

## **Deer Ticks, Diseases They Carry, Prevention and Treatment**

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The natural world of southern New England is a wonderful resource to be protected and enjoyed. However, this area also includes Deer Ticks, which carry diseases that threaten your health and well being, and can even threaten your life. This paper includes information about Deer Ticks, the diseases they can carry, how you can protect yourself from them, and your healthcare in the event you contract one or more of the diseases.

This paper is for information only and is not meant to be used for self-diagnosis or as a substitute for consultation with a health-care provider. If you have any questions about the diseases described, consult a health-care provider.

#### Deer Ticks

Deer Ticks are also known as Blacklegged Ticks. Like all ticks, they have three stages: larva, nymph and adult. Each requires one vertebrate blood meal for its development. Larva usually feed on small mammals, such as white-footed mice, voles and shrews, for three to five days before dropping to metamorphose into nymphs. Nymphs also feed on small mammals. Adult females feed primarily on white-tailed deer, but can feed on other medium and large sized mammals. They then fall to the ground and lay several thousand eggs before dying.

Deer Ticks are more common on shrubs over three feet high and in wooded areas as opposed to grassy or low shrub areas.

#### Deer Tick Diseases

There are three diseases currently carried by Deer Ticks in southern New England. You can get one, two, or all three diseases from a single tick bite. There are no vaccines for these diseases. Symptoms may not show up for days, weeks, or even months. Not all of the diseases can be treated with the same antibiotic or antibiotics.

#### Lyme Disease

Lyme disease is a spirochete bacterial infection. Typical symptoms include fever, headache, fatigue and a characteristic skin rash. The rash may start as a round red area, more than three inches in diameter, around where the tick bite occurred. The center of the red area may become white, and other red areas may develop. If left untreated, the infection can spread to the joints, the heart and the nervous system. Most cases of Lyme disease can be treated successfully with a few weeks of antibiotics.

Once you have had Lyme disease, you will always test positive for it whether you have it again or not. Unfortunately, however, testing positive does not mean that you have developed protective antibodies.

## Ehrlichiosis

Ehrlichiosis is a bacterial infection that attacks the white blood cells. Most infections are mild, but some can be severe and life threatening. Common symptoms include high fever, fatigue, major muscle aches, severe headache and rarely a rash. The risk of severe illness and complications is probably highest in older persons. Complications include abnormally low numbers of white blood cells, abnormally low numbers of platelets, and kidney failure. Delayed treatment can result in death.

## Babesiosis

Babesiosis is a potentially fatal disease caused by the Babesia parasite. The protozoan parasite enters and kills blood platelet cells and other red blood cells, and causes them to burst and release their hemoglobin into the blood stream. When their multiple young hatch, one can have fevers of 103-105 degrees until the young enter healthy cells to repeat the process. At that time, the fever drops precipitously with incredible, dehydrating sweats. The symptoms are somewhat similar to malaria. Complications include very low blood pressure, reduced liver function, severe hemolytic anemia and kidney failure. When 10% of ones' blood is infected, one is in very serious trouble. Delayed treatment can result in death.

Complications and death are most common in persons who are elderly, those with weakened immune systems and those whose spleens have previously been removed. Most people, however, can have little or no symptoms, and may not even know they had the bug.

## Prevention

No one wants to risk getting these diseases, but we all want to continue to enjoy the out-of-doors. There are a number of steps to be taken to minimize the risk of getting bitten by a Deer Tick, and to minimize the risk of getting sick even if one is bitten. The following steps may be inconvenient, but they are far less inconvenient than contracting a very serious illness.

- Deer Ticks commonly live around bushes and tall grass and in the woods. During activities in such areas, wear light-colored clothing so ticks are more easily seen and removed. Check your clothing for ticks regularly.
- Tuck your light colored pants into your white socks, so any climbing ticks will remain visible. Wear a hat and tie your hair back.
- Spray your clothing and exposed skin with an insect repellent containing at least 20% DEET, especially around your ankles and legs. Do not allow

insect repellent containing DEET to come in contact with skin protected by sunscreen.

- Consider spraying some of the clothes that you use regularly with a product containing permethrin. Repel Permethrin is available at URE Outfitters in Hope Valley, RI as well as other outlets. Permethrin kills ticks that come in contact with it. Do not allow it to get on your skin. Follow label directions carefully. Be especially cautious when using them on children.
- Each time you come in from such outdoor activities, put all your clothes in the washer, take a shower, and check yourself for ticks. This should be done each and every time, even if it means two or three times the same day. You don't want ticks to drop off on your couch only to bite you later. It may be inconvenient, but it is far less inconvenient than contracting one or more of the three diseases carried by ticks in this area.
- At the end of each day that you have been in tick-prone areas, check your entire body for ticks, and have your spouse or a "buddy" check you too. Ticks are commonly found behind the knees, between fingers and toes, under the arms, in and behind the ears, and on the neck, hairline, and top of the head. Check places where clothing presses on the skin.
- For a Deer Tick infected with the Lyme disease parasite to threaten people, it must first feed on a small mammal such as a mouse, through a deer and back to a tick. You can interrupt this process on your property by placing Tick Tubes in strategic locations. The cardboard tubes contain cotton that mice use in their nests. The cotton contains permethrin that kills ticks that come in contact with it, so Tick Tubes reduce the general tick population as well as reducing the incidence of ticks carrying the Lyme disease bacteria. Tick Tubes are available at the Agway in Westerly, RI. And Big M Home Center? Follow the directions on the placement of the Tubes on your property. If you want a professional to protect your property using this method, call Craig Martin at Bartlett (401.539.6178).
- Deer fencing can prevent deer from entering your property. It comes as black plastic mesh that can be strung between poles or trees. Even if it does not surround your property, fencing where they typically enter the property can diminish their numbers.
- If you find a tick attached to you, remove it immediately. Removing a tick before it has been attached for more than 24 hours greatly reduces the risk of infection. Use tweezers, and grab as closely to the skin as possible. Do not try to remove ticks by squeezing them, coating them with petroleum jelly, or burning them with a match.

## Treatment

If you think you might have any of the symptoms of Lyme disease, Babesiosis or Ehrlichiosis, see your primary care physician or go to the emergency room of your hospital immediately. Do not wait to complete something you had planned. Go. The inconvenience is nothing compared to the inconvenience of suffering the symptoms of any of these diseases.

If your physician or the hospital orders blood tests for one or more of these three diseases, demand that they test for all three. If they resist, have a screaming fit until they relent or you are arrested. Yes, it is that important. If you are just tested and treated for Lyme disease, everyone will think you are on the road to recovery although it may be discovered a week or two later that other things have been eating you alive.

Lyme disease is currently treated with Doxycycline, which also treats Erlichiosis. If Amoxicillin is used to treat Lyme disease, however, Doxycycline is also needed to treat Erlichiosis. Babesiosis currently requires a combination of two other antibiotics, Azithromycin and Mepron..

If the doctor prescribes antibiotics and your symptoms worsen, go to the hospital emergency room. Ask for an infectious disease specialist to be brought in on a consulting basis to review your symptoms and the amount and kind of antibiotics with which you are being treated.

## Conclusion

It is a wild world out there. Tick-borne diseases threaten ones' health, but by taking appropriate precautions, one can enjoy nature's beauty in relative safety.