

## Ticked off: let's stop our dogs and cats dying of tick paralysis this year

Written by Richard Malik, Veterinary Internist (Specialist), University of Sydney

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[Tick paralysis](#) is one of the most common preventable causes of death in [dogs](#) and [cats](#) along the east coast of Australia.

Some [10,000 dogs are affected each year](#) , 5% of them fatally. That means 500 dogs will die from ticks each year, with the remainder undergoing discomfort and suffering.

What's more, there is a great cost to owners. Bills for treatment range from A\$5,000 to A\$10,000 in the most severely affected patients.

In Sydney, the "tick season" begins in September (although there are no hard and fast rules). Caught early, ticks are easy and cheap to treat.

But if undetected, tick attachment can make for an expensive and sometimes tragic trip to the vet. So what's the best way to keep your pet safe as the weather warms up?

### How do ticks paralyse and kill?

Tick paralysis results from a neurotoxin secreted in the saliva of the paralysis tick, [Ixodes holocyclus](#) , as it sucks the blood of mammalian hosts. As the tick feeds, it secretes [holocyclotoxin](#) (tick toxin) into the bloodstream.

This parasite normally lives on native Australian marsupials such as bandicoots, macropods and possums, which have developed some immunity to tick toxin.

Cats, dogs and children are generally not so lucky. After three to four days there is often sufficient intoxication (or envenomation) for the development of muscle weakness and eventually paralysis.

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The tick toxin [prevents the release of packets of acetylcholine](#) neurotransmitter from the motor nerve terminals, which communicate with muscles. Typically, dogs developing tick paralysis first get a change in their bark, which observant owners pick up on. They may also regurgitate food due to weakness of muscles in the throat and oesophagus.

As the concentration of toxin in the blood rises, muscles get progressively weaker, resulting first in a wobbly hind-limb gait, then hind-limb paralysis and eventually flaccid paralysis of all four legs. Owners will often say dogs have “gone in the back legs”.

Paradoxically, cats get agitated and develop a funny breathing pattern with a soft grunt at the end of expiration. Weakness is typically less obvious to their owners, at least early in disease progression.

In advanced cases, the respiratory muscles are paralysed, which [results in death unless the patient is placed on a ventilator](#)

[Human babies and children can also suffer from tick intoxication](#) . Historically, more children have died of (often misdiagnosed) tick paralysis in Australia than from snake bite, although this is rare these days because of modern intensive care practices and use of tick anti-toxin (antibodies against holocyclotoxin).

[The life cycle of the paralysis tick results in this disease being seasonal](#) , especially in New South Wales. Most cases occur in spring and summer, because this is when ticks are more active and numerous. It is also a time when pets' acquired immunity is lowest.

Tick paralysis tends to be especially common in certain areas. For example, the northern beaches of Sydney are a hot spot, with Avalon often being called “tick central”. Many human patients with ticks attached are seen at Mona Vale Hospital in northern Sydney.

In Brisbane, southeast Queensland and the north coast of NSW, the tick season is longer and the disease is even more common. Paralysis ticks are not found west of the Great Dividing

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Range, so pets in Canberra are safe, unless they visit the coast for the weekend.

### New preventative measures

Tick paralysis is an eminently treatable disease, and management is straightforward if cases are presented early.

If you find a tick on your pet, all you need to do is lever it off using the [correct technique](#) (many advocate killing the tick first).

But if the diagnosis is missed, or if owners present affected cats and dogs only when signs are advanced, then [treatment is complex and expensive](#). Tragically, some patients die despite advanced therapy including the administration of tick anti-toxin and assistance with breathing.

Not only is there a real risk of death, but all affected animals suffer from the disease. From a welfare perspective, it's better to focus on prevention, rather than treatment. And because tick paralysis is preventable, it's usually not covered by pet insurance.

Until last year, prevention relied on a daily search of every at-risk pet for ticks, and the prophylactic administration of systemic or topical acaricide or drugs with a tick repellent and/or killing action, such as fipronil or permethrin. These are all applied directly to pets' fur.

But these treatments can be washed off by rain, shampooing or swimming. Permethrin, although quite effective and safe in dogs, is [devastatingly toxic to cats](#). Many were inadvertently treated (and killed) as a result of poor labelling of various canine products.

Last year there was a paradigm shift in tick paralysis prevention. MSD Animal Health released [fluralaner](#) (sold as Bravecto) – a new preventative drug. This is one of the first of a new class of drugs that act on both ticks and other arthropods, including fleas.

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Fluralaner is available through vets or online as a chewable tablet for dogs. A transdermal formulation will soon be available for cats, which can be applied directly to the fur.

One tablet of the correct size will [protect dogs against tick paralysis for four months or longer](#) and be effective also against flea infestation for three months. (Australian studies show the drug is 100% effective against paralysis ticks for four months, and 96% effective for five months.) There are other products that are similarly effective but need to be given once a month.

Since last year's tick season, vets up and down the coast have observed a sharp reduction in the number of dogs presented for tick paralysis. So we are pretty sure these new products are doing exactly what they are supposed to do.

The products would appear to be [very safe to use on dogs](#), with a [wide margin of safety](#). However, as with any drug, you should consider consulting with your vet.

My wish is to cajole as many pet owners to administer these drugs to all at-risk animals before the tick season starts in earnest.

At the moment, the simplest path is to recommend that all dogs get a fluralaner tablet towards the end of August and ideally again in December. A good way to synchronise this might be remember to give the first dose on [Wattle Day](#) (September 1) and then again on New Year's Day.

If every dog owner did this, tick paralysis would be eradicated as a cause of death and suffering in dogs. And soon we will have a similar product suitable for cats, which we can just squirt onto the fur over their necks.

So, get your pet ticked off this spring.

*Richard Malik does not work for, consult, own shares in or receive funding from any company or*

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*organization that would benefit from this article, and has disclosed no relevant affiliations beyond the academic appointment above.*

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