

Ticks: Natural Prevention and Care



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by: Dana Scott and Patricia Jordan DVM

Several dog and cat owners have filed a wave of lawsuits against five companies that manufacture spot-on flea and tick medications this year. Many of the suits claim the companies are using medications that are known to poison animals. This comes right on the heels of increasingly numerous reports of adverse reactions to these products which spiked in 2008.

The Environmental Protection Agency is taking these reports seriously and provided a free public webinar last March to inform the public of their evaluation of these products and it's plans to prevent adverse reactions. The EPA is coordinating with Health Canada and the FDA's Center For Veterinary Medicine in these efforts.

Their expert team of veterinarians recommended the following actions will be necessary to protect the animals that will receive these products in future:

The Agency is pursuing requiring label and/or packaging changes that would result in more narrow pet weight ranges per vial size. This means there will be more categories for the weights of pets so that small, medium, and large dogs get the right amount of product.

Improve labeling to avoid confusion between dog and cat products.

Make labels more understandable. To improve label clarity, EPA will pursue changes such as larger fonts and pictograms.

Make other label changes as needed. These actions may include anything from adding a more complete list of potential side effects to product labels to canceling products.

To address uncertainties about the “inert” (non-active) ingredients in these products and how they might contribute to toxicity, EPA will be pursuing the following actions:

No longer allow the interchangeable use of inert ingredients in these formulations;

Determine whether additional information is needed and, if so, require that information to evaluate certain inert ingredients; and

Disallow inerts that have suspected toxic effects when and if these are identified.

Standardized reporting. To be able to monitor these products better, EPA is pursuing more standardized reporting on adverse effects and sales. This will allow the Agency to more effectively review incidents, and if concerns are raised, give EPA information to act.

Pre-market clinical trials and post-market surveillance. The Agency is taking steps to bring data requirements in line with FDA’s requirements for similar products. This will allow EPA to be more consistent with how FDA regulates similar animal drugs, which includes pre-market clinical trials and a formal post-market surveillance program, and will allow the Agency to more thoroughly assess the safety of the products.

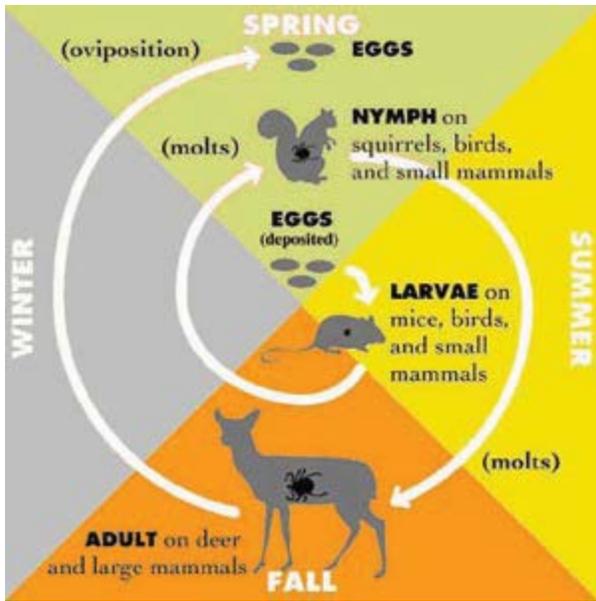
Grant conditional registrations for new products. Future pet spot-on registrations and amendments to new registrations will be restricted by appropriate conditions and time-limitations to allow EPA to continue to ensure the safety of these products after they are available to the public

The EPA appears to be taking these charges seriously but the question is, what change will this have to the health of the dogs who receive these new and improved products? A team of scientists from the Scottish Agricultural College believes that the long term outlook may not be so rosy. Project leader Dr. Jos Houdijk states that it is now time to look for alternatives to the veterinary drugs which farmers in industrialized countries have come to rely on. "When these drugs were introduced in the west in the 1960's we thought they would solve all our problems but we couldn't have been more wrong. Nowadays the parasites are becoming resistant and the consumer is becoming more aware about having products that have a minimum use of drugs. Alternative medicines are coming into fashion again."

Dr. Houdijk's project is one of 16 others which are funded to help Sub-Saharan and South Asian farmers use East African plants used by native herdsman to control parasites in their animals. These plants will be tested for their effectiveness in laboratories in Ethiopia and Scotland.

In light of this, it would appear that the long term solution to tick -borne disease prevention lies in the power of plants and herbs. These plant-based treatments, along with some knowledge of ticks and tick-borne diseases may be your dog's best bet at staying healthy in the ensuing summer months.

Ticks



Ticks are a scary proposition for many

reasons. They are not insects, but members of the arachnid family which includes spiders and scorpions. They are parasites that latch on to a host animal, embed their mouth parts into the skin and suck its blood. This method of feeding makes the tick the perfect vector for a variety of pathogens. In fact, ticks are responsible for at least ten different known diseases in the US, including Rocky Mountain spotted fever, babesiosis, anaplasmosis, erlichiosis and of course, Lyme disease.

Lyme disease is usually carried by the tiny deer tick (along with the western black legged tick and the Lone Star Tick) which is the size of a pin head. This can vary as an engorged tick will be larger if it has had sufficient time to feed. The deer tick is fond of long grasses on the edges of woods. Juvenile ticks normally live at ground level but will climb up onto a blade of grass or the leaf of a plant and wait for a potential host. When it senses a vibration, shadow or a change in temperature or CO2 level, it will stand up and wave its front legs, hoping to catch a ride. If the tick is unsuccessful in finding a host, it will climb back down to the ground to rehydrate and climb back up again afterward. This cycle will repeat until the tick finds a host or until it dies.

In the Northeast and upper mid-west, the deer tick lays its eggs in spring and by late summer, the larvae will hatch. These larvae (which are no larger than a period in newsprint), will wait on the ground for a small mammal or bird to arrive and brush up against it. The larva will then attach itself to the host and begin feeding over the next few days. If the host happens to be infected with the Lyme disease

spirochete the larva will harbour the bacterium in its stomach. When the tick attaches to its next host, the bacterium is transferred into the blood of the host. Mice are very likely to serve as spirochete reservoirs, as are ground-feeding birds. It is important to note that a larva can not be born with the infection: it must pick the infection up from a host.



Deer tick nymph and adult

Once a larva successfully finds a host, it will not feed again until the next stage of its life (the nymph phase). Larvae then, can not spread infection to its host.

Larvae transform into poppy seed sized nymphs in the fall. The nymphs remain inactive throughout the winter and early spring and become active in May. Once a nymph finds a host, it will latch on for four or five days, engorging with blood and swelling to several times its original size. If previously infected in the larval stage, the nymph may transmit the Lyme disease spirochete to its host. If the nymph was not infected as a larva but the host is infected, the nymph will become a vector. In the highest endemic areas (the Northeast and upper Midwest), 25% of nymphs have been found to be carry the Lyme disease spirochete. The nymph prefers vegetation close to the ground. Its preferred hosts are small mammals and birds although pets can be suitable substitutes. Because nymphs are small, they often go unnoticed until they are fully engorged. This makes the nymph most likely to spread Lyme disease and nearly all human cases of Lyme disease come from infected nymphs.

Once engorged, the nymph will drop off its host and molt into an adult in the comfort of fallen leaves. Adult ticks will actively seek new hosts throughout the fall

with peak activity between late October and early November. Adults prefer taller vegetation and are typically seen three feet off the ground on high grasses or on leaf tips. Adults typically use deer as hosts although they are equally happy with humans, dogs or horses. They require a humid, moderate environment, otherwise they will spend more time at ground level rehydrating.

Samples of adult ticks show that 50% carry the Lyme disease spirochete in the highly endemic areas of the Northeast. Adult ticks are less likely to produce Lyme disease because they are the size of an apple seed and easier to detect. Spirochete transmission will not occur unless the tick is attached for more than 36 hours.

Adult females will feed on their hosts for one week while adult males will feed intermittently. Ticks will mate on the host or off and she must mate successfully to complete her blood meal. The female will then drop off her host and lay her eggs underneath leaf litter in early spring, then die. The eggs hatch in late summer, beginning a new cycle.

It is important to note that if you do not live in these tick endemic areas, the timing of peak activity for each life stage of the tick may differ. Information on peak tick activity can be obtained from local and health departments.

A little known fact is that Lyme disease may be spread simply through contact with infected body fluids. Lyme disease can be transmitted directly from an infected dog to another dog although it is unclear whether cross species transfer can occur. In utero transmission can also occur and animals may be reinfected with Lyme disease.

Tick Removal

If you find a tick on your dog, it is not necessarily cause for alarm. Ticks must be engorged from 24 to 36 hours before they are able to transmit Lyme disease and only 25% of nymphs and 50% of adults carry Lyme in the highest endemic areas. This might seem like a high number, but only 5% of dogs who are naturally exposed to Lyme disease become clinically ill. This means that if you find a nymph on your dog, the risk of Lyme disease in endemic areas is 1.25 out of a hundred

and 2.5 out of a hundred if you find an adult tick on your dog. Of course, the risk will be lower in other areas.

Nevertheless, infection can and does happen so the first priority is to get the tick off your dog. To do so, grasp the tick with tweezers or a gloved hand (ticks can carry many rickettsial diseases so you must also protect yourself). Pull backward, slowly and gently. If you persist, the tick will eventually give up and release its bite on your dog. If you pull too hard or rotate the tick, you risk pulling the head off the tick and this can lead to infection or increase risk of Lyme disease transmission. There are numerous specialized tick removal tools available which might be a good investment if you are unsure or how to remove the tick yourself in a timely manner. There are many methods of removal that are popular but ineffectual. Do not use matches, pins, gasoline or the like to encourage the tick to drop off as their use will increase the risk of the tick regurgitating inside your dog, which increases the risk of Lyme disease.

After you remove the tick from your dog, there are steps you can take to further decrease his risk of contracting disease.

Lyme Disease Treatments

The first line of defense against Lyme disease is to boost the immune system. Of course, this is facilitated by feeding a good quality, fresh diet and avoiding vaccines, pesticides and toxins whenever possible. More specific measures would include feeding immune boosting herbs and if you are not already doing so, give these immediately following exposure to ticks. The three herbs that are most effective for helping the body to fight infections naturally are Cat's Claw, Siberian Ginseng and Echinacea.

Next, you can help prevent bacterial growth from the tick bite. Garlic, Licorice and Skullcap are very effective for protecting against bacteria as will B vitamins.

Allimax Nutraceuticals in conjunction with the Health Healing and Hope Foundation completed a clinical study on the effects of allicin (garlic extract) on the *Borrelia burgdorferi* spirochete which showed a reversal of the cystic form of *Borrelia burgdorferi*.

Licorice root contains up to 33% antibacterial compounds on a dry-weight basis and contains saponins which increase the availability of other antibiotic compounds.

Supplementing with probiotics such as acidophilus can also ensure that the healthy bacteria in the digestive tract are plentiful enough to offer sufficient protection.

Homeopathy will also offer effective solutions for both the prevention and treatment of Lyme disease. Ledum is commonly used, as is the Lyme disease nosode (*Borrelia burgdorferi*). A 1M dose of Ledum can be effective if given immediately after tick removal and should be followed up with daily administration of the nosode.

Supplemental herbs may be of value to ease inflammation or muscle pain. Grape-seed extract and White Willow Bark may help to control inflammation.

Lyme Disease Prevention

Ticks like to lay their eggs on dead leaves so it is prudent to rake up the leaves in your yard each fall. In the summer months, it is a good idea to keep your grass short as long grasses are a haven for ticks. If you have gardens with shrubbery or dense vegetation, make certain the paths are clear.

Common Signs of Lyme Disease

Know the signs of Lyme Disease and be ready to act fast if you suspect your dog may be at risk.

- *Recurrent arthritis/lameness that lasts 3–4 days, sometimes accompanied by loss of appetite and depression*
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- *Reluctance to move or a stiff, painful gait*

Beneficial nematodes may also be used to kill ticks and other garden pests such as grubs. The microscopic *S. Feltiae* is commercially available and will feed on ticks in your yard. Planting Beauty Berry Bush will also work to repel ticks.

Walking your dogs in safe areas will help to limit tick exposure. Avoid grassy areas border on woods, as this is the tick's favourite domain. Once you return from a walk, be certain to run a wide toothed flea comb over your dog. Ticks do not attach to your dog immediately as they will search for the best location in which to feed. Combing the ticks out is easier and safer than removing attached ticks. Frequent bathing will also help you to deter and identify ticks.

There are many natural topical applications that will deter ticks from attaching to your dog. The essential oils Rose Geranium and Pennyroyal (Tickweed) are easy to acquire and have been used with very good results. To make your own tick repellent, combine about 20 drops of either essential oil with two tablespoons almond oil (you can use vegetable oil but almond oil contains sulphur which is also a tick repellent). Mix them together and place a few drops on your dog or on his collar (these oils are not meant to be used with cats or pregnant animals).

Mountain Mint may also be effective as it contains bug and tick repelling pulegone. Grind the herb up and apply it to your dog before his walk to protect him. Again, do not use this herb on pregnant animals.

Another effective parasite dust can be made from the following herbs:

Powdered Rosemary

Powdered Rue

Powdered Wormwood

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- *Swollen joints that are warm to the touch*
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- *Pain in the legs or throughout the body*
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- *Fever, fatigue and swollen lymph nodes*

Mix the herbs in equal parts in a shaker top jar and store in a cool, dark place. Dust the coat with this powder before venturing into tick infested areas, working it into the coat with your fingers.

There are also natural commercial products available which are safe and non toxic. BiteBlocker® is a safe product which contains Coconut Oil, Soybean Oil, Purified Water, Geranium Oil, Glycerin, Lecithin, and Vanillin. Natural Chemistry offers tick spray as well as repellent shampoos and yard sprays using cinnamon oil, cedar wood oil, clove oil and sodium lauryl sulphate.

There are also electromagnetic products that look promising. The Anibio Tic-Clip and the shoo-TAG™ provide electromagnetic barriers which can last months or years without the need for frequent topical applications. The convenience and effectiveness appear very promising.

With the controversy that is finally surrounding traditional commercial tick products such as Frontline and Advantix, it is comforting to know that there are effective measures you can take to protect your dog this summer. You can forgo dangerous and toxic products by keeping your dog healthy, avoiding areas frequented by ticks and tick vectors, and through the use of safe and effective natural repellents and treatments.

