TEST

Lepromin skin test

The lepromin skin test measures the immune response to material from bacteria that cause leprosy.

WHAT IT MEASURES
Immune response to killed leprosy bacteria

SAMPLE
Skin response at the injection site

FASTING NEEDED?
No

HOW LONG IT TAKES
10-15 minutes, plus two brief return visits

RESULTS IN
2-3 days and 3-4 weeks; varies by laboratory protocol

USED FOR
Helping classify leprosy, not screening or diagnosis

MAIN LIMITATION
Results do not confirm or exclude leprosy

Overview

The lepromin skin test assesses how your immune system responds to material made from killed Mycobacterium leprae . This is the bacterium that causes leprosy, also called Hansen disease. The injected material cannot cause leprosy.

A small amount of lepromin is injected just under the skin, usually on the forearm. A clinician later checks whether a firm, raised area has developed at the injection site.

There are two possible stages of the response:

The test is not a reliable way to tell whether you have leprosy. It has mainly been used to help classify leprosy after the condition is already suspected or diagnosed. It shows the strength and type of the body's cell-based immune response to the bacterium.

The test is now used infrequently. Availability and procedures differ among countries and specialist centers.

- An early response, called the Fernandez reaction, is usually read after about 2 to 3 days

- A later response, called the Mitsuda reaction, is usually read after about 3 to 4 weeks

Why the test is ordered

A specialist may order a lepromin test to gather information about your immune response when leprosy is being assessed. The result can sometimes support classification along the spectrum from tuberculoid to lepromatous leprosy.

Tuberculoid leprosy is associated with a stronger cell-based immune response. Lepromatous leprosy is associated with a weaker response to M. leprae . Classification can matter because different forms of the condition behave differently and may require different follow-up.

The lepromin test is not suitable for general screening. It is also not used on its own to:

Diagnosis is based on your symptoms, a skin and nerve examination, and sometimes tests such as a skin biopsy, slit-skin smear, or molecular testing.

- Confirm that a skin patch is caused by leprosy
- Rule out leprosy
- Show whether you are contagious
- Prove that you were recently exposed
- Check whether treatment has cured the infection

Who should have the test

The test may be considered for someone being assessed by a clinician or specialist experienced in leprosy. It is most useful when information about the body's immune response could help classify an already suspected or confirmed case.

Most people with a skin rash, numb patch, or nerve symptom do not need this test. These problems have many possible causes, and the lepromin test cannot identify most of them.

The test is not routinely recommended for people without symptoms simply because they have traveled to an area where leprosy occurs. Close contacts of someone with leprosy need clinical follow-up based on local public health practice, not a lepromin result alone.

Tell the testing team if you have previously had a strong reaction to a skin test or injection. Also mention immune system conditions, pregnancy, and all medicines you take. These details may affect whether the test is appropriate or how its result is interpreted.

How to prepare

You do not need to fast. You can usually eat, drink water or coffee, exercise, and take your regular medicines unless your clinician gives you different instructions.

Wear clothing that allows easy access to your forearm. Avoid applying thick creams or ointments to the likely injection area on the day of the test.

Before the appointment, tell the testing team about:

Do not stop prescribed medicine just to prepare for this test. If a medicine could affect the result, the clinician can decide how to interpret the test or whether another approach is better.

- Medicines that suppress the immune system, including corticosteroids like prednisone or hydrocortisone
- Cancer treatment or medicines taken after an organ transplant
- Conditions that weaken immune function
- Previous BCG vaccination against tuberculosis
- Previous lepromin or tuberculosis skin tests
- Current skin infection or severe irritation on the forearms

What happens during the test

A clinician cleans an area of skin, usually on the forearm. A small amount of lepromin is injected into the top layers of the skin using a fine needle. This should create a small raised bump.

The injection may sting briefly. The site may be marked so it can be found at the follow-up visits.

You will need to return for the site to be examined. The first reading is generally made after about 2 to 3 days. A second reading is usually made after 3 to 4 weeks.

At each visit, the clinician looks for and measures induration. Induration means a firm, raised area that can be felt in the skin. Redness alone is less useful. Some protocols also record whether a small nodule or ulcer has formed.

Understanding your results

A positive result means that your immune system produced a measurable local response to the injected material. It does not mean that you have leprosy.

A stronger late response is more often associated with tuberculoid forms of leprosy, in which the immune system mounts a stronger response to M. leprae . A weak or absent response is more often associated with lepromatous forms, in which this particular immune response is limited.

People who do not have leprosy can also have a positive reaction. This may follow exposure to related environmental bacteria or previous BCG vaccination.

Someone who has leprosy can have a negative reaction, especially with multibacillary or lepromatous disease. "Multibacillary" means that larger numbers of bacteria are present.

There is no single universal cutoff that can be interpreted without context. The size, appearance, and timing of the response are assessed using the testing center's protocol. Interpretation can vary with the laboratory or reagent, age, sex, pregnancy status, medicines, immune health, vaccination history, and clinical findings.

What affects the results

The most important influence is the type of immune response your body makes to M. leprae . This is why a negative result can occur in someone who has leprosy and why a positive result can occur in someone who does not.

Other factors can change or confuse the result:

Food, coffee, routine exercise, and the time of day have little direct effect. A recent blood transfusion is not usually important because this is a skin immune-response test rather than a blood-cell measurement.

- BCG vaccination may make a positive response more likely
- Exposure to other mycobacteria in the environment may cause cross-reaction
- Immune-suppressing medicines may weaken the response
- Conditions affecting immune function may produce a smaller or absent reaction
- Age may affect the strength of the skin response
- Pregnancy-related immune changes may complicate interpretation
- Injection depth, dose, reagent preparation, and storage can affect the reaction
- Reading the test too early or too late can change the recorded size
- Different clinicians may measure a small area of firmness differently
- Skin inflammation, infection, or injury at the site can obscure the result

Accuracy and limitations

The lepromin test does not reliably separate people who have leprosy from those who do not. For that reason, it is not considered a diagnostic test.

It can say "positive" in someone without leprosy, particularly after BCG vaccination or exposure to related bacteria. It can also say "negative" in someone who does have leprosy, especially in lepromatous disease or when immune function is reduced.

Reliable figures for how often it is right or wrong are not broadly applicable. Reagents and reading methods are not fully standardized, and immune responses differ across the leprosy spectrum.

When the main question is whether a skin or nerve problem is caused by leprosy, a clinical examination is more important. A skin biopsy can show characteristic tissue changes and may reveal acid-fast bacteria. Slit-skin smears can detect bacteria in selected cases. Polymerase chain reaction, or PCR, can look for bacterial genetic material in specialist laboratories, although it is not available everywhere.

No single test excludes all forms of leprosy. Results need to be considered alongside changes in skin sensation, nerve findings, the appearance and location of lesions, and other laboratory evidence.

Risks and complications

The injection may cause brief stinging, redness, itching, tenderness, or a small firm lump. A stronger late response can occasionally cause a small sore or leave a minor scar.

Serious allergic reactions are uncommon. Seek emergency help for difficulty breathing, swelling of the face or throat, widespread hives, or fainting.

Contact the testing center promptly for spreading redness, worsening pain, pus, or fever, as these may suggest an infection rather than the expected test response.

What happens next

You will return for the scheduled readings. Keep both appointments because the early and late responses provide different information. If you miss a reading, contact the testing center; the test may not be interpretable and might need to be repeated.

A routine follow-up appointment is usually appropriate for discussing the result. The clinician

will consider it alongside your examination and any biopsy, smear, or molecular test results.

A positive result does not automatically lead to treatment. A negative result does not end an evaluation when clinical findings still suggest leprosy.

Do not wait for a routine appointment if you develop new weakness, rapidly worsening numbness, severe eye pain, or a sudden change in vision. These symptoms need prompt medical assessment because nerve or eye problems may require timely care, regardless of the lepromin result.

Common questions

Can I drink coffee before a lepromin skin test?

Yes. Coffee does not meaningfully affect the expected skin response, and fasting is not required.

Does the time of day matter?

Usually not. What matters more is returning at the correct interval so the site is read at the times specified by the testing center.

Can I exercise beforehand or afterward?

Routine exercise is generally fine. Avoid repeated rubbing, pressure, or activities that directly irritate the injection site.

Can I shower after the injection?

Usually, yes. Gently wash and dry the area. Do not scrub it, cover it with a tight dressing, or apply creams unless you are told to do so.

Should I stop steroids or other immune medicines?

No. Do not stop prescribed medicine without medical advice. Tell the clinician what you take because immune-suppressing medicines can weaken the reaction.

Does a positive result mean I have leprosy?

No. People without leprosy may react, while some people with leprosy do not. Diagnosis requires clinical assessment and, when needed, tests such as a biopsy or slit-skin smear.

Sources

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