TEST

Lyme disease blood test

A blood test that looks for antibodies your immune system makes against Lyme disease bacteria.

WHAT IT MEASURES
Antibodies against bacteria that cause Lyme disease

SAMPLE
Blood

FASTING NEEDED?
No

HOW LONG IT TAKES
Usually under 10 minutes

RESULTS IN
Several days; timing varies by laboratory

USED FOR
Supporting diagnosis in people with compatible symptoms

MAIN LIMITATION
Early infection may not yet produce detectable antibodies

Overview

A Lyme disease blood test looks for antibodies against bacteria in the Borrelia burgdorferi group. Antibodies are proteins made by your immune system after it encounters an infection.

The usual approach is called two-tier testing. A laboratory first performs an antibody screening test. If that result is positive or uncertain, a second test is used to help confirm the finding. Some laboratories use two different enzyme immunoassays, while others use an enzyme immunoassay followed by an immunoblot.

The test does not usually look directly for the bacteria. It also cannot reliably show whether an infection is currently active or whether treatment has worked. Antibodies may remain detectable for months or years after an infection has cleared.

Why the test is ordered

The test may help investigate symptoms that could fit Lyme disease when there has also been

a reasonable chance of exposure to infected ticks.

Possible reasons include:

Testing is not always needed for the expanding skin rash called erythema migrans. When this rash has a typical appearance and the exposure history fits, it can often be identified clinically. Blood testing at that early stage may still be negative.

A Lyme disease test is not intended to explain every episode of tiredness, pain, or poor concentration. When the symptoms and exposure history do not suggest Lyme disease, an isolated positive result is more likely to be misleading.

- Nerve problems, such as facial weakness or pain along a nerve
- Inflammation around the brain or spinal cord
- Certain heart rhythm or electrical conduction problems
- Swelling of one or a few large joints, especially a knee
- Other compatible symptoms following likely tick exposure

Who should have the test

Testing is most useful when you have both compatible symptoms and a realistic possibility of tick exposure. Exposure may come from living in or visiting an area where Lyme disease occurs, especially after time in wooded, grassy, or brush-covered places.

A tick bite by itself does not usually require an immediate blood test. Antibodies take time to develop, so a test performed just after a bite cannot rule out infection.

Routine screening is generally not useful if you feel well. Testing ticks removed from your skin is also not recommended for deciding whether you have Lyme disease. A tick may test positive even if it did not transmit infection, and a negative tick result may provide false reassurance.

How to prepare

You can eat and drink normally before the blood draw. Coffee does not affect the antibody result, and the test can be done at any time of day.

Tell the healthcare professional arranging the test about:

Do not stop prescribed medicines for this test unless the professional who prescribed them tells you to.

- When your symptoms began
- Where and when possible tick exposure occurred
- Previous Lyme disease and any past Lyme test results
- Recent or current antibiotics like amoxicillin or doxycycline
- Medicines that suppress the immune system
- Recent immunoglobulin treatment or blood transfusion

What happens during the test

A healthcare professional cleans the skin, usually inside your elbow, and places a needle into a vein. A small amount of blood is collected into one or more tubes.

The blood draw normally takes only a few minutes. The sample is sent to a laboratory, where the full testing process may involve more than one step.

You may see separate results for the first and second tests. These should be interpreted together as the laboratory's overall two-tier result, rather than as unrelated findings.

Understanding your results

A negative result means the test did not find the expected pattern of antibodies. This makes Lyme disease less likely, but it may not rule out a very recent infection. If symptoms began only recently, a later sample may sometimes be appropriate.

A positive result means antibodies were detected in a pattern that supports previous exposure to Lyme disease bacteria. It does not prove that the bacteria are still present, that every current symptom is caused by Lyme disease, or that more treatment is needed.

An equivocal or indeterminate result means the first test was not clearly positive or negative. The laboratory usually performs the second part of the testing process before issuing an overall interpretation.

IgM antibodies tend to appear earlier, while IgG antibodies usually develop later and last longer. IgM findings are generally interpreted only when the illness has lasted 30 days or less because isolated IgM results later than this are more likely to be falsely positive.

There is no single universal numerical reference range. Results vary with the assay, laboratory, timing of the sample, age, sex, pregnancy status, medicines, immune function, and clinical context.

What affects the results

Timing is the most important factor. During the first few weeks after infection, your body may not yet have produced enough antibodies to detect. This is sometimes called the window period.

Other factors can affect interpretation:

Meals, coffee, exercise, and the time of day do not meaningfully change Lyme antibody levels. Kidney function, age, sex, and pregnancy do not usually alter the antibodies directly, but they may affect the wider clinical assessment.

- Early antibiotic treatment: Treatment started very early may reduce or delay the antibody response.
- Reduced immune function: Some illnesses and immune-suppressing medicines can make antibody production weaker.
- Previous Lyme disease: Antibodies may remain positive for years and cannot separate an old infection from a new one.
- Other infections or immune conditions: Relapsing fever, syphilis, Epstein-Barr virus infection, and some autoimmune conditions can cause cross-reacting antibodies.
- Immunoglobulin or transfusion: Donated blood products or immunoglobulin may rarely transfer antibodies and complicate interpretation.
- The testing method: Different approved assays use different bacterial targets and may report results differently.

Accuracy and limitations

The test is more likely to miss Lyme disease during the first few weeks because antibodies have not yet developed. It becomes more reliable after the immune response has had time to build.

Two-tier testing is designed to reduce false-positive results. Even so, no test is perfect. A positive result is more likely to be wrong when testing is done without compatible symptoms or likely exposure. Cross-reacting antibodies and past Lyme disease can also produce a positive result when current symptoms have another cause.

A typical erythema migrans rash is often better assessed clinically than with an early blood test. For possible nervous system Lyme disease, blood testing may be combined with carefully selected spinal fluid tests. In suspected Lyme arthritis, testing joint fluid for bacterial genetic

material may occasionally support the diagnosis after positive antibody testing. These tests are not routine replacements for standard blood testing.

Blood tests that look directly for bacterial genetic material are generally not sensitive enough to rule out Lyme disease when performed on blood.

Risks and complications

A blood draw may cause brief discomfort, a small bruise, or minor bleeding where the needle entered. Some people feel light-headed or faint, but serious complications are uncommon.

What happens next

Your result should be considered alongside your symptoms, examination, exposure history, and how long you have been unwell. A negative early result may lead to routine follow-up or repeat antibody testing if suspicion remains. A positive result may lead to further assessment of whether your current symptoms fit active Lyme disease or a previous infection.

Do not use repeated antibody levels to judge recovery. Antibodies can remain present after successful treatment, so the number does not reliably show whether treatment worked.

Arrange prompt medical assessment if you develop new facial weakness, a severely swollen joint, a spreading rash, or symptoms following a tick bite that concern you.

Seek urgent or emergency care for fainting, chest pain, severe shortness of breath, a very slow or irregular heartbeat, new severe weakness, confusion, or a severe headache with neck stiffness. These symptoms have several possible causes and need timely assessment.

Common questions

Can I drink coffee before the test?

Yes. Coffee, tea, water, and food do not interfere with Lyme antibody testing.

Do I need to fast?

No. You can eat normally unless other blood tests ordered at the same time require fasting.

Does the time of day matter?

No. Lyme antibodies do not change enough during the day to require morning or evening testing.

Can I exercise beforehand?

Yes. Ordinary exercise does not meaningfully affect the result. If exercise makes you dehydrated or faint during blood draws, drink water and mention this beforehand.

Will antibiotics make the test negative?

Antibiotics started very early may limit or delay antibody production. Tell the healthcare professional when treatment began, but do not stop antibiotics to improve testing.

Does a positive result mean I still have Lyme disease?

Not necessarily. Antibodies may remain positive for months or years. The result must be matched with your current symptoms, exposure history, previous Lyme disease, and treatment history.

Sources

- Centers for Disease Control and Prevention. Clinical Testing and Diagnosis for Lyme Disease, May 2024
- Centers for Disease Control and Prevention. Standard Two-Tiered Testing Suggested Results Reporting and Interpretation, 2024
- Infectious Diseases Society of America, American Academy of Neurology, and American College of Rheumatology. 2020 Guidelines for the Prevention, Diagnosis and Treatment of Lyme Disease
- US Food and Drug Administration. Lyme Disease Tests
- National Institute for Health and Care Excellence. Lyme disease: diagnosis and management, guideline NG95
- Moore A, Nelson C, Molins C, Mead P, Schriefer M. Current Guidelines, Common Clinical Pitfalls, and Future Directions for Laboratory Diagnosis of Lyme Disease. Emerging Infectious Diseases. 2016;22(7)