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Prevention of tick bites in Australia

Important! Watch this video about how to safely remove a tick¹

<https://www.allergy.org.au/patients/insect-allergy-bites-and-stings>

Preventing tick bites is important for human health

Ticks are parasites that feed off human blood, and they can significantly affect human health.

In Australia, most tick bites pose no medical problems if the tick is safely removed. Tick bites can lead to a variety of illnesses in patients, with the most common being allergic reactions. The Australian paralysis tick can cause several illnesses, severe allergic reactions (anaphylaxis), paralysis, and death. Tick bite prevention avoids the risk of being affected by tick-borne illness.

See *Management of tick bites in Australia* factsheet for information on how to safely manage tick removal to prevent allergic reactions, and how people who are allergic to tick bites should safely manage a tick bite.

Information on other topics about Australian ticks are available in the following factsheets:

- *Australian ticks and the medical problems they can cause*
- *Serious allergic reactions to tick bites*
- *Paralysis from tick bites*
- *Australian endemic tick-borne diseases: Queensland tick typhus*
- *Australian endemic tick-borne diseases: Q fever*
- *Australian endemic tick-borne diseases: Flinders Island spotted fever*
- *Australian endemic tick-borne diseases: Australian spotted fever.*

Knowing how to prevent tick bites is important as vaccines are only available for a few tick-borne illnesses

Of the many tick-borne illnesses worldwide, very few are vaccine-preventable. While there is a Q fever vaccine available in Australia, there are no vaccines available for other tick-borne illnesses known to be acquired in Australia, including Queensland tick typhus, Flinders Island spotted fever, and Australian spotted fever.

In the absence of vaccines, prevention of tick-borne illnesses is important and is guided by a suite of international and Australian recommendations aimed at reducing exposure to ticks. This includes personal protective strategies to prevent tick bites on people and pets, and preventing tick bites around the home.

¹ An allergy project supported by the National Allergy Strategy, Australasian Society of Clinical Immunology and Allergy, Allergy & Anaphylaxis Australia, and Tick-induced Allergies Research and Awareness.

Personal protective strategies to prevent tick bites on people in Australia

Avoid tick infested/endemic areas and contact with ticks

The best way to prevent tick bites is to avoid tick-infested areas. Long grasses and bushland provide ideal environments for ticks, and if people live close to these areas, it is common for people to have Australian paralysis ticks in their garden. Avoid bush and long grass, especially after rain. See *Australian ticks and the medical problems they can cause* factsheet for more information on where ticks are commonly found (endemic) in Australia.

People with recurrent severe allergic reactions to tick bites may consider relocating to an area where ticks are not endemic. Women should try to avoid exposure to ticks during pregnancy and during breastfeeding (see precautionary advice in the factsheet *Management of tick bites in Australia* on the use of permethrin creams during pregnancy and breastfeeding, to kill ticks that can hardly be seen).

Wear appropriate light-coloured protective clothing

Wear light-coloured clothes, which makes it easier to see ticks before they attach to the skin. Wear long-sleeved shirts and long trousers when walking in areas where ticks live. Tuck shirts into trousers, tuck trouser legs into long socks, and wear a wide-brimmed hat if bending over into bushes when gardening or doing bush regeneration work.

Treat clothing and gear with the insecticide permethrin

Clothing treated with permethrin is recommended when people are exposed to tick habitats or when gardening in areas where ticks are commonly found. Permethrin-treated clothing is considered the most effective means of preventing tick bites in tick infested areas. Permethrin wash kits for treating clothes can be obtained from outdoor recreational stores and it is important to follow the label directions.

In addition to applying permethrin products to clothing, clothing commercially treated with permethrin is available in Australia. Studies have shown factory-bonded permethrin-impregnated (i.e. commercially-treated) clothing to be more effective and provide longer lasting protection compared to treating clothes yourself. Medical experts in tick-induced allergies advise people to obtain clothing that is factory-treated with permethrin especially if they have tick-induced allergies, have a high-risk occupation, or engage in high-risk recreational pursuits (e.g. council workers, horticulturalists, bushwalkers, bush regenerators, gardeners).

Use insect repellent

Insect repellents should be applied to the skin prior to entering a tick-infested area.

The following personal insect repellents have been tested and are recommended to prevent tick bites from the Australian paralysis tick: **picaridin** (Aerogard® repellent spray), diethyl-meta-toluamide (**DEET**) (Aerogard® repellent roll-on,) and **lemon eucalyptus** (Bug-grrr Off® natural repellent spray).

Other insect repellents that contain DEET include Tropical RID®, Tropical Aerogard®, BushMan®, Aerogard® repellent roll-on, and other repellents that contain picaridin include OFF!®, Aerogard® repellent spray.

Repellents should be applied, and re-applied, according to the product/manufacture's instructions. Higher concentrations of DEET are not necessarily more effective but tend to be longer lasting. You should seek advice from a pharmacist if you are unsure if any of these products are suitable for you.

Use camp beds when camping

Use camp beds when camping, to elevate the body above the ground/floor to help prevent tick bites.

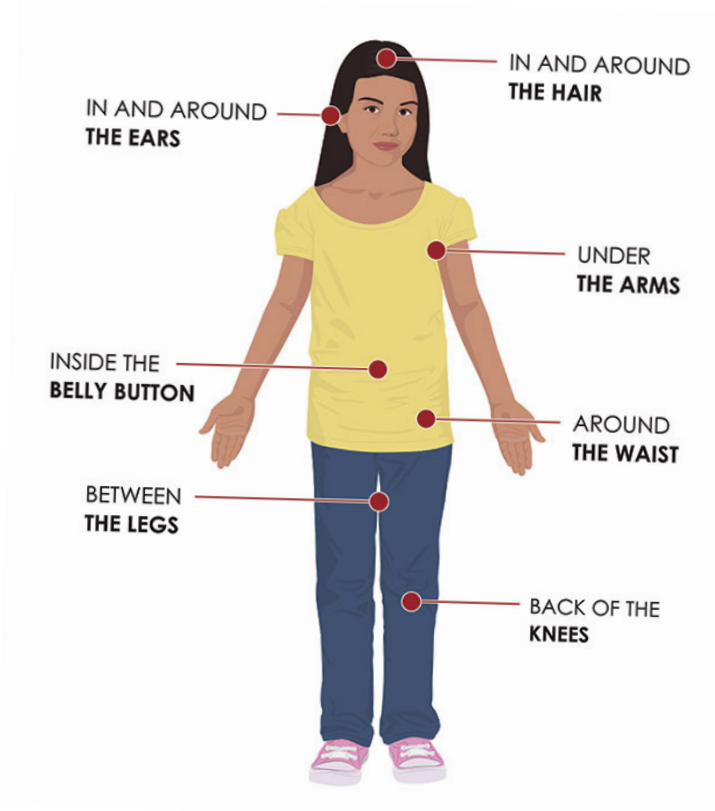
Check clothing for ticks, then place in a hot dryer for 20 minutes, if available, to kill ticks

Brush clothing before coming inside to remove ticks. All clothing should be removed after being outdoors or visiting tick-infested areas and placed into a hot dryer, if available, for 20 minutes to kill any ticks that could be still on the clothing.

Check the body for ticks

Undress and check for ticks daily, checking carefully on the neck and scalp. Ticks can take two hours to attach. The entire body should be checked for ticks of all sizes and stages, paying particular attention to areas behind the ears and the back of the head or neck, especially on children (see Figure 1).

Figure 1: Where to check for ticks



Public domain: Photo courtesy of CDC

Preventing tick bites on pets

Regularly treat pets to prevent tick bites. People should ask their vet for advice, as many dogs and cats die every year from tick paralysis.

Preventing tick bites around the home in Australia

To help prevent tick bites around the home, the following actions are suggested:

- Keep overhanging foliage and leaf litter to a minimum and mow lawns regularly, as ticks do not like dry conditions.
- Install animal-proof fencing to prevent host animals (e.g. bandicoots and rabbits) coming into the yard, where they can drop ticks.
- Eliminate rats.
- Install fencing to prevent children entering tick-prone areas around the home.
- Apply insecticides to areas where ticks occur. Ensure that ticks are mentioned on the insecticide label.
- Engage the services of a professional pest controller, if needed.

Spatial repellents (e.g. clip-on and tube devices which release repellent into the air around them) repel and kill ticks in the laboratory, however, they fail to kill Australian paralysis ticks in field conditions. In addition, commercial ultrasonic pest repellent devices were shown to be ineffective when tested against the Australian paralysis tick. These repellent devices are not recommended for use in the prevention of tick bites from Australian ticks.

How do people know if they have been bitten by a tick?

A tick bite usually looks like a small dark freckle with a scab, or mole, on the skin. A magnifying glass may be helpful to confirm a tick is present.

As ticks are very small and their bites do not usually hurt, ticks can easily be overlooked on the body, especially if the tick is in a sheltered spot. Ticks prefer soft skin and hairy areas. People may be unaware when they are bitten by a tick, as the tick can inject small amounts of saliva with anaesthetic properties so that the person cannot feel that the tick has attached itself. In addition to the bite being painless, often the person will not sense a tick moving on their skin. However, once it starts to feed, it becomes noticeable, enlarging as it becomes filled with blood and eggs.