



National  
Institute  
for Health  
Development



# Attention, tick!

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Where might ticks be found?

Why to avoid ticks?

How to remove a tick?

What to do after a tick bite?

How to avoid a tick bite?

What diseases do ticks transmit?

## Where might ticks be found?

**Ticks prefer shady and fairly humid areas with rich undergrowth or mulch, primarily areas with high grass.**

There are more ticks near animal paths, especially around rodent nests.

### **Areas where ticks can be found:**

- mixed forests and groves
- suramen forests
- bushy areas
- pastures and meadows
- fields and forest edges
- a city's green areas – parks, recreation areas and cemeteries

Many ticks can also be found in home gardens.

Ticks are less common in bogs, swamps and dry heath forests.

**Tick season in Estonia lasts, on average, from April to November.** Ticks are active when the air temperature remains above freezing. In mild winters, ticks can also be found in January-February.

## Is it possible to distinguish ticks by their external features?

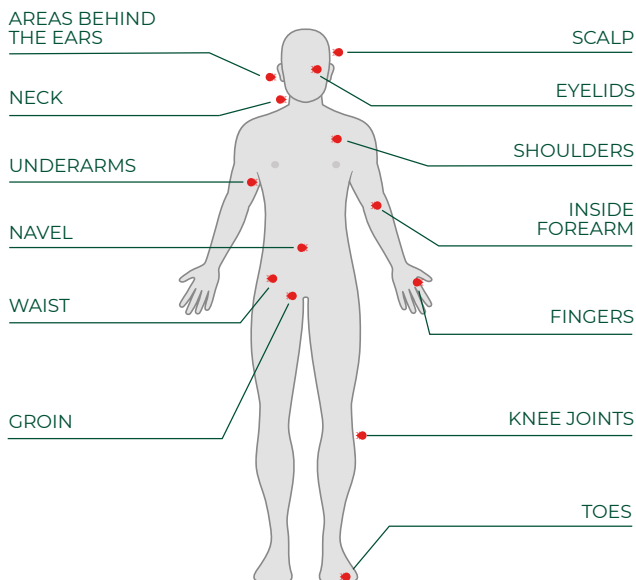
There are two hard-bodied tick species capable of transmitting different pathogens to humans: **castor bean tick** (*Ixodes ricinus*) and **taiga tick** (*Ixodes persulcatus*). These two tick species look very similar and it is impossible to distinguish them from each other.

**Ticks can be distinguished only by sex and developmental stage.** At each stage of development, the tick is of a different size. Female ticks are reddish brown, males and small nymphs are brownish grey, almost black coloured. The smallest, light-coloured larvae.



## Where tick bites?

Ticks look for soft and warm places on the human body, where the skin is more delicate and well-blooded, and where the tick can stay unnoticed by its victim for longer while feeding.



## Why avoid ticks?

**Ticks spread infectious diseases.** The tick itself does not suffer from these diseases, but transports and stores the viruses and bacteria that cause tick-borne diseases in humans.

It is impossible to determine visually whether a tick is carrying a disease. Therefore, it is wiser to avoid all ticks.

## How do ticks transmit diseases?

Tick-borne diseases are transmitted by tick bites. Pathogenic viruses, bacteria, etc., are excreted in the saliva of the tick. Saliva is used to attach to animal or human skin, and is released into the blood throughout the sucking process. Tick larvae and nymphs are potentially as infectious as adult ticks.

**The longer a tick stays attached to the skin, the more pathogens it might transmit.**

# What diseases do ticks transmit?

**Estonia belongs to an endemic region with a high incidence of tick-borne encephalitis and Lyme borreliosis.**

**Tick-borne encephalitis** is the most dangerous tick-borne disease. It was described for the first time in 1930s.

- The virus reaches the human body in just a few hours, as it is located in the salivary glands of the tick and enters the human blood with the first portion of the tick's saliva.
- The tick-borne encephalitis virus severely affects the central nervous system, can cause paresis, paralysis, memory and coordination disorders. More than 70% of patients require hospital treatment. Long-term neurological complications may also persist.
- Tick-borne encephalitis might be acquired through a tick bite and alimentarily via raw milk or the consumption of its products.
- It is not directly transmitted from person to person, except from mother to foetus.
- Lifelong immunity to tick-borne encephalitis develops.
- There is no specific treatment for this disease, treatment is aimed at relieving the symptoms.
- Tick-borne encephalitis is the only tick-borne disease that can be prevented by vaccination.

**Tick-borne borreliosis or Lyme disease** is the most common tick-borne disease. Its causative agent was discovered in the 1980s.

- It takes at least 12 hours to get the infection from a tick, but usually more than 1 to 2 days, because the bacteria are located in the tick's midgut and escape with saliva only after the first portions of ingested blood are acquired.
- It may take 2 to 4 weeks for the first symptoms to appear. The main and first symptom is erythema migrans – an expanding red spot around the bite – although sometimes this may be absent. Fever, headache, weakness, dizziness, joint and muscle pain, and weight loss may also appear even months after a tick bite.
- The infection may only be acquired from a tick bite.
- Person to person transmission does not take place.
- No immunity develops and the person may become infected again.
- The disease responds to antibiotic treatment; however, in case of severe complications, hospitalisation may be required.
- There is no vaccine available.

# Other diseases, transmitted by ticks in Estonia

## Human granulocytic anaplasmosis

In the Estonian tick population, the infection has been known to have spread since at least 2006. In humans, the infection is often asymptomatic or mild, with flu-like symptoms (fever, headache, muscle and joint pain) occurring 1–2 weeks after the tick bite. However, more severe respiratory or neurological damage may occur. Skin rash is very rare.

The disease is treated with antibiotics.

## Borrelia miyamotoi disease

In Estonia it was first detected in ticks collected during the period 2008–2010. The disease is characterized by fever (may exceed 40 °C), headache, muscle and joint pain, fatigue, nausea and chills. Symptoms appear about 1 to 2 weeks after the tick bite and bouts of fever may recur. The disease can also be accompanied by neurological disorders. Skin manifestations are uncommon. The disease is treated with antibiotics.

## Tick-borne rickettsiosis (Helvetica spotted fever, aneuruptive fever)

*Rickettsia helvetica* has been associated with disease in humans since 1999. It is mostly asymptomatic and does not cause any maladies. However, general flu-like symptoms like fever, myalgia and arthralgia, along with breathing difficulties, which are mostly self-limiting, may occur. Erythema migrans and red spots on the skin may also develop. In most severe cases, mainly in immunosuppressive individuals, meningitis may develop. The disease is treated with antibiotics.

## Neorlichiosis

The agent, *Neorlichia mikurensis*, is associated with cases of disease in humans from 2010, and was detected in Estonian ticks collected during the period 2006–2009. In healthy individuals no symptoms develop; however, headache, nausea and vomiting, myalgia and neck stiffness, chills, night sweats and recurrent fever episodes may occur. Also, localised or migrating pain in the lower jaw, neck, knees, elbows, ankles, upper body or limb muscles may occur. There is also a skin rash that resembles nodular erythema or rosacea.

The disease is treated with antibiotics.

# How to properly remove a tick?

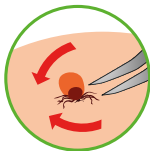
It is important to remove a tick as soon as possible – this will reduce the risk of getting an infection.

- Grasp the body of the tick as close to its head and skin at a bite site as possible, avoiding squeezing the tick body. Squeezing can enhance transmission of infectious agents.
- Do not apply any alcohol, benzene, nail polish remover, oil or soap while the tick is attached to the skin.
- Fine-tipped tweezers are better choice for removing ticks. Standard larger-sized sewing thread is also suitable.
- Remove the tick by simply pulling or turning it slowly. When doing so, be sure to keep in mind that the tick's body must not be squeezed.

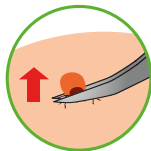


## TICK REMOVAL WITH TWEEZERS

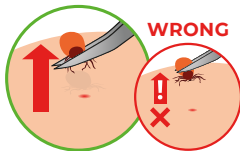
STEP 1



STEP 2



STEP 3

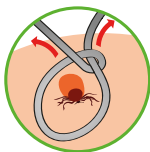


Tick removal tweezers should be thin and have curved ends to prevent the tick's body from being squeezed.

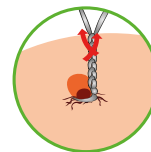


## TICK REMOVAL WITH THREAD

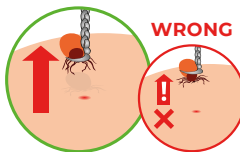
STEP 1



STEP 2



STEP 3



If tweezers or other tick removal tools are not available, try removing the tick using sewing thread.

## What to do after a tick bite?

- **Do not rub, squeeze or suck the bite site.**
- **The bite site should be washed with soap and water or disinfectant only after the removal of the tick.**

During the tick removal process, parts of the tick may remain in the skin. It is usually part of the tick's head or the jaw and does not pose a serious health risk. After a while, the body pushes out the foreign body itself, as if it were a splinter. It might be accompanied by redness of the bite area and a small abscess, which indicates that the body's immune cells are working hard to remove the foreign body.

## When to contact a doctor?

**If you find a tick crawling on or attached to you, it is not necessary to seek medical attention – a tick moving across human skin is not dangerous.**

You can also remove the tick from the skin yourself or with the help of a partner, using handy tools.

### **Symptoms, when to contact a doctor after detecting a tick bite:**

- dizziness and weakness
- fever, photosensitivity
- head, back or muscle pain
- rash, redness and/or swelling at the bite site
- other health implications occurring after a tick bite

It might take over three weeks before symptoms of infection appear.

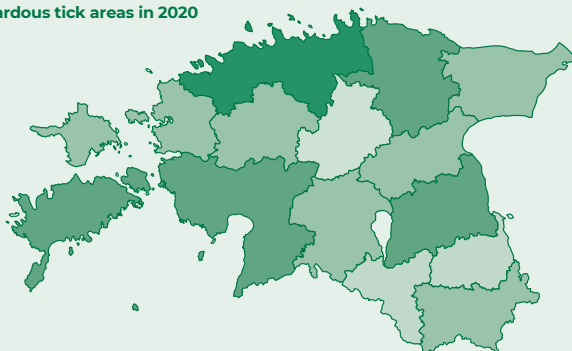
# How to avoid a tick bite?

To avoid a tick bite keep in mind three aspects: clothing, location and observation.

- When moving about in nature, select clothing that is as tight as possible.
- Prefer light clothing, as it makes it easier to see ticks.
- Use suitable anti-tick products.
- Avoid places with high vegetation. If possible, move in the middle of a trail, away from the grass and bushes.
- Always examine yourself several times after visiting nature, to be sure that you haven't brought any ticks home with you.



Hazardous tick areas in 2020



● very high ● high ● average ● low

Interactive tick map ([www.puugiinfo.ee](http://www.puugiinfo.ee)) where you will see the most up to date information regarding the tick threat in various areas across Estonia.