



Lyme Disease: Signs and Symptoms

What is Lyme disease?

Lyme disease, or Lyme borreliosis, is a bacterial infection spread to humans when they are bitten by an infected tick. It's estimated there are 2,000 to 3,000 new confirmed cases of Lyme disease in England and Wales each year, although not all cases are confirmed by laboratory testing. About 15% of cases are acquired while people are abroad.

Lyme disease can be treated effectively if it's detected early on. But if it's not treated or treatment is delayed, there's a risk you could develop long-lasting symptoms.

How you get Lyme disease

Lyme disease can be transmitted by the bite of a tick infected with *Borrelia burgdorferi* bacteria.

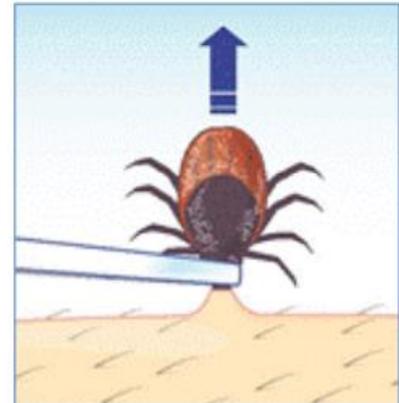
Ticks don't jump or fly, but climb on to your clothes or skin if you brush against something they're on. They then bite into the skin and start to feed on your blood. Being bitten doesn't mean you'll definitely be infected as not all ticks carry Lyme-causing bacteria. Generally, you're more likely to become infected if the tick remains attached to your skin for more than 24 hours. But **ticks are very small and their bites are not painful**, so you may not realise you have one attached to your skin. It is a good idea to check yourself (or each other) for ticks after walking through high-risk areas such as woodland or long grass.



Removing ticks

If you do get bitten by a tick

- remove it as soon as possible to reduce any potential risk
- the safest way to remove a tick is to use a pair of fine-tipped tweezers, or a tick removal tool
- grasp the tick as close to the skin as possible
- pull upwards slowly and firmly, as mouthparts left in the skin can cause local irritation
- clean the bite area with antiseptic or soap and water and keep an eye on it for several weeks for any changes

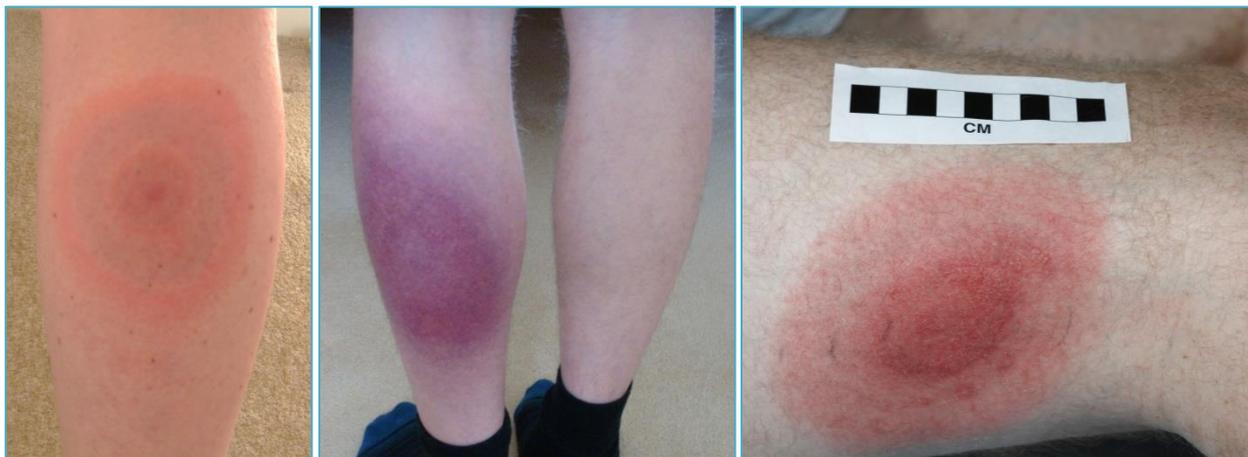


A small red circular patch may appear soon after a tick bite and persist for a few days; this is normal. If the red patch does not disappear within a couple of weeks or begins to spread outwards, it may indicate Lyme disease and you should contact your GP for advice.

Early symptoms of Lyme disease

Many people with early-stage Lyme disease develop a **distinctive circular rash** at the site of the tick bite, usually around 1 to 4 weeks after being bitten. This is known as 'erythema migrans'. The rash is often described as looking like a bull's-eye on a dart board. The affected area of skin will be red and the edges may feel slightly raised.

The size of the rash can vary significantly and it may expand over several days or weeks. Typically it's around 15cm (6 inches) across, but it can be much larger or smaller than this. Some people may develop several rashes on different parts of their body. **However, around one in every three people with Lyme disease do not report seeing a rash.**



As well as (or instead of) a rash, people with Lyme disease may experience any of the following:

- multiple flu-like symptoms such as fever and sweats, chills, fatigue, neck pain or stiffness, headaches, joint or muscle pains
- paralysis of the facial muscles, typically only on one side of the face (Bell's palsy)
- nerve pains, which may be sharp or prickly

Later symptoms

More serious symptoms may develop several weeks, months or even years later if Lyme disease is left untreated or is not treated early on. These can include:

- pain and swelling in the joints (inflammatory arthritis)
- problems affecting the nervous system – such as numbness and pain in your limbs, paralysis of your facial muscles, memory problems and difficulty concentrating
- inflammation of the membranes surrounding the brain and spinal cord (meningitis) – which can cause a severe headache, a stiff neck and increased sensitivity to light

and rarely:

- eye problems, including redness, pain or altered vision
- patches of abnormal skin known as acrodermatitis chronica atrophicans
- heart problems – such as inflammation of the heart muscle (myocarditis) or sac surrounding the heart (pericarditis), heart block and heart failure

Some of these problems will get better slowly with treatment, although they can persist if treatment is started late. A few people with Lyme disease go on to develop a range of chronic symptoms despite treatment. It's not known exactly why this happens, but researchers are looking into possible causes.

When to see your GP

You should see your GP promptly if you feel unwell with any of the symptoms described above after being bitten by a tick, or if you think you may have been bitten. Remember to let your GP know if you've spent time in areas where ticks may live. This includes woodland, grassland, heaths and urban parks and gardens or allotments. Take this leaflet with you if you are unsure what to say.

Diagnosing Lyme disease is often difficult as many of the symptoms are similar to other conditions. A spreading erythema migrans rash appearing some days after a known tick bite

should be treated with appropriate antibiotics. If you don't have a characteristic rash but do have other symptoms of Lyme disease, blood tests can be carried out. Blood tests can be negative in the early stages of the infection. You may need to be re-tested if Lyme disease is still suspected 4-6 weeks after a first negative test result.

If you have long-lasting symptoms, you may be referred to a specialist in microbiology, infectious diseases, rheumatology or neurology as appropriate for further investigation and management.

Treating Lyme disease

If you develop symptoms of Lyme disease, you will normally be given a course of antibiotic tablets, capsules or liquid. Most people will require a three-week course, depending on the stage of the illness. If you are prescribed antibiotics, it's important you finish the course even if you are feeling better, because this will help ensure all the bacteria are killed.

There is currently no clear agreement on the best treatment for persisting symptoms because the underlying cause of the symptoms may vary. If your symptoms are particularly severe or prolonged, you may be referred to a specialist for further investigation and management of your symptoms.

Be wary of internet sites offering alternative diagnostic tests and treatments that may not be supported by scientific evidence or be appropriate.

Further information

Information for medical professionals on the diagnosis and management of Lyme disease:

<https://www.nice.org.uk/guidance/ng95>

More detailed information for patients can be found on the NHS Choices website:

<http://www.nhs.uk/Conditions/Lyme-disease>

PHE information leaflets on preventing tick bites and removing ticks:

<https://www.gov.uk/government/publications/tick-bite-risks-and-prevention-of-lyme-disease>

Lyme Disease Action has a website with information for patients:

<http://www.lymediseaseaction.org.uk/>

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