/10 for >3 months. *Exclusion criteria* : cervical radiculopathy symptoms (numbness, tingling or weakness); cervical stenosis; spinal surgery; whiplash; medical conditions precluding exercise; easily aggravated pain with exercise; or current physical therapy, massage, chiropractic, Pilates or yoga management.	
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*

Characteristics of included studies	Neck pain						
Study ID	**Dunleavy 2016**						
Intervention	34	Pilates group: 12 weekly one hour sessions in classes of 4-8 individuals. Classes included education related to body mechanics, positioning and movement strategies. Pilates exercises were progressed after 6 sessions using thoracic flexibility exercises, light upper-extremity weights, increased balance challenge using foam rollers and upright seated endurance exercises. Pilates exercises progressed after six sessions using equipment and movements including weights and rollers.					
Comparator #1 (control)	29	Control group - no further details provided					
Comparator #2 (other)	25	Yoga group: 12 weekly one hour sessions in classes of 4-8 individuals. Classes included education related to body mecanics, positioning and movement strategies. Yoga classes began with mindful focus of breath, continued with postures to address alignment, strength and flexibility, and ended with relaxation. The complexity of yoga poses was progressed over 12 weeks with increased duration of holds and linkages between poses in a 'flow'.					
Comparator #3 (other)	--	--					
Co-interventions	--	--					
Is practitioner/instructor certified?	Yes	Include in subgroup A		Physiotherapist with Pilates rehabilitation certification			
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	Neck pain					
Study ID	**Dunleavy 2016**					
1	Primary	Disability	Baseline, mid (6 wks), end of treatment (12 wks) and follow up (18 wks)	Neck Disability Index	Higher score means more disability	
2	Secondary	Pain	Baseline, mid (6 wks), end of treatment (12 wks) and follow up (18 wks)	Numeric Pain Rating Scale	Higher score means more pain	
3	Secondary	Range of movement	Baseline, mid (6 wks), end of treatment (12 wks) and follow up (18 wks)	Cervical range of movement device (Performance Attainment Associates, Lindstrom, MN, USA)		Authors note there was no group × time interaction for range of movement or posture variables (P > 0.05). But no other data presented.
4	Secondary	Posture	Baseline, mid (6 wks), end of treatment (12 wks) and follow up (18 wks)	Cervical range of movement device (Performance Attainment Associates, Lindstrom, MN, USA)	Postural measurements were conducted in a sitting position with feet on the floor and the hip angle at 70◦, looking straight ahead in the participant's natural posture	Authors note there was no group × time interaction for range of movement or posture variables (P > 0.05). But no other data presented.
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Characteristics of included studies	Neck pain
Study ID	**Dunleavy 2016**
11	--
12	--
13	--
Method of analysis	
Statistics	The mean (SD), mean difference scores and 95% confidence intervals (CI) are reported for the primary outcome measure (NDI) and for pain NRS. Graphs (Q–Q plots) were examined visually and testing was conducted for normality using the Shapiro–Wilk test. Baseline variables were compared among groups using one-way analysis of variance (ANOVA). Separate 3 [group: control, Pilates or yoga] × 3 [time: 0, 6, 12 weeks] mixed factorial ANOVA was performed for dependent variables of interest that were normally distributed, and analysis of covariance (ANCOVA) was performed for variables where baseline differences were present. For allsignificant F-ratios, post-hoc testing withBonferroni's correction was performed. Alpha was set at 0.05. Cohen's D effect sizes were calculated with > 0.50 representing meaningful difference. The numbers of responders who reported ≥5/50 NDI and ≥30% change from baseline pain ratings, reflecting clinically important improvement, were used to calculate the numbers needed to treat.
Population analysed	Other (provide details) Not specified
Missing data	Off 88 participants allocated to treatment, 56 completed the trial and were included in the analysis. 17 in the control group; 20 in the Pilates group, and 19 in the yoga group
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk of bias raised due to participant-reported outcomes likely affecting the results by favouring the intervention. Some concerns were also raised due to deviations which are considered related to the trial context and lack of information on a pre-specified analysis plan

Characteristics of included studies	Neck pain		
Study ID	**Ulug 2018**		
Study Reference/s	Ulug N, Yilmaz OT, Kara M and Ozcakar L. Effects of Pilates and yoga in patients with chronic neck pain: a sonographic study. Journal of Rehabilitative Medicine. 2018; 50: 80-85.		
Study design	RCT		
Author affiliation	All authors affiliated with tertiary institutions in Turkey		
Source of funds	Not specified		
Declared interests of study authors	None to declare		
Setting / provider	Not specified	Ethics approval from Hacettepe University Medical School	
Country(s) / region	Turkey		
Enrolment period	March 2015 and April 2016		
Length of treatment / followup	1.5		
Description of population	*N=*	*Description*	
# participants	60	Adults with chronic neck pain	
details	Adults aged 18-50 years with chronic neck pain (>3 months duration). *Exclusion criteria:* those with a history of cervical spine surgery, cervical trauma, central nervous system diseases, cervical radiculopathy, acute inflammation and malignancy.		
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Neck pain					
Study ID	**Ulug 2018**					
Intervention	20	Pilates group: Participants received their exercise programme from a single physiotherapist (NU), using a written and photographic description. Participants were supervised for the first 3 weeks (home-based therafter) and exercises were applied to the group for 6 weeks. Five key elements of Pilates: lateral costal breathing, centering (pelvic placement), ribcage placement, shoulder blade placement, head and neck placement, were taught. Four Pilates beginner mat exercises, including double-leg stretch level, shoulder bridge level, arm openings level and breast stroke level, were taught and patients were encouraged to perform these exercises in 2 sets of 10 repetitions per day. They were also told to pay attention and protect the neutral spine alignment and perform breathing control during all the exercises.				
Comparator #1 (control)	--	--				
Comparator #2 (other)	20	Yoga group: Participants received their exercise programme from a single physiotherapist (NU), using a written and photographic description. Participants were supervised for the first 3 weeks (home-based therafter) and exercises were applied to the group for 6 weeks. Four exercises from Iyengar Yoga asanas: Adho Mukha Virasana, Tadasana, Virabhadrasana and Chair Bharadvajasana, were taught to the patients. They were told to maintain each yoga posture starting from at least 10–20 s in the following days. They were encouraged to do these exercises in 2 sets of 10 repetitions per day				
Comparator #3 (other)	20	Isometric group: Participants received their exercise programme from a single physiotherapist (NU), using a written and photographic description. Participants were supervised for the first 3 weeks (home-based therafter) and exercises were applied to the group for 6 weeks. Hands firstly on the front (then the other sides) of their heads and push forward, but resist any movement of the head while maintaining the head and neck in the neutral position for 5 s. They were encouraged to do these exercises in 2 sets of 30 repetitions per day				
Co-interventions	60	Before exercise training, all study groups were given information about chronic neck pain, the anatomy of the spine and postural alignment. In addition to the exercises, each group received physical therapy (5 days in a week, a total of 15 sessions over a period of 3 weeks) for neck pain, including hot pack, ultrasound and conventional transcutaneous electrical nerve stimulation (TENS).				
Is practitioner/instructor certified?	Yes	Include in subgroup A		Physiotherapist provided programs.		
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	Neck pain					
Study ID	**Ulug 2018**					
1	Not specified	Pain	End of treatment (6 wks)	Short-Form McGill Pain Questionnaire (Turkish version) which includes VAS	Higher score related to higher pain	
2	Not specified	Quality of life	End of treatment (6 wks)	Nottingham Health Profile (Turkish version)	Higher score shows worse influence of QoL	
3	Not specified	Disability	End of treatment (6 wks)	Neck Disability Index (Turksih version)		
4	Not specified	Range of motion	End of treatment (6 wks)	Universal goniometer in the sitting position		
5	Not specified	Depression	End of treatment (6 wks)	Beck Depression Scale (Turkish version)		
6	Not specified	Muscle size measurement	End of treatment (6 wks)	Performed using a 5–12 MHz linear probe (Logiq P5, GE Medical System, Milwaukee, WI, USA).	CSA of scalenus anterior and sternocleidomastoideus (SCM) muscles	and thicknesses of trapezius, semispinalis capitis and splenius capitis muscles were measured bilaterally in the sitting position.
7	--					
8	--					
9	--					
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Characteristics of included studies	Neck pain	
Study ID	**Ulug 2018**	
11	--	
12	--	
13	--	
Method of analysis		
Statistics	Data analysis was conducted using SPSS 21.0 package version. Distribution of data was evaluated using the Kolmogorov–Smirnov test. Comparison of the demographic characteristics was analysed using analysis of variance (ANOVA) for numerical data and χ2 or Fisher's exact test for categorical data. For comparison of the dependent variables within the groups; paired t-test or Wilcoxon test was used, where appropriate. To determine which group was more effective, improvement ratios (%) ((after treatment value – baseline value)/(baseline value)×100) with ANOVA/Student's t-test (for parametric data), or Kruskal–Wallis/Mann–Whitney U test (for non-parametric data) were used. Bonferroni post-hoc analysis was performed to determine whether there were statistically different variables among the 3 groups. However, no adjustment/correction was performed for multiple comparisons among the number of outcome variables that were tested. A p-value <0.05 was accepted as statistically significant.	
Population analysed	Other (provide details)	Numbers needed to treat
Missing data	Not specified	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	High risk of bias in one or more key domains	
Summary (descriptive)	High risk of bias due to the insufficient information on missing data. Without reasons for drop out, it is difficult to assess this domain and such missingness will likely affect the true value of the outcome.	

Characteristics of included studies	Shoulder pain		
Study ID	**Atilgan 2017**		
Study Reference/s	Atilgan E, Aytar A, Caglar A, Tigli A, Arin G, Yapali G, et al. The effects of Clinical Pilates exercises on patients with shoulder pain: A randomised clinical trial. Journal of Bodywork and Movement Therapies. 2017;21(4):847-51.		
Study design	RCT		
Author affiliation	10 authors affliated with tertiary institutions in Brazil.		
Source of funds	The study was approved by the Baskent University Institutional Review Board and Ethics Committee (Project number: KA13/203) and was supported by the University Research Fund		
Declared interests of study authors	The authors report no conflict of interest.		
Setting / provider	Outpatient department	Affiliated with the Department of Physiotherapy and Rehabilitation, Faculty of Health Sciences, Hacettepe University, Ankara.	
Country(s) / region	Ankara, Turkey		
Enrolment period	Not specified		
Length of treatment / followup	10 days		
Description of population	*N=*	*Description*	
# participants	33	People with persistent shoulder pain for at least four weeks	
details	*Exclusion criteria:* the presence of cervical symptoms (neck pain, numbness or tingling in the upper extremity), a history of traumatic injury resulting in the onset of symptoms, and a history of shoulder surgery.		
Description of intervention/ comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	

Characteristics of included studies	Shoulder pain						
Study ID	**Atilgan 2017**						
Intervention	17	The patients performed Pilates exercises for five days a week, the total treatment being carried out for 10 days.					
Comparator #1 (control)	--	--					
Comparator #2 (other)	16	The patients performed conventional exercises for five days a week, the total treatment being carried out for 10 days.					
Comparator #3 (other)							
Co-interventions	33	The subjects in both the groups received the same pain relieving therapy consisting of hot pack application and conventional transcutaneous electrical nerve stimulation (TENS) for 20 min; followed by continuous ultrasound for 5 min on the shoulder area before the exercises. The subjects in both the groups were treated for five days a week, for a total of ten days.					
Is practitioner/instructor certified?	Yes	Include in subgroup A		Clinical Pilates exercises were performed under the supervision of a certificated physical therapist			
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	Shoulder pain				
Study ID	**Atilgan 2017**				
1	Not specified	Pain	Baseline, end of treament (10 days)	Visual analogue scale	Higher score means worse pain
2	Not specified	Pain	Baseline, end of treament (10 days)	Shoulder Pain and Disability Index - Pain	Higher score means worse pain
3	Not specified	Physical function/activity	Baseline, end of treament (10 days)	Shoulder Pain and Disability Index - Disability	Higher score means more disabled
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				

Characteristics of included studies	Shoulder pain	
Study ID	**Atilgan 2017**	
11	--	
12	--	
13	--	
Method of analysis		
Statistics	The statistical analyses were carried out using SPSS 20.0. Normal distribution of the data was analyzed using the Kolmogorov Smirnov test. Non-normal data were analyzed using the Shapiro-Wilk test. Since the outcome measures were not normally distributed, nonparametric analyses were used. Wilcoxon test was used to compare the scores (treatment scores) obtained before and after the treatment of the groups. The Mann Whitney-U test was used to analyse the differences between the groups. The level of significance was set at p = 0.05. The sample size was determined to be fourteen by means of statistical power analysis procedures, using PASS 2005 software (NCSS, Kaysville, UT, USA).	
Population analysed	Other (provide details)	Not specified
Missing data	Not specified	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	High risk of bias in one or more key domains	
Summary (descriptive)	Serious concerns of bias raised in randomisation process with baseline differences suggesting inadequate randomisation. Concerns were also raised due to potential bias from participant-reported outcomes as well as a lack ofinformation regarding a pre-specified analysis plan.	

Characteristics of included studies	Rehabilitation of the knee after injury	
Study ID	**Celik 2017**	
Study Reference	Celik D, Turkel N. The effectiveness of Pilates for partial anterior cruciate ligament injury. Knee Surgery, Sports Traumatology, Arthroscopy. 2017;25(8):2357-64.	
Study design	RCT	
Author affiliation	Two authors are affliated with tertiary institutions in Turkey.	
Source of funds	Not specified	
Declared interests of study authors	The authors have no conflicts of interest to disclose.	
Setting / provider	Orthapaedics department	The department is affiliated with Bezmialem Istanbul University.
Country(s) / region	Istanbul, Turkey	
Enrolment period	Not specified	
Length of treatment / followup	12 weeks	
Description of population	*N=*	*Description*
# participants	61	Patients with an isolated ACL injury requiring conservative care
details	*Inclusion criteria:* patients with an isolated ACL injury, between the ages of 20 and 45, had a sedentary occupation or low activity level, required conservative care rather than surgery, and had visual analogue scale scores lower than 3. *Exclusion criteria:* Participants with meniscus injuries, meniscus tears, chondral lesions, other ligament laxities, a grade IV injury based on the Lachman test, a generalized laxity, and/or a body mass index (BMI) higher than 30 kg/cm2 were excluded from the study.	
Description of intervention / comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	32	The participants who were assigned to the Pilates group engaged in a 60-min Pilates class three times per week for 6 weeks. The classes were conducted in a group setting (i.e. 6–7 participants per group) and were led by a trained physical therapist. The selected Pilates principles especially emphasized strengthening both the quadriceps and hamstring muscles along with the core muscle. Each exercise session commenced with a 10-min warm-up and fnished with a 5- to 10-min cooldown. The rest interval between sets and exercises was 45 s. The average duration of each repetition was 3–4 s. After 6-weeks, a home programme was given to the participants who were instructed to engage in the home programme for a further 6 weeks 9with visits to therapist every 2 weeks to discuss). A gym ball and exercise band were provided for the patients. The home programme was similar to the group programme, but the intensity and repetition of the exercises was dependent on the participants' compliance. The volume of training was progressively increased every 2 weeks. The exercise intensity was adjusted by increasing the number of repetitions.
Comparator #1 (control)	29	The control group did not receive any treatment or home exercise programme. Following the 12 week assessment, the control participants were offered the opportunity to attend a 6-week course of free Pilates classes.
Comparator #2 (other)	--	--
Comparator #3 (other)	--	--

Study ID	**Celik 2017**					
Co-interventions	--	--				
Is practitioner/instructor certified?	Yes	Include in subgroup A		led 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	Knee disability	Baseline, end of treatment (12 weeks)	Lysholm Knee Scale (0-100)	Self-reported. Higher score means better function.	25 points are attributed to pain, 25 points to instability, 15 to locking, 10 each to swelling and stair climbing, and 5 each to limping, use of a support, and squatting
2	Secondary	Knee function	Baseline, end of treatment (12 weeks)	Cincinnati Knee Rating System (120 to 420)	Higher score means better function.	Self-reported. Functional assessment based on the following six abilities: walking, using stairs,
3	Secondary	Muscle strength - flexion	Baseline, end of treatment (12 weeks)	Isokinetic Dynamometer	Higher score means better knee strength	Extension-flexion at 180 degrees/s
4	Secondary	Muscle strength - extension	Baseline, end of treatment (12 weeks)	Isokinetic Dynamometer	Higher score means better knee strength	Extension-flexion at 180 degrees/s
5	Secondary	Improvement in stability	End of treatment (12 weeks)	Global rating of change	Proportion reporting significant improvment, slight improvement, same, deteriorating slightly, or deteriorating significantly	Participants rate their condition compared to the beginning of the program
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Study ID	**Celik 2017**
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11	--
Method of analysis	
Statistics	Descriptive statistics were used to analyse the participants' characteristics. The Shapiro–Wilk test was used to assess the distribution of the data. The data were found to be normally distributed; thus, parametric tests were used. Demographic comparisons of the two groups were conducted using Chi-square analysis for categorical variables, and t tests were used for continuous variables. The changes in dependent variables before treatment and after treatment were analysed using a twoway repeated measure of analysis of variance (ANOVA) to assess the overall group as well as time (i.e. before and after treatment) and group (i.e. Pilates and control) interaction effects. Pairwise comparisons were performed to examine the difference between the baseline and followup periods. All outcome analyses were conducted according to the intention-to-treat (ITT) principle. Effect sizes (ES) were determined by calculating the differences in the means of the baseline and the follow-up data divided by the standard deviation at the baseline; ES of 0.2, 0.5, and 0.8 was considered small, moderate, and large, respectively [9, 19]. The level of signifcance was set at $p \leq 0.05$
Population analysed	Intent-to-treat: Modified. Analyses only performed on data from participants who completed the study. 8 participants in the Pilates group (25%) and 3 participants in the control group (10%) dropped out or did not complete follow up.
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk due to deviations from the intended intervention unbalanced, missing outcome data that may effect the result. Some concerns relating to measurement of the outcome.

Characteristics of included studies	Rehabilitation of the knee after surgery	
Study ID	**Karaman 2017**	
Study Reference	Karaman A, Yuksel I, Kinikli GI, Caglar O. Do Pilates-based exercises following total knee arthroplasty improve postural control and quality of life? Physiotherapy Theory and Practice. 2017;33(4):289-95.	
Study design	RCT	pseudorandomised
Author affiliation	Four authors are affliated with tertiary institutions in Turkey.	
Source of funds	Not specified	
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	Not specified	
Country(s) / region	Ankara, Turkey	
Enrolment period	Not specified	
Length of treatment / followup	6 weeks	
Description of population	*N=*	*Description*
# participants	46	Adults undergoing total knee athroplasty (gender not specified)
details	*Inclusion criteria* : aged between 55-86; undergoing primary unilateral total knee athroplasty. *Exclusion criteria* : have had an operation affectin lower-extremity functioning (e.g. fracture and hip replacement); patients with pre-surgery extremity shortness; cognitive impairment.	
Description of intervention / comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	23	Treatment sessions lasted for an unspecified amount of time, performed an unspecified number of times per week, for 6 weeks. Described as follows: "The Pilates-based exercises administered to the group were prepared using the Kaplanek, Levine, and Jaffe (2011) protocol. Prior to the onset of the exercise program, the patients received instructions on six fundamental principles of Pilates presented by Joseph Pilates, including: 1) concentration; 2) control; 3) centering; 4) flowing movement; 5) precision; and 6) breathing. The patients were taught how they could activate their transversus abdominus (TrA) and multifidus (Mf) muscles using a Chattanooga stabilizer pressure biofeedback (mm Hg) unit. The patients were asked to perform these exercises without swaying their lumbopelvic region and with breathing control and full concentration (Figures 2 and 3). This rehabilitation program, which was based on Pilates-based exercises, included patient monitoring over the course of 6 weeks."
Comparator #1 (control)	23	No intervention
Comparator #2 (other)	--	--
Comparator #3 (other)	--	--

Study ID	**Karaman 2017**					
Co-interventions	--	Standard postoperative exercise programs for TKA from the literature (Artz et al, 2015; Bade and Stevens-Lapsley, 2011). "The patients were asked to perform isometric exercises every hour with 10 repetitions. Isotonic strengthening exercises were first performed three times per day with 5 repetition for each set, and later the number of repetitions was increased. The patients were also told to perform stretching exercises three times per day with 5 repetitions each. In case of inflammation or difficulty maintaining the exercise program, the intensity of the exercises was to be decreased. Beginning with the second week, the patients moved to exercises performed in a standing position. During the third week, the patients started performing resistance exercises."				
Is practitioner/instructor certified?	No	Include in subgroup B		Physiotherapist monitors home practice		
Is there an inactive comparator?	Yes	Comparison=control		Pilates delviered as an adjunct to standard postoperative exercise programme		
Outcomes (meaure, description, measurement tool, timing)	***Primary?***	***Description***	***timing***	***measured with***	***measure details***	***Other***
1	Primary	Balance stability	Baseline, end of treament (6 weeks)	Berg Balance Test	A higher score indicates better balance	
2	Secondary	Physical function	Baseline, end of treament (6 weeks)	SF-36 - Physical functioning subscale	Higher score means better outcome	
3	Secondary	Role limitation	Baseline, end of treament (6 weeks)	SF-36 - role-physical subscale	Higher score means better outcome	
4	Secondary	Pain	Baseline, end of treament (6 weeks)	SF-36 - bodily pain subscale	Higher score means better outcome	
5	Secondary	General health perception	Baseline, end of treament (6 weeks)	SF-36 - general health perceptions subscale	Higher score means better outcome	
6	Secondary	Emotional role limitation	Baseline, end of treament (6 weeks)	SF-36 - role-emotional subscale	Higher score means better outcome	
7	Secondary	Mental health	Baseline, end of treament (6 weeks)	SF-36 - mental health subscale	Higher score means better outcome	
8	Secondary	Social functioning	Baseline, end of treament (6 weeks)	SF-36 - social functioning subscale	Higher score means better outcome	
9	Secondary	Vitality	Baseline, end of treament (6 weeks)	SF-36 - Vitality subscale	Higher score means better outcome	

Study ID	**Karaman 2017**					
10	Secondary	Psychsocial wellbeing	Baseline, end of treament (6 weeks)	SF-36 Mental health component score	Higher score means better outcome	
11	Secondary	Physcial wellbeing	Baseline, end of treament (6 weeks)	SF-36 Physical health component score	Higher score means better outcome	
Method of analysis						
Statistics	SPSS version 21. Descriptive statistics to analyze the patients' characteristics as a mean ± standard deviation. Prior to the statistical analysis, we used the Shapiro-Wilk test to assess the distribution of the data. The data were not normally distributed, and we accordingly used nonparametric tests for the statistical analysis. We conducted demographic comparisons of the two groups using t tests for continuous variables. The statistical significance level was set at $p < 0.05$.					
Population analysed	Intent-to-treat	Modified. Analyses only performed on data from participants who completed the study. 6 out of 23 (26%) participants dropped out of the standard exercise comparator group and 6 out of 23 (26%) participants dropped out of the Pilates intervention group.				
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.					
INTERNAL VALIDITY						
Overall risk of bias (select from list)	High risk of bias in one or more key domains					
Summary (descriptive)	A high risk of bias due to high proportion of attrition (i.e. 26%). Missingness of the data is likley to effect the outcome in favour of the intervention.					

Characteristics of included studies	Employment conditions, medical emergency dept (at risk of anxiety)	
Study ID	**Abavisani 2019**	
Study Reference	Abavisani M, Lakzian R, Sarchahi Z, et al. The effect of Pilates exercise on anxiety in students of department of medical emergency- a clinical trial. Journal of Evolution of Medical and Dental Sciences. 2019;8(21):1755-1758	
Study design	RCT	pseudorandomised
Author affiliation	Five authors are affliated with tertiary institutions in Iran.	
Source of funds	Not specified	
Declared interests of study authors	Not specified	
Setting / provider	Not specified	Not specified
Country(s) / region	Neyshabur, Iran	
Enrolment period	Not specified	
Length of treatment / followup	2 months	
Description of population	*N=*	*Description*
# participants	62	Healthy students, medical emergency dept (at risk of anxiety)
details	*Inclusion criteria* : Healthy medical students between the aged 19-40 participated in the study *Exclusion criteria* : Previous or current history of physical and mental illness, cardiovascular and respiratory disorders, diabetes, renal disease, musculoskeletal disorders such as scoliosis and other disorders with physical activity restraint, engagmement in regular physical activity in last month, incidence of stressful events in past 6 weeks including marriage and divorce (both for the participants and their parents), onset of severe disease in participants or their family members, death of friends or relatives and engagement in more than 2 hours of sports-related activity per week.	
Description of intervention/comparator (reported as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	31	Participants underwent 2, 60-minute sessions for 8 weeks. The sessions consisted of an 11-minute warm up, and then Pilates movements including including standing, breathing, reaching the floor with two hands, and level 1 movements including the hundred, Pilates curl, single leg stretch, double leg stretch, single leg curl, rolling like a ball and stretching the spine forward. The study does not specify whether the Pilates sessions were undertaken with an individual instructor on in a group.
Comparator #1 (control)	31	Participants in the comparator group underwent "regular activities" during the intervention groups' Pilates sessions. No furtherr information provided.
Comparator #2 (other)	--	--
Comparator #3 (other)	--	--
Co-interventions	--	None specified.
Is practitioner/instructor certified?	Not specified	Include in subgroup C

Characteristics of included studies	Employment conditions, medical emergency dept (at risk of anxiety)					
Study ID	**Abavisani 2019**					
Is there an inactive comparator?	Yes	Comparison=control		See comparator #1		
Outcomes (meaure, description, measurement tool, timing)	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*
1	Primary	Anxiety	Baseline, end of treatment (8 weeks)	Spielberger anxiety questionnaire	Results split into "obvious anxiety" and "hidden anxiety"	
2	--					
3	--					
4	--					
5	--					
6	--					
7	--					
Method of analysis						

Characteristics of included studies	Employment conditions, medical emergency dept (at risk of anxiety)
Study ID	**Abavisani 2019**
Statistics	An unspecified power analysis with an alpha rate of .05 was used to determine power for the study. Chi-squared test was use to compare demographic variables between the intervention and comparator groups including: marital status (single, married), residency (native, non-native), semester (first, middle, last), age (19-21, 22-24, 25-27, 28-30), BMI (<18.5, 18.5-25, 25-30, >30) and birth order (first, middle, last). Pre- and post-intervention levels "hidden anxiety" and "obvious anxiety" from the Speilberger Questionnaire for each group was compared using a paired Student's t-test. Mean age was compared across treatment groups using an independent Student t-test. Statistics were performed using IBM SPSS Version 14
Population analysed	Intent-to-treat All participants included in the final analysis.
Missing data	No missing data. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk of bias for Domain 2: Risk of bias due to deviations from the intended interventions (effect of assignment to intervention) and Domain 4: Risk of bias in measurement of the outcome. Some concerns for Domain 1: Risk of bias arising from the randomization process and for Domain 5: Risk of bias in selection of the reported result.

Characteristics of included studies	Sedentary behaviour		
Study ID	**Garcia-Soidan 2014**		
Study Reference	Garcia-Soidan J.L., Giraldez V.A., Zagalaz J.C. & Lara-Sanchez A.J. Does pilates exercise increase physical activity, quality of life, latency, and sleep quantity in middle-aged people? Perceptual & Motor Skills: Motor Skills & Ergonomics. 2014; 119(3): 838-850.		
Study design	RCT	pseudorandomised	
Author affiliation	All authors affiliated with tertiary institutions.		
Source of funds	Not specified		
Declared interests of study authors	Not specified		
Setting / provider	Not specified		
Country(s) / region	Spain		
Enrolment period	Not specified		
Length of treatment / followup	12 weeks		
Description of population	*N=*	*Description*	
# participants	149	Adults with sedentary behaviours	
details	*Inclusion criteria:* aged between 40 and 60 years; were sedentary or had less than 30 minutes of leisure physical activity per day; had to present a medical attestation about their good health status with absence of disability pathologies; did not use any medication to sleep *Exclusion criteria:* health or orthopedic problems that would preclude participation		
Description of intervention/comparator (reported as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	51	The Pilates group received a specific program of 15 Pilates exercises (10 repetitions), twice a week for one hour, over a total of 12 weeks. Exercises were performed in a supine or standing position. Protocol was based on the principles of progressive loading: gradual intensity increase of exercises after week 6 and a decrease in the intervals of rest. Exercises included back life, bridge, double leg stretch, half foll up, hundred, knee twist, leg stretch stance, one leg tip, side flex, single leg stretch, spine strech, squat, stretching dog, tandem stance and side leg stretch. All exercsies or movements were done with the required rhythm of expiration an inspiration, with about 10 repetitions before the next exercise commenced.	
Comparator #1 (control)	48	No details provided.	
Comparator #2 (other)	--	--	
Comparator #3 (other)	--	--	
Co-interventions	--	None specified.	
Is practitioner/instructor certified?	Yes	Include in subgroup A	The program was supervised by a certified Pilates instructor.

Characteristics of included studies	Sedentary behaviour					
Study ID	**Garcia-Soidan 2014**					
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	Sleep quality	Baseline, end of treatment (12 weeks)	Pittsburgh Sleep Quality Index (0-21)	Higher score means worse sleep quality	Measures sleep quality in the last month. Self-rated questionnaire (19 questions)
2	Not specified	Quality of life	Baseline, end of treatment (12 weeks)	SF-36 (Spanish version)	Higher scores indicate better state of health.	36 items: scoring in two dimensions - physical and emotional. Each dimension score between 0-100.
3	Not specified	Accelerometry	Each participant wore an accelerometer for 7 days before and after the study. They were instructed to only remove the watch during situations when it could get wet or damaged.	Triaxial activity monitor ActiGraph model GT3X (activity counts expressed as the average counts per minute)	Valid for assessing sleep durations, sleep/wake activity and physcial activity. Data considered complete if participants had counts for at least 10hr/day for at least 5 days, including a weekend day.	Participants wore the accelerometer in-line on an elastic belt that was positioned on the nondominant hip.
4	--					
5	--					
6	--					
7	--					
Method of analysis						

Characteristics of included studies	Sedentary behaviour	
Study ID	**Garcia-Soidan 2014**	
Statistics	The Kolmogorov–Smirnov test assessed and corroborated the normal distribution of the data. To analyze the within- and between-groups effects, as well as that of the interaction of both factors, a two-way analysis of variance (ANOVA) was run, with Fisher's distribution. Data were analyzed using SPSS version 20.0 (IBM), and p values less than .05 were considered statistically signifi cant.	
Population analysed	Per protocol	All participants received the allocated intervention. 2 participants in the Control group and 5 in the Pilates group dropped out (reasons were not provided). 7 participants in each group were not included in the analysis for not wearing the accelerometer for the 7 days.
Missing data	No imputations for missing data were made. Information to conduct ITT analysis not available.	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	High risk of bias in one or more key domains	
Summary (descriptive)	High risk of bias in randomisation, deviations and missing outcome data. Some concerns in all other domains.	

Characteristics of included studies	Sedentary behaviour	
Study ID	**Sahinci Gokgul 2017**	
Study Reference	Sahinci Gokgul B, Hazar S. The effect of eight-week cyclic exercises and pilates exercises in women to some physical parameters and blood lipids. Turkish Journal of Sport and Exercise. 2017;19(1):60-64.	
Study design	RCT	pseudorandomised
Author affiliation	One author affiliated with tertiary institution and one author affiliated with secondary institution in Turkey	
Source of funds	The study was porduced from a masters thesis. Source of funds not provided.	
Declared interests of study authors	Not reported	
Setting / provider	School of Physical education and sports	
Country(s) / region	Turkey	
Enrolment period	Not specified	
Length of treatment / followup	8 weeks	
Description of population	*N=*	*Description*
# participants	22	Female volunteers with sedentary lifestyle
details	*Inclusion criteria* : Women aged between 25 and 55 years with sedntary lifestyle.	
Description of intervention/comparator (reported as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	Not specified	Pilates sessions were performed for 30 minutes three days a week for eight weeks. Pilates consisted of basic Pilates exercises. 5 minute warms ups immediately before and after. No further information provided.
Comparator #1 (control)	--	--
Comparator #2 (other)	Not specified	Low intensity aerobic exercise: Sessions were perfomed for 30 minutes for eight weeks. The number of times per week was not specified. Assumed it matched that of the intervention group.
Comparator #3 (other)	Not specified	Cyclical group performed cyclic exercises of low-moderate intensity as determined by age and health condition for each individual. Each stage of training was performed in the presence of a coach.
Co-interventions	--	None specified.
Is practitioner/instructor certified?	Not specified	Include in subgroup C

Characteristics of included studies	Sedentary behaviour					
Study ID	**Sahinci Gokgul 2017**					
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	Anthropometric	Baseline, end ot treatment (8 weeks)	BMI (height, weight)	Wall-fixed metal meters used for height. Weight measured using Tanita-305 body-fat analyser	measured as shoeless and shorts.
2	Not specified	Anthropometric	Baseline, end ot treatment (8 weeks)	Body measurements - Chest circumference was measured with a tape measure.	The subjects were standing upright adjacent to the heels, while their hands and arms on the side of the foot.	The chest region is measured from its bulging position.
3	Not specified	Anthropometric	Baseline, end ot treatment (8 weeks)	Body measurements - waist, hip, thigh circumference was measured with a tape measure.	After giving a normal breath, the horizontal plane were placed around the abdomen, about 5 cm below the belly buttonhole.	The thigh circumference was measured at the pubis level from the front while the subject was standing and at the maximal protrusion level of the hip muscles from the back.
4	Not specified	Flexibility	Baseline, end ot treatment (8 weeks)	Sit and reach test		
5	Not specified	Balance	Baseline, end ot treatment (8 weeks)	Flamingo balance test protocol		
6	Not specified	Fitness	Baseline, end ot treatment (8 weeks)	Harvard step test protocol		
7	Not specified	Cholesterol biomarkers	Baseline, end ot treatment (8 weeks)	HDL and LDL values	Unice Bekman Coulter Unicel DXC 800 device	
Method of analysis						

Characteristics of included studies	Sedentary behaviour
Study ID	**Sahinci Gokgul 2017**
Statistics	Statistical analyzes were performed on the personal computer using SPSS 15 version. Mann Whitney U test was used for the comparison of preand posttests. Significance level was set 0.05 ad 0.01 level.
Population analysed	Intent-to-treat — Modified. Participants with missing data not included. 2 women remained "off study" for various reason. (no further details provided) No consort and it is not known which group the missing data are in.
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk of bias in randomisation, deviations and missing outcome data. Some concerns in all other domains.

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)	
Study ID	**Aibar-Almazan 2019**	
Study Reference	1. Aibar-Almazan A, Hita-Contreras F, Cruz-Diaz D, de la Torre-Cruz M, Jimenez-Garcia JD, Martinez-Amat A. Effects of Pilates training on sleep quality, anxiety, depression and fatigue in postmenopausal women: a randomized controlled trial [with consumer summary]. Maturitas 2019 Jun;124:62-67. 2019. 2. Aibar-Almazan A, Martinez-Amat A, Cruz-Diaz D, De la Torre-Cruz MJ, Jimenez-Garcia JD, Zagalaz-Anula N, et al. Effects of Pilates on fall risk factors in community-dwelling elderly women: A randomized, controlled trial. European Journal of Sport Science EJSS : Official Journal of the European College of Sport Science. 2019;19(10):1386-94.	
Study design	RCT	
Author affiliation	All authors are affiliated with tertiary institutions in Spain.	
Source of funds	This study was funded by University of Jaén under grant UJA2016/08/08; Universidad de Jaén.	
Declared interests of study authors	All authors declared they have no conflicts of interest.	
Setting / provider	University of Jaén	
Country(s) / region	Jaén, Spain	
Enrolment period	Jul-17	
Length of treatment / followup	12 weeks	
Description of population	*N=*	*Description*
# participants	110	Community-dwelling older women
details	*Inclusion criteria* : (i) aged 60 years and over and with at least 12 months since their final menstrual period ; (ii) not involved in a Pilates exercise programme in the last year; and (iii) physically independent enough to perform basic daily activities (Barthel index). *Exclusion criteria* : (i) suffered from any kind of systemic condition which prevented them from exercising; (ii) were under medication which might affect their body composition; (iii) said that they would be absent for more than two weeks during the interventional period; or (iv) were already taking part in a different training programme.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	55	Twice-weekly 60-minute sessions of Pilates exercise for 12 weeks, for a total of 24 sessions. Each session included 10 minutes of warm-up, 35 minutes of main exercises and 15 minutes of cool-down. The first session served the purpose of letting participants familiarize themselves with Pilates, the correct execution of movements, breathing, and a brief explanation of its basic principles. The following sessions included strengthening and stretching exercises for the main body segments, with ten repetitions of each exercise. The last sessions involved equipment such as resistance bands, rings, and balls. The supervisors adjusted the difficulty and intensity of each exercise according to the subjects' capacity.
Comparator #1 (control)	--	--

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)					
Study ID	**Aibar-Almazan 2019**					
Comparator #2 (other)	55	Received a series of guidelines aimed at fostering physical activity (http://www.juntadeandalucia.es/salud/servicios/contenidos/andaluciaessalud/docs/130/Guia_Recomendaciones_AF.pdf) and Maintained their day-to-day lifestyles. Participants were asked not to engage in any other exercise training programme. Participants were periodically contacted by telephone during the intervention period and were questioned about their physical activity habits.				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Not specified	Include in subgroup C		Supervisors mentioned, but certification not specified.		
Is there an inactive comparator?	No	Comparison=other		comparator is non-exercise control		
Outcomes	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*
1	Primary	Balance confidence	Baseline, end of treatment (12 weeks)	Activities-specific balance confidence scale (0-100)	higher score means greater degree of self-confidence	
2	Not specified	Fear of falling	Baseline, end of treatment (12 weeks)	Falls efficacy scale-International (Spanish, 16-64)	higher score means greater concern	
3	Not specified	Postural control, stabilometry	Baseline, end of treatment (12 weeks)	Static balance with eyes open (CoP, mm/s)	lower score means improvement in balance	velocity of Centre of Pressure (CoP)
4	Not specified	Postural control, stabilometry	Baseline, end of treatment (12 weeks)	Static balance with eyes closed (CoP, mm/s)	lower score means improvement in balance	velocity of Centre of Pressure (CoP)
5	Not specified	Postural control, stabilometry	Baseline, end of treatment (12 weeks)	Static balance with task (CoP, mm/s)	lower score means improvement in balance	velocity of Centre of Pressure (CoP)
6	Not specified	Postural control, stabilometry	Baseline, end of treatment (12 weeks)	mean displacement of CoP - eyes closed (Anteroposterior, Mediolateral)	lower score means improvement in balance	

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)				
Study ID	**Aibar-Almazan 2019**				
7	Not specified	Postural control, stabilometry	Baseline, end of treatment (12 weeks)	mean displacement of CoP - eyes open (Anteroposterior, Mediolateral)	lower score means improvement in balance
8	Not specified	Sleep quality	Baseline, end of treatment (12 weeks)	Pittsburgh Sleep Quality Index - Global score	higher score means worse sleep quality
9	Not specified	Sleep quality	Baseline, end of treatment (12 weeks)	PSQI - Sleep quality	higher is worse
10	Not specified	Sleep quality	Baseline, end of treatment (12 weeks)	PSQI - Sleep latency	higher is worse
11	Not specified	Sleep quality	Baseline, end of treatment (12 weeks)	PSQI - Sleep duration	higher is worse
12	Not specified	Sleep quality	Baseline, end of treatment (12 weeks)	PSQI - Sleep efficiency	higher is worse
13	Not specified	Sleep quality	Baseline, end of treatment (12 weeks)	PSQI - Sleep disturbances	higher is worse
14	Not specified	Sleep quality	Baseline, end of treatment (12 weeks)	Use of sleeping medication	higher is worse
15	Not specified	Sleep quality	Baseline, end of treatment (12 weeks)	Daytime dysfunction	higher is worse
16	Not specified	Fatigue	Baseline, end of treatment (12 weeks)	Fatigue Severity Scale (9-63)	higher score means worse fatigue
17	Not specified	Anxiety	Baseline, end of treatment (12 weeks)	Hospital Anxiety and Depression Scale (7-items)	(0-21) higher score means more anxiety
18	Not specified	Depression	Baseline, end of treatment (12 weeks)	Hospital Anxiety and Depression Scale (7-items)	(0-21)higher score means worse depression
19	Not specified	Numerous outcomes mentioned in the trial registry but not yet reported including: Dynamometer, Barthel Index (Activites of daily living), Katz Index (level of independency), SF-36, Menopause rating scale, Female sexual fucntion index, Body composition, Bone mineral density, Muscle mass, BMI, body fat mass, INBODY analysis, timed up and go, OPTIgait, CT10P, Isaac test (verbal fluency); trail making test; mini-mental state examination; chair sit and reach test; back scratch test; 30-second chair stand test; height, waist-to-hip ratio			
Method of analysis					

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)	
Study ID	**Aibar-Almazan 2019**	
Statistics	Student's t test for independent samples and statistical chi-squared test were used to examine the differences between both study groups at baseline. Univariate analysis of variance (ANOVA) and Pearson's correlation coefficient were used to explore the possible association of education, marital status, occupation, age, and BMI, as well as anxiety and depression, with sleep quality. The variables which showed significant associations were then input as covariates in the analysis of covariance (ANCOVA). Independent variables were group (PG vs CG) and measurement time, while dependent variables were sleep quality, fatigue, anxiety, and depression. Separate analyses were performed for each de pendent variable. Student's t test for unpaired or paired data was em ployed when Group x Time intervention was statistically significant. A p value below 0.05 was considered statistically significant. Intergroup effect sizes were calculated using Cohen's d (d) . Values ≤0.2 represent a small-size effect, 0.2–0.5 represent a medium-size effect, and ≥0.8 re present a large-size effect	
Population analysed	Intent-to-treat	Modified. Participants with missing data not included in the analysis. 3 Participants (control group) were lost to follow-up did not show up to post-intervention appointment. Authors state that participants were to be excluded if they missed more than five sessions or more than three consecutive sessions during the twelve week intervention (but no participants excluded for this reason)
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias	
Summary (descriptive)	Concerns in measurement of outcome due to the possibility of bias related to knowledge of the intervention received; non-publication of outcome measures	

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)	
Study ID	**Curi 2018**	
Study Reference	1.Curi VS, Haas AN, Alves-Vilaca J, Fernandes HM. Effects of 16-weeks of Pilates on functional autonomy and life satisfaction among elderly women. Journal of Bodywork & Movement Therapies. 2018;22(2):424-9. 2.Curi VS, Vilaca J, Haas AN, Fernandes HM. Effects of 16-weeks of Pilates on health perception and sleep quality among elderly women. Archives of Gerontology & Geriatrics. 2018;74:118-22.	
Study design	RCT	
Author affiliation	All authors are affiliated with tertiary institutions in Brazil and Portugal.	
Source of funds	Not reported	
Declared interests of study authors	All authors declared they have no conflicts of interest.	
Setting / provider	University	
Country(s) / region	Brazil	Caxias do Sul
Enrolment period	not reported	
Length of treatment / followup	16 weeks	
Description of population	*N=*	*Description*
# participants	64	Community-dwelling older women
details	*Inclusion criteria:* subject had not exercised for at least six months, agreed to participate in this controlled clinical trial, was female and at least 60 years old. No further information is provided. Mean age 64.25 years (SD 0.14) in Pilates group and 63.75 (SD 0.08) in the control group.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	33	Twice-weekly 60 minute mat-based Pilates sessions for 16 weeks. The exercises were designed and standardised during first 2 weeks according to the Classical Pilates Method and the participants received intermediate-level exercises for the next 14 weeks.
Comparator #1 (control)	31	Control group did not perform any physical activity during the 16 weeks and attended monthly meeting groups a groups of ladies in the Catholic community that lent the space for the activities of this research.

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)					
Study ID	**Curi 2018**					
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Yes	Include in subgroup A		All Pilates classes were supervised by the same qualified Pilates instructor.		
Is there an inactive comparator?	Yes	Comparison=control		"attention control"		
Outcomes	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*
1	Not specified	lower limb strength (repetitions/sec)	baseline, end of treatment (16 weeks)	Senior fitness test, sit to stand	higher score means improved strength	
2	Not specified	upper limb strength (repetitions/sec)	baseline, end of treatment (16 weeks)	Senior fitness test, arm curl	higher score means improved strength	
3	Not specified	lower limb flexibility (cm)	baseline, end of treatment (16 weeks)	Senior fitness test, chair sit and reach	higher score means improved strength	
4	Not specified	upper limb flexibility (cm)	baseline, end of treatment (16 weeks)	Senior fitness test, back-scratch	higher score means improved strength	
5	Not specified	Functional mobilty (seconds)	baseline, end of treatment (16 weeks)	Senior fitness test, timed up and go	higher score means improved strength	
6	Not specified	aerobic endurance (minutes)	baseline, end of treatment (16 weeks)	Senior fitness test, ??	higher score means improved strength	Authors say it's the 6-min walk test, but this should be measured in metres.

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)				
Study ID	**Curi 2018**				
7	Not specified	Life satisfaction	baseline, end of treatment (16 weeks)	Satisfaction with Life Scale (5-item)	higher score means better outcome
8	Not specified	Sleep quality	baseline, end of treatment (16 weeks)	Pittsburgh Sleep Quality Index - Global score	higher score means lower sleep quality
9	Not specified	Sleep quality	baseline, end of treatment (16 weeks)	PSQI - Sleep quality	higher score means lower sleep quality
10	Not specified	Sleep quality	baseline, end of treatment (16 weeks)	PSQI - Sleep latency	higher score means lower sleep quality
11	Not specified	Sleep quality	baseline, end of treatment (16 weeks)	PSQI - Sleep duration	higher score means lower sleep quality
12	Not specified	Sleep quality	baseline, end of treatment (16 weeks)	PSQI - Sleep efficiency	higher score means lower sleep quality
13	Not specified	Sleep quality	baseline, end of treatment (16 weeks)	PSQI - Sleep disturbances	higher score means lower sleep quality
14	Not specified	Sleep quality	baseline, end of treatment (16 weeks)	Use of sleeping medication	higher score means lower sleep quality
15	Not specified	Sleep quality	baseline, end of treatment (16 weeks)	Daytime dysfunction	higher score means lower sleep quality
16	Not specified	General health	baseline, end of treatment (16 weeks)	General Health Questionnaire (GHQ-12)-total	higher score means better mental health
17	Not specified	General health	baseline, end of treatment (16 weeks)	GHQ-depression	higher score means better mental health
18	Not specified	General health	baseline, end of treatment (16 weeks)	GHQ-social dysfunction	higher score means better mental health
19	--				
Method of analysis					

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)
Study ID	**Curi 2018**
Statistics	Data normality was confirmed with the Shapiro-Wilk test ($p < 0.05$), the ANOVA was used for the repeated measures of the two groups (EG and CG); the 2 times (pre- and post-intervention) model was used. The homogeneity of variance and covariance was also secured and tested using the Levene test, and sphericity was tested using the Mauchly test. The adopted significance level was 0.5.
Population analysed	Intent-to-treat: Modified. Participants with missing data not included in the analysis. 2 participants in Pilates group and 1 in control group dropped out due to personal issues and were not included in analysis
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Concerns in measurement of outcome due to the possibility of bias related to knowledge of the intervention received

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)		
Study ID	**de Andrade Mesquita 2015**		
Study Reference	1. de Andrade Mesquita LS, de Carvalho FT, de Andrade Freire LS, Neto OP, Zangaro RA. Effects of two exercise protocols on postural balance of elderly women: a randomized controlled trial. BMC Geriatrics 2015 Jun 2;15(61):Epub. 2015. 2. Nct. Exercise Protocols in Postural Balance Of Elderly Women. https://clinicaltrialsgov/show/NCT02278731. 2014. 1. Nct. Pilates and PNF Methods Induces Similar Strength Gains. https://clinicaltrialsgov/show/NCT02274909. 2014. 2. Teixeira de Carvalho F, de Andrade Mesquita LS, Pereira R, Neto OP, Amaro Zangaro R. Pilates and Proprioceptive Neuromuscular Facilitation Methods Induce Similar Strength Gains but Different Neuromuscular Adaptations in Elderly Women. Experimental Aging Research. 2017;43(5):440-52.		
Study design	RCT		
Author affiliation	All authors are affiliated with tertiary institutions in Brazil.		
Source of funds	This study was funded by FAPESP-Fundação de Amparo à Pesquisa do Estado de São Paulo, Process: 2012/09400-9.		
Declared interests of study authors	All authors declared they have no conflicts of interest.		
Setting / provider	Physiotherapy department of a public hospital		
Country(s) / region	Brazil	Teresina	
Enrolment period	not reported		
Length of treatment / followup	4 weeks		
Description of population	*N=*	*Description*	
# participants	63	Sedentary elderly women	
details	*Inclusion criteria:* Sedentary women aged between 60 and 80 years. Women who were sedentary as evaluated using the International Physical Activity Questionnaire. *Exclusion criteria:* Any orthopedic, cardiovascular, vestibular, psychological, neurological, or other impairment that would not allow for the execution of all study tasks.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	21	50-minute Pilates session for 3 times a week for 4 weeks. The exercise protocol of the Pilates method consisted of muscle stretching of the upper limbs, trunk, and lower limbs before the exercises. Then, exercises involving range of motion and strength of upper limbs, trunk, and lower limbs were performed, always associated with breathing in different positions and with increasing repetitions and resistance along the weeks of training. Swiss ball, theraband, and magic circle were used as acessories to increase the resistance and difficulty of exercises.	
Comparator #1 (control)	21	No intervention, participants continued their daily activities for 4 weeks	

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)					
Study ID	**de Andrade Mesquita 2015**					
Comparator #2 (other)	21	50-minute proprioceptive neuromuscular facilation session for 3 times a week for 4 weeks. The PNF diagonal patterns of movement were selected considering all the basic facilitation procedures, including resistance, manual pressure, traction, stretch and approximation reflexes, and visual and verbal stimulation. The exercises from the PNF method were performed with stretching, associated with hold-relax technique, for upper and lower limbs. Then, subjects carried out exercises with the upper limbs, in a bilaterally symmetrical pattern, and with the lower limbs, in the asymmetric bilateral pattern. Additionally, scapular and pelvic girdle exercises were done with a symmetrical and reciprocal combination.					
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Yes	Include in subgroup A		Exercises were performed by two physiotherapy professionals. The PNFG provider was certified in PNF, and the PG provider was certified in Pilates.		
Is there an inactive comparator?	Yes	Comparison=control		No intervention, participants continued their daily activities for 4 weeks		
Outcomes	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*
1	Primary	Postural control/stabilometry	baseline, end of treatment (4 weeks)	total displacement oscillation (mm)	lower score means better balance	Centre of pressure (CoP) variable
2	Primary	Postural control/stabilometry	baseline, end of treatment (4 weeks)	Amplitude of displacement of the CoP in the anterior – posterior plane (mm)	lower score means better balance	Centre of pressure (CoP) variable
3	Primary	Postural control, stabilometry	baseline, end of treatment (4 weeks)	Amplitude of displacement of the CoP in the mid-lateral plane (mm)	lower score means better balance	Centre of pressure (CoP) variable
4	Primary	Postural control, stabilometry	baseline, end of treatment (4 weeks)	displacement area (mm2)	lower score means better balance	Centre of pressure (CoP) variable
5	Primary	Postural control, stabilometry	baseline, end of treatment (4 weeks)	Anterior–posterior average speed (mm/s)	lower score means better balance	Centre of pressure (CoP) variable
6	Primary	Postural control, stabilometry	baseline, end of treatment (4 weeks)	mid-lateral average speed (mm/s)	lower score means better balance	Centre of pressure (CoP) variable

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)					
Study ID	**de Andrade Mesquita 2015**					
7	Primary	Postural control, stabilometry	baseline, end of treatment (4 weeks)	total average speed (mm/s)	lower score means better balance	Centre of pressure (CoP) variable
8	Primary	Function mobility	baseline, end of treatment (4 weeks)	Timed up and go test (seconds)	higher score means better outcome	
9	Primary	Balance	baseline, end of treatment (4 weeks)	Berg Balance Scale score	higher score means better balance	
10	Primary	Flexibility	baseline, end of treatment (4 weeks)	Functional reach test (cm)	higher score means better flexibility	
11	Primary	Physical performance: muscle strength	baseline, end of treatment (4 weeks)	Isokinetic muscular strength knee extensors 90°/10s (newtons per metre)	higher score means improved strength	
12	Primary	Physical performance: muscle strength	baseline, end of treatment (4 weeks)	Isokinetic muscular strength knee extensors 90°/10s (newtons per metre)	higher score means improved strength	
13	Primary	Surface EMG signals	baseline, end of treatment (4 weeks)	Surface EMG signals were obtained using an eight-channel module	Force Fluctuations, force feaure, spectral features examined	
14	--					
15	--					
16	--					
17	--					
18	--					
19	--					
Method of analysis						

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)
Study ID	**de Andrade Mesquita 2015**
Statistics	Means and standard deviations are presented. First, the Shapiro-Wilk test was used to evaluate the normality of the variables and determine which tests would be used. For the variables following a normal distribution, the paired t test was used to compare two means (withingroup comparisons), and repeated-measures ANOVA was used to compare three means (between-group comparisons). The Wilcoxon test was used on some stabilometric variables that did not follow the normal distribution. The differences in functional test scores and stabilometric variables were calculated for each woman by subtracting the pretraining data from the post-training data in the PG, PNFG, and CG. Repeated-measures ANOVA followed by post-hoc Tukey's test was used to determine differences in the means of each variable between the groups. A p-value of <0.05 was considered statistically significant.
Population analysed	Per protocol Subjects from Pilates and PNF groups who missed two consecutive sessions were excluded from the analysis. No other data presented by study authors. 58 of 63 participants completed the program (92%).
Missing data	No imputations for missing data were made. Information to conduct ITT analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias
Summary (descriptive)	Concerns with randomisation, trial conduct and measurement of outcome

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)	
Study ID	**Gandolfi 2020**	
Study Reference	Gandolfi NRS, Corrente JE, De Vitta A, Gollino L, Mazeto G. The influence of the Pilates method on quality of life and bone remodelling in older women: a controlled study. Quality of Life Research. 2020;29(2):381-9.	
Study design	NRSI	Prospective cohort
Author affiliation	Five authors affliated with a tertiary institution in Iran.	
Source of funds	This project was supported by Fundação de Amparo à Pesquisa do Estado de São Paulo – FAPESP (Grant for research; Process Number 2011/14448-8), and by the National Council for Scientifc and Technological Development – CNPq (Master's degree).	
Declared interests of study authors	The authors declare no conflicts of interest.	
Setting / provider	Local community	This study is affiliated with the São Paulo State University and Sacred Heart University.
Country(s) / region	Brazil	
Enrolment period	Not specified	
Length of treatment / followup	20 weeks	
Description of population	*N=*	*Description*
# participants	44	Community-dwelling older women
details	*Inclusion criteria:* female gender, 60 years old or more, status of physical activity classifed as sedentary, according to the short version of the International Physical Activity Questionnaire [15], and absence of serious illness, as well as accepting and signing the free informed consent form. *Exclusion criteria* : decompensated diabetes, severe arterial hypertension, chronic renal insufciency, liver disease, cerebral vascular accident sequelae, malnutrition, cancer, primary hyperparathyroidism, hyperthyroidism, severe chronic obstructive pulmonary disease, bone disease, use of antiresorptive therapy, corticotherapy, or supplements with Ca or vitamin D.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	22	The exercises, with a duration of 50 min per session, have been performed once a week for 20 weeks. stretching and strengthening exercises were performed on the foor (Mat) and on Cadillac, Reformer, Chair, Barrel and Spine Corrector apparatus. Pre-Pilates activities integrating the method principles, such as concentration, centering, precision, breathing control, and lfuidity. Twenty-fve types of stretching and strengthening exercises were performed for the spine, flexor and extensor muscles of the trunk, upper limbs, and lower limbs, executed in a rhythmic controlled manner and associated to respiration and postural correction. All exercises have been performed with a set of 12 repetitions. The intensity of the movements has been adapted according to the evolution of each volunteer, in a self-perceived way,
Comparator #1 (control)	22	The control group did not partake in any phyiscal exercise. No further detailed are provided.

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)					
Study ID	**Gandolfi 2020**					
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Not specified	Include in subgroup C		The Pilates sessions were supervised by a Physiotherapist.		
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*
1	Primary	QoL	Baseline, end of treatment (20 weeks)	SF-36 total score	higher score means better QoL	
2	Primary	Physical function	End of treatment (20 weeks)	SF-36 physical functioning	Higher score means better outcome	
3	Primary	Role - Physical	End of treatment (20 weeks)	SF-36 role physical	Higher score means better outcome	
4	Primary	Pain	End of treatment (20 weeks)	SF-36 bodily pain	Higher score means better outcome	
5	Primary	General health	End of treatment (20 weeks)	SF-36 general health perceptions	Higher score means better outcome	
6	Primary	Vitality	End of treatment (20 weeks)	SF-36 vitality	Higher score means better outcome	

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)				
Study ID	**Gandolfi 2020**				
7	Primary	Role-social	End of treatment (20 weeks)	SF-36 role social	Higher score means better outcome
8	Primary	Role-emotional	End of treatment (20 weeks)	SF-36 role emotional	Higher score means better outcome
9	Primary	Mental health	End of treatment (20 weeks)	SF-36 mental health	Higher score means better outcome
10	Primary	Bone remodelling markers	Baseline, end of treatment (20 weeks)	Specific alkaline phosphatase	
11	Secondary	Bone remodelling markers	Baseline, end of treatment (20 weeks)	C-telopeptide pf Type I collagen	
12	Secondary	Body composition	Baseline, end of treatment (20 weeks)	BMI (weight/height)	Higher score means higher BMI
13	Not specified	Metabolic control	Baseline, end of treatment (20 weeks)	Serum 25-hydroxyvitamin D	Score within the clinical range is normal.
14	Not specified	Metabolic control	Baseline, end of treatment (20 weeks)	Serum albumin	Score within the clinical range is normal.
15	Secondary	Metabolic control	Baseline, end of treatment (20 weeks)	Serum calcium	Score within the clinical range is normal.
16	Not specified	Metabolic control	Baseline, end of treatment (20 weeks)	Serum magnesium	Score within the clinical range is normal.
17	Not specified	Metabolic control	Baseline, end of treatment (20 weeks)	Serum parathyroid hormone	Score within the clinical range is normal.
18	Secondary	Metabolic control	Baseline, end of treatment (20 weeks)	Serum phosphorous	Score within the clinical range is normal.
19	Not specified	Metabolic control	Baseline, end of treatment (20 weeks)	Serum total alkaline phosphatase	Score within the clinical range is normal.
Method of analysis					

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)	
Study ID	**Gandolfi 2020**	
Statistics	Sample description was performed through descriptive analysis with mean and standard deviation calculations for quantitative variables and frequency and percentages for qualitative variables. All the quantitative variables analyzed were tested for normality by the Shapiro–Wilk test. Age comparison between Control and Pilates groups was done using the Student T test and for demographics by Chi squared test. Anthropometric variables, serum measurements and QoL were analysed using ANOVA time-repeated measurements followed by the Tukey test for multiple comparisons. In the case of urinary analysis, as data presented asymmetric distribution, the same model was used with gamma distribution. The statistical program used was SAS for Windows, v.9.4, and the level of signifcance was set at 5%.	
Population analysed	Intent-to-treat	Modified. All randomised participants included in the analysis except those with missing data. Two participants in each group were lost to followup. (4/44, total <10%)
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	Moderate risk. The study appears to provide sound evidence for a non-randomised study but cannot be considered comparable to a well-performed randomised trial. The study is judged to be a low or moderate risk of bias for ALL domains	
Summary (descriptive)	Some concerns with confounding, outcome measurement and selection of results	

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)	
Study ID	**Irez 2011**	
Study Reference	Irez GB, Ozdemir RA, Evin R, Irez SG, Korkusuz F. Integrating pilates exercise into an exercise program for 65+ year-old women to reduce falls. Journal of Sports Science & Medicine. 2011;10(1):105-11.	
Study design	RCT	pseudorandomised
Author affiliation	5 authors are affliated with a tertiary institutions in Turkey	
Source of funds	not specified	
Declared interests of study authors	not specified	
Setting / provider	Residential home	
Country(s) / region	Ankara, Turkey	
Enrolment period	not specified	
Length of treatment / followup	12 weeks	
Description of population	*N=*	*Description*
# participants	60	Older women living in a residential house
details	*Inclusion criteria:* women over 65 years of age, and have been relatively sedentary (undertaking no leisure time physical activity or less than 30 minutes of physical activity per day) for at least a year. *Exclusion criteria* : Any significant general health problem or orthopaedic problem that would keep them from fully participating in the intervention protocol and/or the inability to attend at least 80% of the training sessions	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	30	A 12-week Pilates exercise program, held 3 days per week. Each exercise session lasted about 60 minutes. Modified Pilates-based exercise was divided into three parts. The first part (4 weeks duration), consisted of mat exercises, in the second part, Thera-Band elastic resistance exercises were added, and in the third part, the participants performed Pilates ball exercises for beginners
Comparator #1 (control)	30	The control group received no Pilates training during the 12-week period and was instructed to refrain from beginning a new exercise program or changing their current activity levels during this time period.

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)					
Study ID	**Irez 2011**					
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Yes	Include in subgroup A		Each pilates session was led by a certified instructor		
Is there an inactive comparator?	Yes	Comparison=control				
Outcomes	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*
1	Not specified	Dynamic balance	baseline, end of treatment (12 weeks)	MEDSP300 (Medical Sports Performance 300) dynamic stability measurement platform (angle)	30-second trials during which the participants maintained an upright standing position on the unstable surface	
2	Not specified	Flexibility	baseline, end of treatment (12 weeks)	Sit-and-reach test (cm)	farthest test score greater the flexibility	
3	Not specified	Muscle strength (hip flexion, hip abduction, and hip adduction)	baseline, end of treatment (12 weeks)	Nicholas Manual Muscle Tester (kg)	greater force applied, greater the muscle strength	recorded the average of 3 attempts
4	Not specified	Number of falls	baseline, end of treatment (12 weeks)	recorded daily on monthly calendar		
5	Not specified	Simple Reaction Time (ms)	baseline, end of treatment (12 weeks)	New Test-2000 Device	Subjects press a button with their index finger as quickly as possible when presented with light or sound stimuli	
6	Not specified	Choice Reaction Time (ms)	baseline, end of treatment (12 weeks)	New Test-2000 Device	Subjects press a button with their index finger as quickly as possible when presented with light or sound stimuli	

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)
Study ID	**Irez 2011**
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Method of analysis	

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)	
Study ID	**Irez 2011**	
Statistics	All tests were assessed by mixed design repeated measure MANOVA's with Group as a between subject factor. They were then conducted separately for physiological measures. The main significant and interaction effects were examined by follow-up univariate analysis performed to identify group differences	
Population analysed	Per protocol	Participants who did not attend 80% of the training sessions were excluded from the analysis. 92% completed the program but N anlaysed per group not reported.
Missing data	No imputations for missing data were made. Information to conduct ITT analysis not available.	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias	
Summary (descriptive)	Concerns with randomisation, trial conduct, measurement of outcome, and selective reporting	

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)		
Study ID	**Liposcki 2019**		
Study Reference	Liposcki DB, da Silva Nagata IF, Silvano GA, Zanella K, Schneider RH. Influence of a Pilates exercise program on the quality of life of sedentary elderly people: A randomized clinical trial. Journal of Bodywork & Movement Therapies. 2019;23(2):390-3.		
Study design	RCT	pseudorandomised	
Author affiliation	All authors are affiliated with tertiary institutions in Brazil.		
Source of funds	Not reported		
Declared interests of study authors	Conflicts of interest were not reported.		
Setting / provider	Community		
Country(s) / region	Brazil	Lages, Santa Catarina	
Enrolment period	Not reported		
Length of treatment / followup	26 weeks (6 months)		
Description of population	*N=*	*Description*	
# participants	24	Community-dwelling older women	
details	*Inclusion criteria* : age between 60 and 69 years, residing in the city of Lages/SC, availability to perform the sessions, sedentary and non-smokers. Exclusion criteria: severe chronic, cognitive, and neurological disease that made the realization of the procedures impossible.		
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*	
Intervention	12	Twice-weekly 30 minute Pilates session for 26 weeks. The program included Mat Pilates exercises, Cadillac, Reformer, and Chair, which focused on strength, flexibility, and balance in several postures and muscular groups with emphasis on paravertebral, abdominal, and lower limb musculature. The exercise program included an eight-week physical adaptation phase, which involved repair of the muscular and ligament tissues after physical, chemical, or metabolic stimulation in order to adapt them to the movement and avoid lesions (Cycle 1). The second phase involved increased resistance and intensity of the exercises (Cycle 2) over a nine-week period. The third phase involved maintenance of resistances (Cycle 3) over an eight-week period.	
Comparator #1 (control)	12	Advised not to change daily activities. No further information provided	

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)					
Study ID	**Liposcki 2019**					
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Not specified	Include in subgroup C		not reported		
Is there an inactive comparator?	Yes	Comparison=control		Usual activites		
Outcomes		*Description*	*timing*	*measured with*	*measure details*	*Other*
1	Primary	Physical function	baseline, end of treatment (26 weeks)	SF-36 - Physical functioning score	higher score means better QoL	
2	Primary	Role - Physical	baseline, end of treatment (26 weeks)	SF-36 - Physical role functioning score	higher score means better QoL	
3	Primary	Pain	baseline, end of treatment (26 weeks)	SF-36 - Pain score	higher score means better QoL	
4	Primary	General health	baseline, end of treatment (26 weeks)	SF-36 - General health state score	higher score means better QoL	
5	Primary	Vitality	baseline, end of treatment (26 weeks)	SF-36 - Vitality score	higher score means better QoL	
6	Primary	Role-social	baseline, end of treatment (26 weeks)	SF-36 - Social role functioning score	higher score means better QoL	

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)					
Study ID	**Liposcki 2019**					
7	Primary	Role-emotional	baseline, end of treatment (26 weeks)	SF-36 - Emotional role functioning score	higher score means better QoL	
8	Primary	Mental health	baseline, end of treatment (26 weeks)	SF-36 - Mental health score	higher score means better QoL	
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19	--					
Method of analysis						

Characteristics of included studies	Age-related decline, healthy women (>60 yrs)	
Study ID	**Liposcki 2019**	
Statistics	The exploratory data analysis was done through descriptive statistics, which considered attendance and percentage for qualitative variables, and means, standard deviation, minimum value and maximum value for quantitative variables. For data normality analysis, the study used the Shapiro-Wilk test. To verify the differences in the means between the groups, before and after the intervention, the Student's T test was used for normal distributions (variables FC, FA, P, GHC, V and SA) and the Mann-Whitney U test for asymmetrical distributions (variables QOL, EA and MH), with the level of significance fixed at 5% ($p < 0.05$).	
Population analysed	Per protocol	Women who did not attend 90% of the Pilates program or did not attend the reevaluation were eliminated from the study analysis. 3/12 participants in the Pilates group and 1/12 in the control group were analysed. (total 16.6%) Not clear if these were droppouts or did not attend 90% sessions.
Missing data	No imputations for missing data were made. Information to conduct ITT analysis not available.	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	High risk of bias in one or more key domains	
Summary (descriptive)	High risk of bias due to deviations from intended intervention and missing outcome data	

Characteristics of included studies	Healthy adults (>60 yrs), at risk of falls	
Study ID	**Barker 2016**	
Study Reference	Barker AL, Talevski J, Bohensky MA, Brand CA, Cameron PA, Morello RT. Feasibility of Pilates exercise to decrease falls risk: a pilot randomized controlled trial in community-dwelling older people. Clinical Rehabilitation. 2016;30(10):984-96. ACTRN1262000224820	
Study design	RCT	
Author affiliation	All authors are affiliated with tertiary institutions in Melbourne, Australia.	
Source of funds	Funding provided by Faculty of Medicine, Nursing and Health Sciences Strategic Grant Scheme [ECD044]	
Declared interests of study authors	All authors declared they have no conflicts of interest.	
Setting / provider	Physiotherapy clinic	
Country(s) / region	Australia	Melbourne
Enrolment period	May 2012 to August 2013	
Length of treatment / followup	24 weeks	
Description of population	*N=*	*Description*
# participants	53	Healthy community-dwelling adults at risk of falls (>60 yrs)
details	*Inclusion criteria:* aged ⩾60 years; at risk of sustaining a fall injury based on a telephone screen developed by the research team ; and able to negotiate a set of 10 stairs independently without a gait aid. *Exclusion criteria:* an inability to participate in the intervention: cognitive impairment (telephone Mini-Mental State Examination score of <17);16 presence of an acute medical condition that impaired ability to safely perform exercise (e.g. unstable blood pressure, chronic back pain, acute myocardial infarction); a diagnosis of cancer within the past 5 years or currently undergoing active treatment for cancer; and uncontrolled chronic conditions (e.g. diabetes or hypertension).	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	22	12 weeks, 2x 60 min group sessions per week. Pilates equipment, including the reformer, trapeze, Wunda chair, chi ball, elastic band and foam roller, was utilised in each class. Pilates exercises were performed predominately in a standing position with minimal-to-no use of hands for support. Exercises tailored to individual needs, intended to be 7/10 difficulty.
Comparator #1 (control)	31	The control group continued to receive standard care from their primary healthcare practitioners. Standard care consisted of health practitioner discretionary use of investigations and multidisciplinary assessment within a hospital or GP clinic; or referral to other health professionals and services.

Characteristics of included studies	Healthy adults (>60 yrs), at risk of falls					
Study ID	**Barker 2016**					
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	53	The home exercise program was provided to all participants. Participants were provided with a tailored 20-minute home exercise program that they were encouraged to complete on a daily basis. The home exercise program also focused on balance and strengthening exercises performed in a standing position. Intervention participants were reminded and prompted at each Pilates class to continue completing the home exercise program.				
Is practitioner/instructor certified?	Yes	Include in subgroup A		Pilates-trained physical therapist		
Is there an inactive comparator?	Yes	Comparison=control		Standard of care provided by their GP, which could include referral to other health professionals or services		
Outcomes	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*
1	Not specified	Falls	baseline, end of treatment (12 wks) and follow up (24 wks)	Number of falls (count)	higher score means worse outcome	
2	Not specified	Falls	baseline, end of treatment (12 wks) and follow up (24 wks)	Falls injury (rate per 1000 person days)	higher score means worse outcome	
3	Not specified	Falls	baseline, end of treatment (12 wks) and follow up (24 wks)	Number of Falls (rate per 1000 person days)	higher score means worse outcome	
4	Not specified	Falls	baseline, end of treatment (12 wks) and follow up (24 wks)	Injurious fall rates (rate per 1000 person days)	higher score means worse outcome	
5	Not specified	Balance/ postural control	baseline, end of treatment (12 wks) and follow up (24 wks)	Standing balance (step test)	higher score means better balance	
6	Not specified	Balance/ postural control	baseline, end of treatment (12 wks) and follow up (24 wks)	Functional reach test (cm)	higher score means better balance	

Characteristics of included studies	Healthy adults (>60 yrs), at risk of falls				
Study ID	**Barker 2016**				
7	Not specified	Balance/ postural control	baseline, end of treatment (12 wks) and follow up (24 wks)	lateral reach test (cm)	higher score means better balance
8	Not specified	Balance/ postural control	baseline, end of treatment (12 wks) and follow up (24 wks)	four square step test (seconds)	lower score means better balance
9	Not specified	Balance/ postural control	baseline, end of treatment (12 wks) and follow up (24 wks)	Dynamic balance (modified clinical test of sensory interaction on balance , timed stance eys open, closed) (seconds)	higher score means better balance
10	Not specified	Balance/ postural control	baseline, end of treatment (12 wks) and follow up (24 wks)	dynamic gait index (0-24 points)	higher score means better balance
11	Not specified	Physical performance: muscle strength	baseline, end of treatment (12 wks) and follow up (24 wks)	Lower limb strength (30-second sit-stand test, repititions per second)	higher score means higher strength
12	Not specified	Physical performance: flexibility	baseline, end of treatment (12 wks) and follow up (24 wks)	Lower limb flexibility (ankles, knee to wall test) (cm)	higher score means greater flexibility
13	Not specified	Physical performance: flexibility	baseline, end of treatment (12 wks) and follow up (24 wks)	Lower limb flexibility (hamstrings, straight leg raise test) (degrees)	higher score means greater flexibility
14	Not specified	Functional mobility	baseline, end of treatment (12 wks) and follow up (24 wks)	Timed up and go test (seconds)	Higher score means worse agility
15	--				
16	--				
17	--				
18	--				
19	--				
Method of analysis					

Characteristics of included studies	Healthy adults (>60 yrs), at risk of falls
Study ID	**Barker 2016**
Statistics	Descriptive statistics were used to profile the study participants and report recruitment, safety, adherence. Generalized linear mixed models were used to determine changes in standing balance, lower limb strength and flexibility outcomes with group allocation as the factor (predictor) variable. The models also contained baseline performance on the outcome measure as a covariate. Negative binomial regression models were used to estimate differences in fall and fall injury rates between groups, with group allocation as the factor (predictor) variable. The models adjusted for previous multiple faller status (⩾2 falls in the six months prior to recruitment), and length of followup (days) was included as the exposure variable. Where participants suffered multiple injuries from one fall, all injuries were included in the outcome analysis irrespective of their severity. Statistical significance was set to a P value ⩽0.05 and analysis was performed using Stata V.13
Population analysed	Intent-to-treat: ITT analyses (LOCF) was applied for all potential effectiveness outcomes. 2/31 participants in the control group withdrew after randomisation and a further 7 dropped out during the study (total 29%). 2/20 participants in the Pilates group discontinued (10%). Authors present the ITT results. PP or mITT results not presented or discussed.
Missing data	Missing data associated with participants dropping out of the study were replaced using the last observation carried forward analysis (LOCF). Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk due to trial conduct and missing data that is unbalanced between the groups. Some concerns with outcome measurement and reporting bias.

Characteristics of included studies	Healthy adults (>60 yrs), at risk of falls	
Study ID	**Josephs 2016**	
Study Reference	Josephs S, Pratt ML, Calk Meadows E, Thurmond S, Wagner A. The effectiveness of Pilates on balance and falls in community dwelling older adults. Journal of Bodywork & Movement Therapies. 2016;20(4):815-23.	
Study design	RCT	
Author affiliation	All authors are affiliated with tertiary institutions in USA with one author also affiliated to a Physical therapy practice.	
Source of funds	Authors state no financial support was received.	
Declared interests of study authors	All authors declared they have no conflicts of interest.	
Setting / provider	Physical Therapy Department at University of the Incarnate Word	
Country(s) / region	USA	Texas
Enrolment period	Not reported	
Length of treatment / followup	12 weeks	
Description of population	*N=*	*Description*
# participants	31	Community dwelling elderly with impaired balance
details	*Inclusion criteria* : 65 years of age or older living in the community; impaired balance as defined by at least one of the following: a fall in the past year, TUG >13.5 s or FAB<25; and ability to follow instructions as assessed by the ability to complete the questionnaires without assistance. Subjects were not screened for ability, such as use of an assistive device for walking, but only that they met the inclusion criteria of history of fall or meeting the cutoff for balance compromise with the TUG or FAB. *Exclusion criteria:* participation in a Pilates program within the last year; significant health problem that would keep the subject from participating; vestibular conditions and progressive neurological conditions. Subjects were excluded if they were not community dwelling, e.g. if they lived in an institution such as an assisted living facility.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	16	12 weeks, 2x 60 min sessions per week. The groups were a maximum of 4 participants taught by 1 or 2 physical therapists. The Pilates program utilized the Reformer, Cadillac and Chair apparatus.
Comparator #1 (control)	--	--

Characteristics of included studies	Healthy adults (>60 yrs), at risk of falls						
Study ID	**Josephs 2016**						
Comparator #2 (other)	15	Twice-weekly 60 minute traditional balance sessions for 12 weeks. The groups were a maximum of 4 participants taught by 1 or 2 physical therapists. Elastic resistance bands, ankle weights, foam balance pads, boxes of varying heights and half foam rollers were used.					
Comparator #3 (other)	--	--					
Co-interventions	31	On non-program days and daily following discharge from the program, patients were asked to perform home exercises. The same 15-20 min home exercise program was given to both groups in order to minimize confounding effects of the home exercise program. The home lower extremity strength exercises were drawn from both Pilates mat exercises and traditional physical therapy exercises. The home program also included standing balance exercises.					
Is practitioner/instructor certified?	Yes	Include in subgroup A		The exercise classes were taught by 1 of 2 physical therapists, both Board Certified Clinical Specialists in Orthopaedics and comprehensively certified Pilates instructors.			
Is there an inactive comparator?	No	Comparison=other		traditional exercise			
Outcomes	*Primary?*	*Description*	*timing*	*measured with*	*measure details*	*Other*	
1	Not specified	Balance	end of treatment (12 weeks)	Timed up and go test (TUG)	higher score means worse balance		
2	Not specified	Balance	end of treatment (12 weeks)	Fullerton Advanced Balance Scale (FAB)	higher score means better balance confidence		
3	Not specified	Balance confidence	end of treatment (12 weeks)	Activities-Specific Balance Confidence Scale (ABC)	higher score means better balance		
4	--						
5	--						
6	--						

Characteristics of included studies	Healthy adults (>60 yrs), at risk of falls
Study ID	**Josephs 2016**
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19	--
Method of analysis	

Characteristics of included studies	Healthy adults (>60 yrs), at risk of falls
Study ID	**Josephs 2016**
Statistics	The pre-test to posttest within group, between group, and interactions data were analyzed with paired t-test, independent t-test and 2 x 2 factorial ANOVA respectively.
Population analysed	Modified. Only participants who completed the intervention were analysed. Intent-to-treat 3 participants in the pilates group and 4 in the control group dropped out. The rate of drop out was greater for the control group (27%) than for Pilates (19%).
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.
INTERNAL VALIDITY	
Overall risk of bias (select from list)	High risk of bias in one or more key domains
Summary (descriptive)	High risk due to trial conduct and missing data that is unbalanced between the groups. Some concerns with randomisation, outcome measurement and reporting bias.

Characteristics of included studies	Healthy adults (>60 yrs), at risk of falls	
Study ID	**Roller 2018**	
Study Reference	Roller M, Kachingwe A, Beling J, Ickes DM, Cabot A, Shrier G. Pilates Reformer exercises for fall risk reduction in older adults: A randomized controlled trial. Journal of Bodywork & Movement Therapies. 2018;22(4):983-98.	
Study design	RCT	
Author affiliation	3 authors were affiliated with tertieary institutions and2 authors were affiliated with an exercise studio in USA.	
Source of funds	Research, Scholarship and Creative Activity Award, Research and Sponsored Projects, California State University, Northridge	
Declared interests of study authors	All authors declared they have no conflicts of interest.	
Setting / provider	exercise studio	
Country(s) / region	USA	Studio City, California
Enrolment period	Not reported	
Length of treatment / followup	10 weeks	
Description of population	*N=*	*Description*
# participants	59	Elderly at risk of falls
details	*Inclusion criteria:* aged 65 years or older, selfreported history of two or more falls or one injurious fall in the past year, TUG test score of ≥13.5 s suggesting risk for falling, and physician approval to participate in the study. *Exclusion criteria:* a failed NeuroCom® Motor Control Test (MCT), a failed Mini-Mental State Examination (MMSE) (score <24/30), history of fracture within the previous year, neurological impairment with severe motor deficit, history of severe orthopedic impairment of the lower extremities, and requiring an assistive device for static or dynamic balance.	
Description of intervention/comparator (as per TIDIER checklist)	*n=*	*Description (include # treatment sessions, session duration, program duration)*
Intervention	31	45-minute Pilates session once a week for 10 weeks. Subjects were instructed that they must attend at least 8 of the 10 sessions to remain in the study. Pilates exercises utilized the Balanced Body® Pilates Studio Reformer® under the supervision of a Gold Certified Pilates Method Alliance instructor. Participant to instructor ratio was 4.5:1 with all subjects working on Reformers concurrently in a group class format.
Comparator #1 (control)	28	Control (usual activities)

Characteristics of included studies	Healthy adults (>60 yrs), at risk of falls					
Study ID	**Roller 2018**					
Comparator #2 (other)	--	--				
Comparator #3 (other)	--	--				
Co-interventions	--	--				
Is practitioner/instructor certified?	Yes	Include in subgroup A		Pilates provided under the supervision of a Gold Certified Pilates Method Alliance instructor		
Is there an inactive comparator?	Yes	Comparison=control		Usual activites		
Outcomes		*Description*	*timing*	*measured with*	*measure details*	*Other*
1	Primary	Balance/ postural control	end of treatment (10 weeks)	Sensory Organisation Test composite score (0-100)	higher score mean better outcome	
2	Primary	Balance mobility	end of treatment (10 weeks)	Timed up and go test (seconds)	higher score mean worse outcome	
3	Primary	Balance Confidence	end of treatment (10 weeks)	Activities-speciifc Balance Confidence Scale (0-100)	higher score means better balance confidence	
4	Secondary	Balance/ postural control	end of treatment (10 weeks)	10 metre walk test (second)	higher score mean worse outcome	
5	Secondary	Balance/ postural control	end of treatment (10 weeks)	10 metre walk test (m/s)	higher score means better balance confidence	
6	Secondary	Balance stability	end of treatment (10 weeks)	Berg Balance Scale (0-56)	higher score means better balance confidence	

Characteristics of included studies	Healthy adults (>60 yrs), at risk of falls				
Study ID	**Roller 2018**				
7	Secondary	Physical performance: flexibility	end of treatment (10 weeks)	Active range of motion: straight leg raise right (°)	Higher score means greater flexibility
8	Secondary	Physical performance: flexibility	end of treatment (10 weeks)	Active range of motion: straight leg raise left (°)	Higher score means greater flexibility
9	Secondary	Physical performance: flexibility	end of treatment (10 weeks)	Active range of motion: hip extension right (°)	Higher score means greater flexibility
10	Secondary	Physical performance: flexibility	end of treatment (10 weeks)	Active range of motion: hip extension left (°)	Higher score means greater flexibility
11	Secondary	Physical performance: flexibility	end of treatment (10 weeks)	Active range of motion: ankle dorsiflexion right (°)	Higher score means greater flexibility
12	Secondary	Physical performance: flexibility	end of treatment (10 weeks)	Active range of motion: ankle dorsiflexion left (°)	Higher score means greater flexibility
13	--				
14	--				
15	--				
16	--				
17	--				
18	--				
19	--				
Method of analysis					

Characteristics of included studies	Healthy adults (>60 yrs), at risk of falls	
Study ID	**Roller 2018**	
Statistics	Simple baseline descriptive statistics were calculated on all subjects (means and standard deviation). Chi-square tests for cross-tabulation tables and t-tests for independent samples were used to compare the prevalence of gender distribution and the means of age, height, scores on the MMSE, and number of falls of the intervention and control at initial assessment. Scores on the SOT composite equilibrium score, BBS, TUG, 10MWT, ABC and AROM measurements were compared with a 2 (intervention) X 2 (time) Analysis of Variance (ANOVA) with repeated measures on the last factor (baseline and post-intervention) for both the intervention and control groups. In cases where no significant interaction occurred, the main effects were interpreted. In cases where a significant interaction occurred, simple main effects for group were tested with a univariate ANOVA and simple main effects for time were tested with a repeated measures ANOVA. The Wilcoxon signed rank test was used to make comparisons within each of the two groups and the Mann-Whitney U test was used to analyze the difference in number between the intervention and control groups for performance on the ADT category. All statistical tests were conducted at the $P < 0.05$ level. No outlying values were identified using Tukey's rule, which defines an extreme outlier as being more than 3.0 interquartile ranges away from the 25th or 75th percentile (Tukey, 1977). Data were normally distributed as assessed by the Shapiro-Wilk test, ($P > 0.05$). The assumption of homogeneity of variance was not violated as assessed by Levine's Test of Homogeneity of Variance ($P > 0.05$).	
Population analysed	Intent-to-treat	Modified. All randomised participants included in the analysis excpet those with missing data. Four participants (4/31) missing from the Pilates group due to drop out.
Missing data	No imputations for missing data were made. Information to conduct PP analysis not available.	
INTERNAL VALIDITY		
Overall risk of bias (select from list)	Some concerns for one or more domains, but no high risk of bias	
Summary (descriptive)	Some concerns with randomisation, trial conduct, missing data and reporting bias.	