

# Prevention Tips

by Doug Fearn

## *What is Lyme Disease?*

Lyme disease is a bacterial infection caused by the bite of a tiny deer tick that carries the infection. If not properly diagnosed and treated promptly, it can become crippling and debilitating.

## *Who is at risk for Lyme disease?*

Anyone who works or plays outdoors is at risk. Deer ticks like cool, moist environments, like tall grassy areas around the edge of yards or along roads. They also like moist garden areas, around shrubs and in wooded areas. Outdoor workers, gardeners, campers, hikers, people who hunt or fish, golfers who stray into the rough, people who live in the city but go for a picnic in a park are all at risk. The list is endless. You can be at risk right in your own back yard. You can be at risk when mowing the lawn or picking up leaves in the fall. Children are especially vulnerable since they tend to run and play without caution.

You are at risk anywhere you see deer. Deer bring the ticks to your yard; birds and other animals also help transport the ticks. But the principal culprits in spreading the actual disease are mice. A deer tick infected with the Lyme bacteria and seeking a blood meal will bite a mouse. The tick transmits the Lyme bacteria to the mouse while feeding. Deer ticks can also transmit other disease organisms at the same time including *Babesia*, *Ehrlichia*, *Bartonella*, Rocky Mountain spotted fever, and *Mycoplasma*. Ticks are often described as cesspools of diseases. Other deer ticks sucking on the infected mouse will become infected, thereby spreading the diseases. Mice have been found with many deer ticks attached to them. The spring and summer months are the “Pryme Tyme for Lyme,” although you can be bitten any month of the year when the weather is mild. Ticks are active when the temperature gets above 40 degrees.



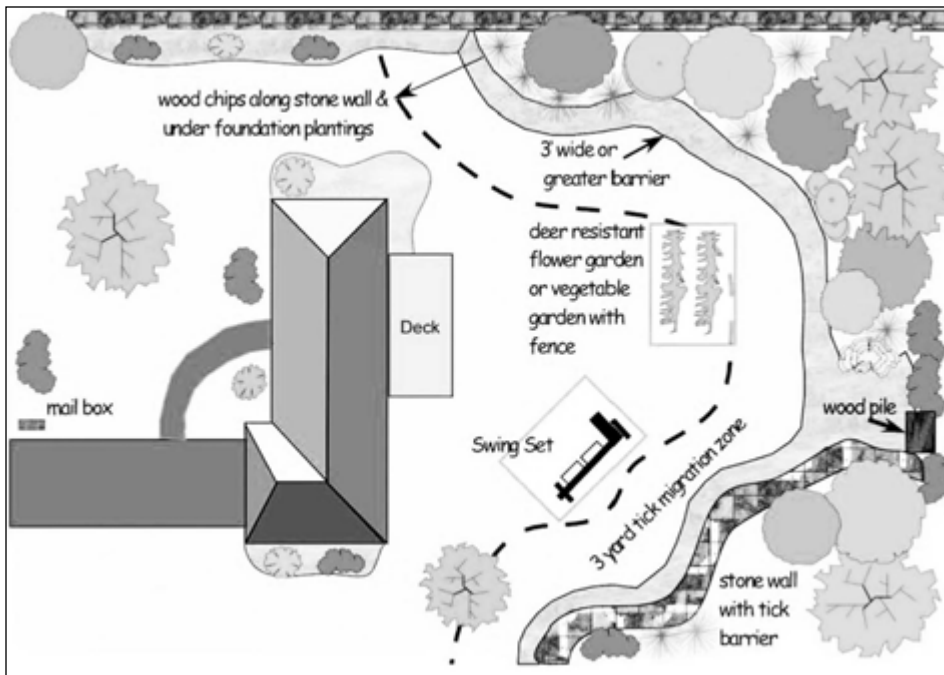
*[Editorial comment: recent research has implicated other small animals such as squirrels and shrews as reservoirs of Lyme disease bacteria.]*

chips or gravel where lawns butt up against wooded areas can reduce the number of ticks on grassy areas by creating a drying barrier.

## *Prevention in your yard*

- Keep your lawn mowed and cut down brushy areas. Remove enough trees so the lawn gets sunshine to create a less inviting environment for deer ticks. Remove brush and leaves around your house and the edge of the yard. Trim bushes away from your house. When working in your yard, avoid touching the ground with your bare hands. Avoid touching plants and bushes as much as possible.
- Modify your landscape to create Tick-Safe Zones. Ticks need moist environments; they die quickly where it's dry. So you can use a few tricks to keep them away from areas of the yard where you spend the most time. Laying down wood

- Inspect pets closely before they come into your house as they are particularly vulnerable and frequently carry deer ticks. See your veterinarian for protective chemicals that will kill deer ticks.
- Use Damminix® tubes to kill the deer ticks.<sup>1</sup> Damminix® consists of biodegradable cardboard tubes with cotton balls inside that are treated with permethrin. Mice will carry the cotton back to their nest where the permethrin will kill the deer ticks but not the mice. It is highly targeted. Tests on Long Island, NY, have shown that Damminix® will reduce the number of infected deer ticks by more than 90% year after year. Maxforce® Tick Management System also targets mice and uses the insecticide fipronil.<sup>2</sup> Certified applicators are available in 13 states.



(Image courtesy Kirby Stafford III, Connecticut Agricultural Experiment Station)

- Have your yard sprayed with permethrin. This is a complement to the Damminix® tubes. Professionals spray only the tick habitat areas, edges of lawns, not the entire lawn, for example.
- Another prevention device is called a 4-poster. It is baited with corn and has four roller-applicators mounted on it. When deer eat the grain, they get dosed with an acaricide that kills the ticks on them.<sup>3</sup>

differences among various types of socks and make sure the fabric is tight enough so nymphal ticks cannot pass through them.

- Tuck your shirt into your pants and tuck your pants into your socks. This will help prevent a tick from crawling under your clothing and getting on to your skin. Wear light colored clothing and gloves. The light color makes it easier to see a tick crawling on your clothing or

gloves. Wear a hat to protect your head from deer ticks especially when working around bushes.

- Consider wearing Rynoskin protective underwear.<sup>4</sup> It is made of a closely knitted but breathable stretch fabric that ticks apparently have difficulty penetrating. It is especially helpful for hunters and those outdoors when the weather is cooler. It is available in long-sleeved tops, long bottoms, socks, hoods and gloves.
- Spray your boots, socks, pants, sleeves, gloves, and hat with permethrin tick repellent spray.<sup>5</sup> Do not apply it to your skin and apply it outdoors. The permethrin spray has the same active ingredient as the Damminix® tubes mentioned above, only in a lower concentration. It not only repels deer ticks, but it will kill them. It is relatively long-lasting. Follow all label directions carefully.

### *What is permethrin?*

Permethrin is a synthetic chemical developed to simulate the natural chemical pyrethrum that protects plants from insect attack. Permethrin is not a natural product. It is different from regular insect repellents in that it will kill insects and deer ticks as

### *Other prevention tips*

- Avoid tick-infested areas whenever possible. Avoid sitting directly on the ground or on fallen logs; use a blanket or other ground cover.
- When walking near bushes or trees, avoid touching them. Walk in the center of trails. Avoid sitting on stonewalls or woodpiles as these are places deer ticks are likely to be found.

### *Clothing*

When outside, wear long sleeves, long pants, and closely-knitted socks. Look at the



### **The 4-Poster**

Studies by Agricultural Research Service and cooperators have shown that after two to three years, use of the 4-poster technology will control from 92 to 98 percent of the free-living tick population around the devices. Depending on the size of the herd, each device will treat deer on approximately 40 to 50 acres.

[Photo by Scott Bauer, ARS]

well as repel them. Also, the labels state that one treatment lasts two weeks. It was developed in the 1970s by the Department of Agriculture and has been used successfully since then.

### *Skin protection*

Avon makes Skin-So-Soft Bug Guard Plus IR3535<sup>®</sup>, but tests by Consumers Union and a group from the Mass General Hospital (published in the New England Journal of Medicine) showed this product not to be at all useful in repelling insects. DEET was reported to be the best repellent.<sup>6</sup> Insect repellents containing DEET are widely available and offered under many brand names. They can be used on skin or clothing. Many authorities suggest you use repellants with less than 10% DEET on the skin of children. All repellents should be applied to the skin carefully. Avoid getting the repellents in eyes. Adults should apply repellents to children. Follow label directions carefully. DEET repels insects by its vapors, so applying DEET to clothing can be effective.

### *After returning indoors...*

After returning inside, do a careful tick check. Most deer ticks are tiny and may be hard to see. If possible, have someone else inspect you especially in the areas where it is difficult for you to see. Be sure to check your

## **Tick Kit Sales Support Nonprofit**

The Lyme Association of Greater Kansas City sells tick removal kits that include the Pro-Tick Remedy tick remover tool.

To order, send a check for \$4 payable to Lyme Association to: Lyme Association, P.O. Box 25853, Overland Park, KS 66225.

## **Did you know?**

DEET is an excellent mosquito repellent, but a very poor tick repellent. Permethrin causes ticks to curl and die on contact. In a field test conducted by the Minnesota Insect-Borne Disease Education Council in Jay Cook State Park in Northern Minnesota, they found that the permethrin products out-performed the DEET-containing tick repellents. A walking shoe was sprayed with Duranon 0.5% permethrin; three weeks later, it was tested against its matching mate that was sprayed with Deep Woods Off 35% DEET. The ticks that made contact with the Duranon shoe immediately rolled up and dropped off. The ticks on the soaking wet DEET saturated shoe continued to crawl unimpaired.

hairline. Parents should check their children whenever they have been outdoors and might have been exposed to ticks. Some parents give their boys a buzz haircut so it is easier to see a tick in the hair.

If you do find a deer tick attached, remove it carefully. Use fine pointed tweezers and grasp the tick as close to the mouth parts as possible. Pull gently straight out. DO NOT put petroleum jelly, alcohol or any irritant on the tick or try to get the tick to release by putting a lit match on it. Any agitation might cause the tick to regurgitate the Lyme bacteria into you. Save the tick in a plastic bag or vial with a moistened cotton ball for identification and testing. After removing the tick, see your doctor promptly. If the tick is infected with the Lyme bacteria, early diagnosis and antibiotic treatment is the key to recovery. Delay will allow the Lyme bacteria to disseminate into tissue in the body where the antibiotics are less effective.

After returning inside, wash and dry your clothes immediately. Do not even let them lie on the floor since a deer tick might be attached and get loose in your house. Some people put the clothes in a trash bag then spray with permethrin and tie up the bag. This should kill the ticks or other insects before washing. Running the clothes through a timed 30-minute hot cycle in a dryer will also kill ticks. They cannot survive being dried out.

Have a great DEER TICK-FREE year outdoors!

Adapted with permission from the booklet "The Basics," published by the Lyme Disease Association of Southeastern Pennsylvania, [www.lymepa.org](http://www.lymepa.org).

### References

- 1 Damminix is manufactured by EcoHealth, Inc., 110 Broad Street, Boston MA 02110; Tel: 617.742.2400.
- 2 Maxforce - See [www.maxforcetms.com](http://www.maxforcetms.com)
- 3 The 4-poster can be obtained through the American Lyme Disease Foundation, Inc., Mill Pond Offices, 293 Route 100, Somers, New York 10589; Tel: 914.277.6970 Fax: 914.277.6974. For more information see [www.aldf.com](http://www.aldf.com).
- 4 Rynoskin garments can be ordered from Har-Son, Inc., PO Box 10772, Midwest City, OK 73140 or by calling 866.934.7546, 405.737.2494, or fax 405.737.2478. For more information see [www.rynoskin.com](http://www.rynoskin.com).
- 5 Permethrin spray is available under several brand names including Sawyer, Duranon, and Permanone. It can be found in retail stores such as REI and veterinarian offices. It is also available through the manufacturer's website [www.tickinfo.com](http://www.tickinfo.com) or call 800.749.8425.
- 6 Sprays containing DEET are widely available under many brand names including: OFF!, Deep Woods OFF!, Cutters, and Ben's. Most authorities suggest you use only sprays containing less than 10% DEET for application to children's skin.