

# Tick Borne Disease Strategies for Campers

To stay disease free, it's important for camp operators and campers/camp families to clearly understand their tick encounter risks and preventive solutions

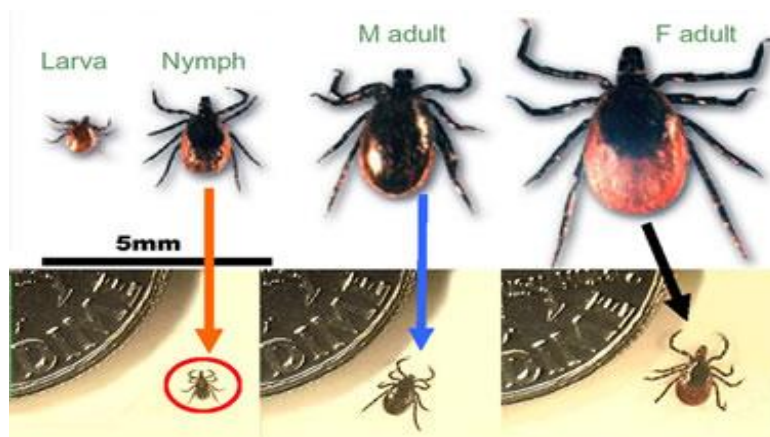
Tick infestation issues have changed significantly since the 1980's when **blacklegged ticks (aka. deer ticks)** first really came onto the scene, and **Lone Star tick** populations exploded in places they never were found before. **American dog ticks** and wood ticks, once the most common ticks, have taken a backseat to these two other human biters in much of the USA. These are the top ten facts that everyone needs to know in order to stay safe:

## Top 5 Tips for Camps

1. Get the facts. Learn to identify ticks and the diseases they may carry (see "10 Essential Facts" below).
2. Focus on preventing the spread of disease through ticks using daily tick checks and consider the use of tick repellent clothing. Post tick check reminders/charts in shower and sleeping areas.
3. When ticks are found, assess whether or not they might pose a risk to the carrier (see "4 Essential Skills" below).
4. Include the right tick-removal tools (pointy tweezers) in all of your first aid kits.
5. Train front-line staff in tick identification and how to avoid tick habitats. Ensure that health care staff are trained in tick removal.

## Disease Transmission by Ticks

Ticks also carry a wide variety of **disease-causing germs** and they transmit these agents while bloodfeeding. They are **obligate blood feeders** (blood is all they feed on), and they typically stay attached to their host for days or a week to complete feeding (in contrast, mosquitoes are quick-in/quick-out blood feeders).



*Blacklegged tick is the correct common name for the tick popularly known as the "deer" tick. Size relative to a dime is shown above.*

## **10 Essential Tick Facts**

1. All ticks crawl up (think protection from the ground up).
2. All ticks (including deer ticks) come in small (larvae), medium (nymphs) and large (adult female/male) sizes.
3. Ticks can be active even in the winter.
4. Ticks carry a variety of [disease-causing microbes](#).
5. Only deer ticks transmit Lyme disease bacteria.
6. For most tick-borne diseases, you typically have at least 24 hours to find and remove a feeding tick before it transmits an infection.
7. Some ticks can be hard to see or feel--deer tick nymphs look like a poppy seed on your skin.
8. The easiest and safest way to remove a tick is with a pointy tweezer.
9. Tick repellent clothing with permethrin is best for preventing tick bites.
10. Tick bites and tick-borne diseases are preventable.

## **Four Essential Steps**

### **#1: Identify Ticks Correctly**

While not completely foolproof, the method of recognizing the striking coloration and size of the adult stages make them fairly easy to identify, while the immature stages are often so small that it can be difficult even to see the tick, much less the distinguishing characteristics. At the very least you will need at least a 3X magnifier to see specific characteristics on adult ticks, and you may need the same magnification just to see the immature stages. If possible, magnify the tick 10-30 times normal size in order to get a good look.

### **#2: Remove Ticks Safely**

To safely remove attached ticks, first disinfect the area with an alcohol swab. Next, using pointy tweezers or tick removal tool, grab the tick "head" as close to the skin as possible and simply pull straight out. Remember to disinfect the bite site again after pulling the tick out.

**Consult your physician if you have recently removed an imbedded deer tick.**

### **#3: Consider Tick Risks**

There are commercial **laboratories** that will test ticks to detect the presence of various pathogens, especially Lyme disease-causing bacteria.

## **UMass Extension Tick Diagnostic Lab**

Attn: Tick Assessment

Holdsworth Natural Resources Center, 160 Holdsworth Way

University of Massachusetts, Amherst, MA 01003-9285

Use exact address to ensure delivery.

**For specific information, contact: Dr. Craig Hollingsworth, (413) 545-1055**

While not all ticks carry disease-causing microbes, some can be heavily infected. It's usually a good idea to save the tick and make a note as to when it was removed.

- On average, about 1 in 5 nymphal-stage deer ticks and 1 in 2 adult-stage deer ticks carry Lyme disease bacteria.
- Tick infection rates can vary by location.

#### **#4: Conduct a Daily Tick Check**

Prompt removal of most species of ticks can prevent transmission of tick-borne pathogens. It typically takes more than 24-36 hrs of attachment for nymphal deer ticks to transmit Lyme disease bacteria, and even longer to transmit Babesia parasites. Pathogen transmission delays after tick attachment are a fairly common phenomenon with the exception of tick-transmitted viruses.

- The best time to do a full body tick check is right after ending outdoor activity.
- A more convenient and still ok time would be as you prepare to shower or bathe before going to bed.
- Good lighting, a tick check buddy (for those hard-to-see places), or strategic use of a mirror are helpful resources
- Reminders to do a daily tick check should be posted in both shower and sleeping areas.

#### **Tick Repellent Clothing**

DEET-containing products were thought to be a good option for preventing tick bites. However, recent tests have shown that although DEET is an excellent repellent for mosquitoes, black flies and gnats, it's only effective at repelling ticks for brief time periods after being applied and then must be re-applied. A better option for repelling ticks are "Clothing Only Repellents" such as those containing Permethrin (found in Permanone® Products, Sawyer Clothing-Only Repellent® and Repel®). These products contain about 0.5% Permethrin, much less than the amount used to treat head lice on children or Scabies mite infestations of the skin. In the case of tick repellents, using more of the active ingredient than this is unnecessary, and can even lead to chemical overexposure.

You can purchase tick repellent clothes containing permethrin (easiest and most cost-effective) or use sprays and soaking kits to treat your own clothes with permethrin tick repellent. Commercially treated clothing remains tick repellent through 70 wash cycles while treat-at-home sprays and kits provide effective repellency for up to 6 washings. Brands include Insect Shield, ExOfficio; Bugs Away. Whichever method you choose, wearing tick repellent clothing makes tick bite protection and disease prevention as easy as getting dressed in the morning!

#### **Resources**

- [Stop Ticks!](#)- Centers for Disease Control and Prevention
- [Tickcounter](#) (The University of Rhode Island, Thomas Mather, Ph.D.)
- [Lyme Disease Facts](#) - Centers for Disease Control and Prevention
- American Camping Association

# Strategies For Camp Operator and Staff - Preventative Solutions for Reducing Tick Encounter

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## Staff Training

Camp staff should become familiar with the most common human-biting ticks in your area, the habitats where each type is found at camp, and when each type is active. Activities with campers should be planned, as much as possible, to reduce tick encounters. Staff should always encourage daily tick checks and taking any attached tick to the camp nurse for closer inspection and to have on record a tick-bite incident report. It's also important to remember that not all tick-bites originate at camp.

## Tick Habitats

Different species and stages of ticks have quite different host associations and environmental requirements. This means that they are likely to be distributed in different places across the landscape and encounter rates can differ greatly. Most ticks fear drying out the most-some are more sensitive than others. Immature stages (larvae and nymphs) are typically more common in leaf litter, while adult stages may crawl higher on vegetation to latch on to their hosts. Shady edges are favorite spots for ticks to hang out. Avoiding tick habitat at camp can be difficult but there are plenty of ways - such as always walking in the middle of maintained trails - to limit tick encounters.

## Tick Control Options

Camps should consider integrated tick control methods, especially if they are noticing multiple species latching onto campers and staff. Options include knockdown products that can be applied to the highest tick encounter areas, like frequently-used trails and campsite perimeters. Currently, these are usually products in a class known as synthetic pyrethroids which can be sprayed using high pressure or applied as granules. A few minimal risk natural products show some promise, at least against nymphal deer ticks in small field trials.

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