



# NATIONAL RIFLE ASSOCIATION

## What is Lyme disease?

Lyme disease is an infectious disease caused by a bacterium carried by mammals and birds. It is transmitted by the bite of an infected tick. If it is transmitted to humans it can occasionally lead to serious illness if not quickly diagnosed and treated. Lyme disease was given its name in 1975 after a cluster of cases were reported at 'Old Lyme' in Connecticut, USA. The disease has now been reported in a number of European countries including Great Britain and, although still rare, the number of reported cases is rising each year.

## What are ticks?

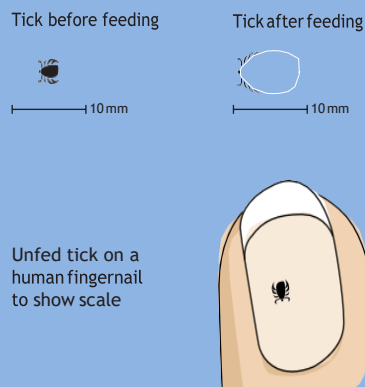
Ticks are tiny, parasitic, spider-like creatures commonly found in woodland and heathland areas. They feed mainly on blood from mammals, such as deer and sheep, and birds but will occasionally bite humans. Ticks become infected with the bacteria that can cause Lyme disease when they feed on animals carrying the bacterium in their blood. There are many different species of tick living in Britain, but humans can become infected with Lyme disease if they are bitten by 'hard-bodied' ticks – sometimes known as 'deer', 'sheep' or 'wood' ticks.



Magnification of the hard-bodied tick *Ixodes ricinus*

Humans are bitten by both 'nymph' and 'adult' ticks which have eight legs (the tiny larvae have only six). Adults vary slightly in colour, ranging from reddish brown to dark brown or black, and differ in size, depending on the age and sex of the tick, and whether or not it has fed.

An unfed adult female tick is around 3 mm long and is small, oval and flat. After feeding female ticks can grow to up to 11 mm long. Males are smaller, at around 2.5 mm, and the nymphs smaller still, at around 1.5 mm.



## Where are ticks found?

Ticks are found throughout Britain, and are common in woodland, heathland and moorland areas. They are less frequently found in coniferous forests. Areas inhabited by deer or livestock are particularly suitable habitats. Late spring, early summer and autumn are peak times for feeding - ticks are often found at these times seeking suitable hosts in areas of bracken and long grass.

## Who is at risk?

The risk of contracting Lyme disease in Britain is still very small, although anyone coming into contact with ticks through work or leisure activities may be exposed to tick bites that could potentially transmit Lyme disease. At least 50% of infections acquired in the UK are known to have been acquired in southern counties of England. High risk areas for Lyme disease are considered to be the New Forest, Thetford Forest, Exmoor, the South Downs, North York moors, the Lake District and the Scottish Highlands and Islands. However, any area where hard-bodied ticks are present should be regarded as a potential risk area.

Although cold temperatures reduce tick activity, in warmer areas of Britain and during mild weather conditions elsewhere, ticks will be active throughout the year.

## When are the risks highest?

Peak times of year for tick activity are late spring, early summer and in the autumn. The risks of being bitten are higher at these times. If you are bitten the risk of contracting Lyme disease can be reduced by removing the tick promptly (see overleaf for advice on how to do this). Ticks usually take between three and five days to complete their feed and the risk of an infected tick transmitting bacteria is low during the first 24 hours that it is attached to the skin.

## Find out more...

More information can be found on the following websites (search for Lyme disease):

Health Protection Agency: [www.hpa.org.uk/infections](http://www.hpa.org.uk/infections)

NHS Direct: [www.nhsdirect.nhs.uk](http://www.nhsdirect.nhs.uk)

Health Protection Scotland: [www.hps.scot.nhs.uk](http://www.hps.scot.nhs.uk)

EU Concerted Action on Lyme Borreliosis: [www.vie.dis.strath.ac.uk/vie/LymeEU/leaflet.htm](http://www.vie.dis.strath.ac.uk/vie/LymeEU/leaflet.htm)

Tick removers can be purchased from [www.bushwear.co.uk](http://www.bushwear.co.uk)

## How can I avoid being bitten?

If you are likely to be exposed to ticks you should ensure that your skin is covered. Wear trousers instead of shorts - preferably made from light-coloured, closely woven, smooth material. Gaps between footwear and trousers should be avoided - if possible wear gaiters. Consider using a spray-on insect repellent on trouser legs and to protect any uncovered areas of skin.

Inspect your clothing and skin regularly for ticks - they can be brushed off easily before becoming attached to the skin. Check again carefully when you undress - ticks often attach themselves in skinfolds, behind the knees and in warm, moist parts of the body such as the armpits or groin.



Always follow the manufacturer's instructions and don't use on large areas of skin.



## What should I do if I am bitten?

Don't panic! If you do find a tick attached to your skin you should remove it as soon as possible. Even if the tick is carrying an infection it is very unlikely to transmit it in the first few hours of its feed, so early removal is a very effective prevention measure.

It is best to use small tweezers or forceps to remove the tick. Grip the head of the tick as close to your skin as possible. Pull steadily upwards and away from the skin, taking care not to squeeze or crush the body of the tick. Clean the bite area afterwards with hot, soapy water or an antiseptic wipe.

Specially designed and inexpensive 'tick removers' can be bought from pet shops and veterinary practices - these may be useful for people working in areas where they will have frequent exposure to ticks.

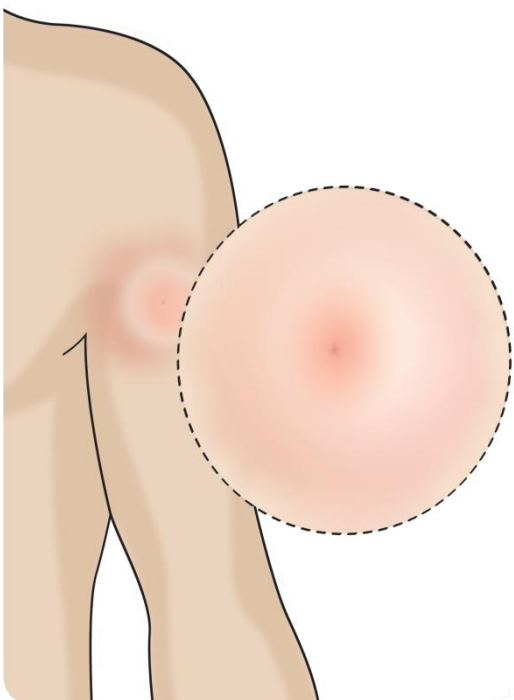
## How do I know if I am at risk of Lyme disease?

If any of the signs or symptoms described in the box below appear within days or weeks of known tick bites or exposure to ticks, you should seek medical advice from your GP. Tell your GP that you have been exposed to ticks so that they can consider the possibility of Lyme disease. Diagnosis is difficult because symptoms can mimic those of other diseases, and is easiest when there is a skin rash - however this does not occur in all affected people.

The GP may take a blood test to assist in the diagnosis. It is important to emphasise that a 'positive' blood test does not mean that you have Lyme disease, or that you will necessarily develop the disease. It only signifies that you have been exposed to the infecting organism and your body has produced antibodies to the bacteria concerned.

Do not cover an attached tick with volatile oils, perfume, alcohol, Vaseline or other chemicals, and never apply heat (e.g. using a lit cigarette or match).

These actions can stimulate the tick to regurgitate potentially infected material and so may increase the risk of transmission of the *Borrelia* bacteria that can cause Lyme disease.



An early symptom of Lyme disease is a gradually spreading pink rash around the site of bite

Lyme disease or *Lyme borreliosis* [bore-EL-ee-OH-sis] is caused by bacteria called *Borrelia*. Early symptoms can develop within weeks. A characteristic skin rash (erythema migrans) may appear a few days after an infected bite. It begins as a red spot at the site of the bite and enlarges as a faint pink ring some 2-3 cm wide leaving a central clear area that results in a 'bull's eye' appearance. It can expand and move around the body. This rash may not occur in all cases, however, or it may be so faint that it escapes notice. Other early signs to look out for are flu-like symptoms, including tiredness, chills, fever, headache, muscle and/or joint pain, swollen glands in the groin, armpit or neck and blurred vision. At this stage the infection responds well to treatment with appropriate antibiotics.

If early symptoms are not recognised, in a small number of cases secondary complications can sometimes develop weeks, months, or even years later. These are rare, but the joints, nervous system and, even more rarely, the heart may be affected. However, like the earlier symptoms, these complications respond well to treatment, so prompt and correct diagnosis and appropriate treatment are important. Symptoms of these secondary, but rare, complications include shifting joint pains, muscle pains, abnormal fatigue, a sensation of burning, numbness of the skin, persistent headache and localised loss of muscle power.