

### Do other diseases accompany Lyme disease?

Several other infections can sometimes be found in tick secretions. If these are also passed into the bloodstream, they too may establish and complicate the symptoms and outlook. 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. However, many doctors are not familiar with treating Lyme patients. In this case, you may do better to see a doctor who is familiar with the disease. Always try to keep your GP involved and informed. 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. However, there are many measures you can take to protect yourself from falling victim to this nasty infection. Prevention relies on being aware of the risk that ticks present and using sensible measures to avoid being bitten. These measures include wearing suitable clothing and frequently checking the skin for ticks. 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 an episode of 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 exclusionary tests have been done, the diagnosis can be made on clinical grounds alone.

### Does Lyme disease affect mental functioning?

Like some other diseases caused by spirochaetes, there is a possibility that the infection can cross into the central nervous system. If the infection proceeds along this course then symptoms that affect mental function may occur. If the illness proceeds to this neurological stage, it is termed neuroborreliosis. This serious condition needs skilled treatment. See LDA leaflet, "Lyme borreliosis in Neurology and Psychiatry".

### 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](http://www.LymeDiseaseAction.org.uk)

Leaflets are also available from:

Lyme Disease Action,  
PO Box 235, Penryn. 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.*

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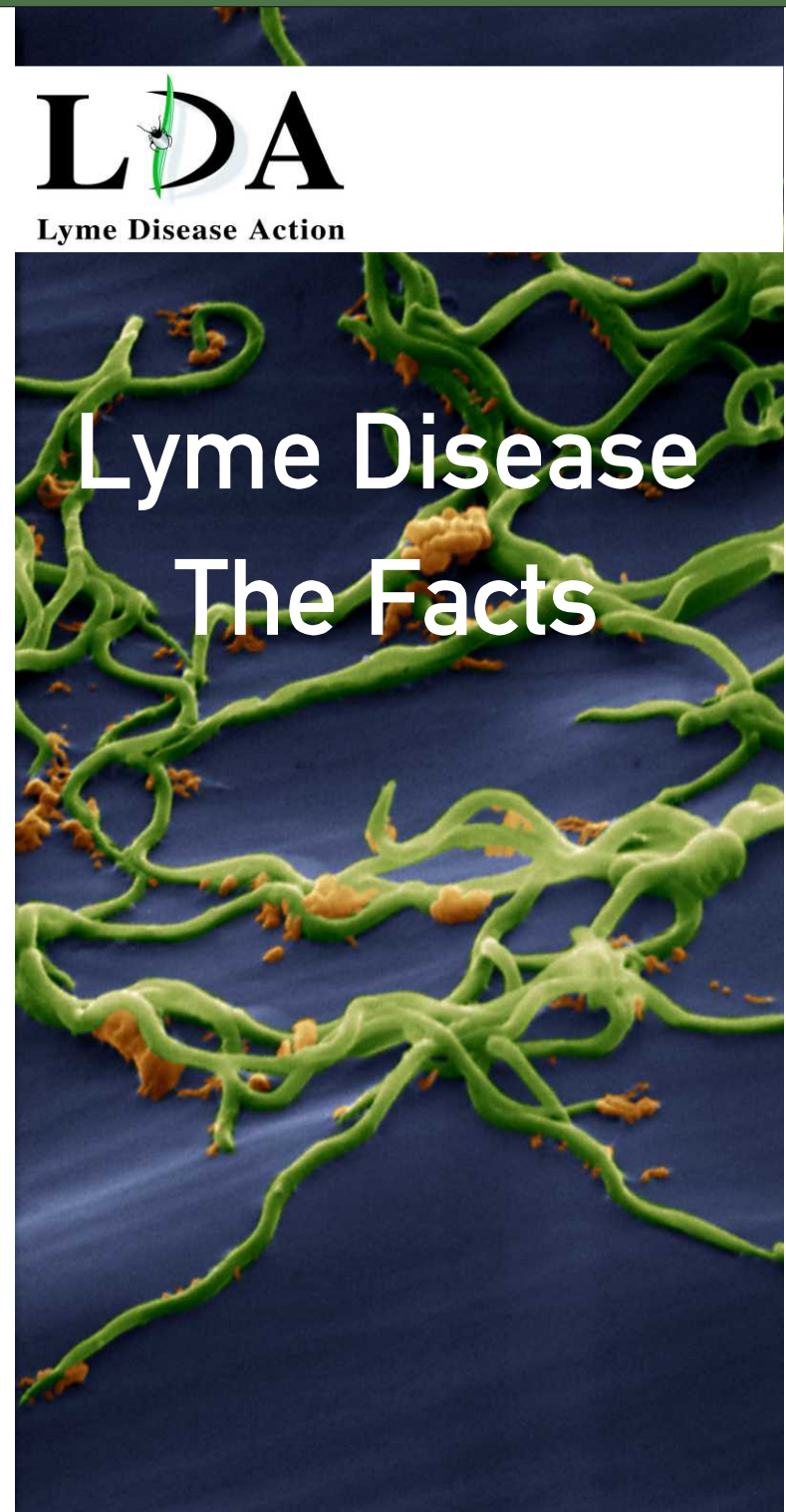
Cover image - electron micrograph of *Borrelia burgdorferi* (coloured green), magnified approx 10,000x



# LDA

Lyme Disease Action

# Lyme Disease The Facts



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## 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 bacterial genus 'Borrelia'. *Borrelia* are members of a larger family of spiral-shaped bacteria called Spirochaetes.



*B.b. highly magnified*

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 by the bite of a tick infected with these bacteria. 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*. This tick feeds on deer and other wild mammals and birds. Ticks can be found across the country in woods, fields, moorland and heath, and sometimes parks and gardens. People who spend more time unprotected in the countryside are likely to be at greater risk. However, 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?

A clinical case of Lyme disease occurs when a person is infected by a tick bite. Symptoms may follow after an incubation period that can last between two and thirty days. However, on some occasions, the bacteria do not cause disease straight away. The bacteria can enter a phase in which they do not cause symptoms but are still present. They may still have the potential to cause active disease at a later stage.

## What are the commonest symptoms at onset?

Early symptoms can include feeling unwell or 'flu-like', EM rash, headache, stiff neck, muscle pain, tender glands and sensitivity to temperature, sound and light levels.

## What are the symptoms of Lyme disease?

Lyme disease can affect any part of the body and cause many different symptoms. The commonest symptoms relate to the person feeling unwell, having flu-like symptoms, extreme tiredness, muscle pain, muscle weakness, joint pain, upset digestive system, headache, facial palsy, meningitis-like symptoms, disturbances of the central nervous system and a poor sleep pattern. 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 around 40% of cases see the rash. The symptoms known to be associated with Lyme disease are many and diverse, and can vary from mild to very severe. Symptom patterns vary from person to person, and patients may have few or many symptoms.



*Erythema migrans rash*

## How prevalent is Lyme disease in the UK?

In 2008 there were in the region of 1100 laboratory-confirmed cases in the UK. The Health Protection Agency (HPA) acknowledges that confirmed cases are

only a portion of the total number. The HPA and Health Protection Scotland estimate there could be up to 6,000 new cases diagnosed by GPs in the UK every year. The number of cases that go undiagnosed is unknown. 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. There is also some evidence that antibody production declines in late and long standing infection but there has been insufficient research on this.

## What is the treatment for Lyme disease?

Treatment is with 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 and there are no treatment guidelines specific to the UK. The two international sets of guidelines used are from the Infectious Diseases Society of America (IDSA) and The International Lyme and Associated Diseases Society (ILADS). These guidelines differ and NHS guidance for doctors says that until there is international consensus a "longer course (more than 21 days) of antibiotics may be beneficial in some sub-groups of patients after consultation with Lyme experts"

## Is Lyme disease a new illness?

Studies of the DNA taken from ticks in the Natural History Museum show the infection was in the UK in Victorian times. Therefore, it is almost certainly not a new illness. However, it does appear to be becoming more common.