

Do other infections accompany Lyme disease?

Several other infections can sometimes be carried by ticks. If these are also passed into the bloodstream, they may cause illness and complicate the clinical picture. See LDA leaflet, "Tick-borne diseases in Britain".

Will my doctor treat me for Lyme disease?

If you have this diagnosis your doctor should treat you. A worsening of symptoms called a Jarisch-Herxheimer reaction may complicate the start of treatment. This does not occur in every case but if it should occur further medical advice should be taken. Lyme disease is an infectious disease and the primary aim of treatment is eliminating the infection by the use of antibiotics. Other medicines may also have a place in treatment for relief of individual symptoms. Response to treatment varies from patient to patient.

Can Lyme disease be prevented?

There is no vaccine available at present, but there are many measures you can take to protect yourself from this infection. Be aware of the risk and use sensible measures to avoid being bitten. These include wearing suitable clothing and frequently checking the skin for ticks. Adults are more commonly bitten on the legs, whereas children are more commonly bitten around the head and neck. It is also essential to know how to remove a tick properly if it is attached to your skin and to seek prompt medical advice if you notice any symptoms. Lyme Disease Action publishes a leaflet about tick removal.

How do I know if I've got Lyme disease?

Lyme disease is not an easy diagnosis to make. This is especially so if the patient has no rash and does not recall a tick bite. If a patient remembers a tick bite and then becomes unwell, Lyme disease is a possibility. There is no diagnostic test that is absolutely reliable in excluding a case of Lyme disease. Negative test results, therefore, do not necessarily mean it is absent. After all investigations have been done, a diagnosis can be made on clinical grounds alone.

Does Lyme disease affect mental functioning?

Like some other diseases caused by spirochaetes, the infection can cross into the nervous system and cause symptoms of mental dysfunction. If the illness proceeds to this neurological stage, it is termed neuroborreliosis. This serious condition needs skilled treatment. See LDA leaflet, "Neuropsychiatry of Lyme disease".

Further Information

All our leaflets are available free of charge from our website where you can find out more about Lyme disease, including links to many other resources.

www.LymeDiseaseAction.org.uk

You can also write to:

Lyme Disease Action,
PO Box 235, Penryn, Cornwall TR10 8WZ. UK

Including a donation/SAE will help us in our work for people affected by Lyme disease.

Please don't bin this leaflet - pass it on.

Disclaimer: Lyme Disease Action publications are not a substitute for professional medical advice and are intended as general information only. If you have or suspect you may have Lyme disease you should consult a doctor.

© Lyme Disease Action, this revision September 2012
Registered in England and Wales
Registered Charity Number 1100448
Registered Company Number 4839410

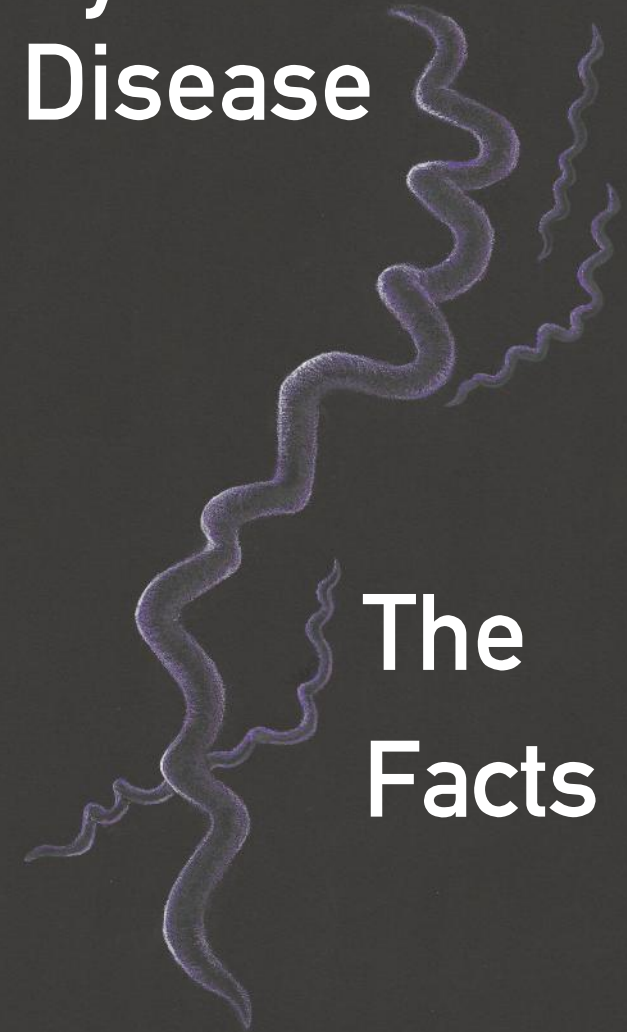


Cover image - *Borrelia burgdorferi*, approx 10,000x actual size, LDA library LDA0001.3



Lyme Disease

The Facts



What is Lyme disease?

Lyme disease, also known as Lyme borreliosis, is an infectious disease caused by the bacterium *Borrelia burgdorferi*. The disease is classified by the World Health Organisation as an infectious or parasitic disease. *Borrelia burgdorferi* belongs to the genus Borrelia. Borrelia are members of a larger family of spiral-shaped bacteria called Spirochaetes.

There are many species of Borrelia bacteria worldwide. However, not all of them cause disease. At least three species are currently known to cause disease in the UK. They are *Borrelia burgdorferi sensu stricto*, *Borrelia afzelii* and *Borrelia garinii*. They are very closely related and all cause a broadly similar disease process, although different species can be associated with different symptoms, e.g. *B. garinii* with neurological symptoms. Any infection caused by Borrelia bacteria can be termed a 'borreliosis'.

How does Lyme disease infection occur?

In nearly all known cases it is transmitted to humans following the bite of a tick. In a population of ticks, only some will carry the infection. The risk of infection is greater the longer the tick remains attached. Tick bites are usually painless, so may easily go unnoticed.

Who gets Lyme disease and Why?

In the UK, Lyme disease is carried by the sheep tick, *Ixodes ricinus*, the hedgehog tick, *I. hexagonus* and the fox tick, *I. canisuga*. These ticks feed on deer and other wild mammals and birds. Ticks can be found across the country in woods, fields, moorland and heath, and also in urban parks and gardens. People who spend more time unprotected in the countryside are



Ixodes ricinus adult female

likely to be at greater risk. Cases of the disease are widespread and it is possible that the full picture of tick distribution is not yet fully understood. Anyone can get Lyme disease if bitten by an infected tick.

How does Lyme disease start?

Following the bite of an infected tick, symptoms may develop after an incubation period. This can last between one day and four months, although the average is about two weeks after the tick bite. Lyme disease can be latent and active infection can be triggered later by other factors such as stress and other diseases.

What are the commonest symptoms at onset?

Early symptoms can include feeling unwell, flu-like symptoms, rash, headache, stiff neck, muscle pain, and increased sensitivity to temperature, sound and light.

What are the symptoms of Lyme disease?

Lyme disease can affect any part of the body and cause many different symptoms. The commonest symptoms include feeling unwell, flu-like symptoms, extreme fatigue, poor sleep pattern, muscle pain and weakness, nerve root pain and sensory disturbances, joint pain, upset digestive system, headache, facial palsy, meningitis-like symptoms and disturbances of the central nervous system. In some cases a characteristic, expanding 'bull's eye' rash appears on the skin. This rash is called erythema migrans or EM. UK figures suggest that about 1 in 3 cases do not see the rash. The symptoms known to be associated with Lyme disease are many and diverse, and can vary from mild to very severe.



Erythema migrans rash

Symptom patterns vary from person to person, and patients may have few or many symptoms.

How common is Lyme disease in the UK?

In 2011 there were in the region of 1300 laboratory-confirmed cases in the UK. The Health Protection Agency (HPA) and Health Protection Scotland acknowledge that as clinical notifications are not

included it is not possible to estimate the number of cases of Lyme disease which are misdiagnosed or unreported. Since full recovery may not take place in many cases, the total number of people affected is accumulating.

Is there a test for Lyme disease?

There are several laboratory tests that aim to detect this infection. However, none of them are absolutely reliable in excluding Lyme disease. The most common blood test detects antibodies specific to *Borrelia burgdorferi*, but measurable quantities of antibodies are sometimes not produced until several weeks or even months after infection, if at all.

Negative blood tests can occur in people given inadequate early treatment with antibiotics or steroids. There is also some evidence that antibody levels fluctuate and that they decline in very long standing infection, but more research is needed.

What is the treatment for Lyme disease?

Treatment is with appropriate antibiotics and is most effective if started as early as possible in the disease. If an EM rash occurs, treatment should be started immediately without waiting for the result of a blood test, which at this early stage is likely to be negative. The optimum length of treatment is not known. There are no treatment guidelines specific to the UK and international guidelines differ. The failure rate in trials of conventional 10-28 day treatments ranges from 0% to 60%. European guidelines for neuroborreliosis point out the lack of European treatment trials longer than 28 days. There are documented cases of relapses, in some cases shortly after treatment ceases and in some cases months later.

Is Lyme disease a new illness?

No, it was known in Europe in the early 20th century, and was carried by Neolithic "Ötzi the Iceman". However, it does appear to be becoming more common.