TEST

PPD skin test

A PPD skin test checks whether your immune system has reacted to tuberculosis bacteria.

WHAT IT MEASURES
Skin immune response to tuberculosis proteins

SAMPLE
None; tuberculin is injected under forearm skin

FASTING NEEDED?
No

HOW LONG IT TAKES
Minutes, plus a return visit after 48 to 72 hours

RESULTS IN
48 to 72 hours; no laboratory processing needed

USED FOR
Screening for tuberculosis infection

MAIN LIMITATION
BCG vaccination can cause false-positive results

Overview

A PPD skin test checks whether your immune system recognizes proteins from the bacteria that cause tuberculosis, or TB. PPD stands for purified protein derivative. The test is also commonly called a tuberculin skin test or Mantoux test.

A healthcare professional injects a small amount of testing liquid just under the skin of your forearm. You must return 48 to 72 hours later so the area can be examined and measured.

The test can suggest TB infection, but it cannot show whether the infection is inactive or causing active TB disease. A positive result usually requires further assessment, such as a chest X-ray and sometimes sputum tests.

Why the test is ordered

The test is mainly used to look for TB infection in someone who does not have symptoms. This is often called screening.

It may be ordered because you:

Testing people with little or no risk is usually less helpful. In a low-risk person, a positive result is more likely to be misleading and may need confirmation.

- Have spent time with someone who has infectious TB
- Have lived in or travelled to a place where TB is more common
- Live or work in a setting where TB exposure may occur
- Have a condition or take medicine that weakens your immune system
- Are preparing to start certain immune-suppressing treatments
- Need testing for work, school, immigration or public-health follow-up

Who should have the test

A PPD skin test may be suitable if you have a meaningful risk of TB exposure or of developing active disease after infection. Local public-health programs and workplaces may also have specific testing policies.

Tell the person arranging the test if you have received the BCG vaccine. BCG is used in many countries to protect against severe forms of TB. It can sometimes make a PPD test positive even when you do not have TB infection. A TB blood test may be preferred in this situation.

Also mention any previous positive TB test, treatment for TB infection or disease, or severe reaction to a skin test. People with written proof of a previous positive result generally should not have another PPD test because it is likely to remain positive.

Pregnancy is not usually a reason to avoid the test. The PPD skin test is considered safe during pregnancy, but its interpretation still needs to account for your health, medicines and exposure history.

How to prepare

You do not need to fast. You can eat, drink coffee and take your usual medicines unless you have been given different instructions for another reason.

Tell the healthcare professional about:

A live-virus vaccine can temporarily reduce the skin response. The test can usually be given on the same day as the vaccine or delayed for at least one month. Routine non-live vaccines do not usually require this timing.

Arrange your return appointment before leaving. The result must be read 48 to 72 hours after

the injection.

- Recent live-virus vaccinations, such as measles, mumps and rubella
- Steroids like prednisone or hydrocortisone , chemotherapy, biologic medicines or other immune-suppressing treatment
- Recent serious illness or viral infection
- Previous BCG vaccination
- Previous TB tests, exposure or treatment
- A previous severe skin-test reaction

What happens during the test

A healthcare professional cleans an area on the inner forearm and uses a fine needle to place a small amount of PPD liquid just under the skin. A small, pale raised bump should appear. The injection takes only a few minutes.

You can wash and dry the area normally. Do not scratch it, cover it tightly with a bandage, or apply creams unless instructed. These actions can irritate the skin and make assessment harder.

At the return visit, the healthcare professional feels the area for induration , meaning firm, raised swelling. They measure the width of this swelling in millimetres across the forearm. Redness alone is not measured.

If you return after more than 72 hours, the result may no longer be reliable. The test may need to be repeated.

Understanding your results

The result is recorded as the number of millimetres of firm swelling, not simply as red or not red.

In US guidance, swelling of at least 5, 10 or 15 millimetres may be considered positive, depending on your medical history and TB risk. Smaller cutoffs are used for people at higher risk, such as close contacts of someone with infectious TB or people with significant immune suppression.

There is no single laboratory reference range because a laboratory does not process this test. Cutoffs and interpretation vary with local guidance, age, pregnancy status, medicines, immune

function, exposure risk and clinical context. Sex does not usually change the standard US cutoffs.

A positive result means your immune system has reacted to the testing material. It does not prove that you have active or contagious TB. Further evaluation is needed.

A negative result means there was no reaction large enough to meet the relevant cutoff. It does not completely rule out infection, especially after a recent exposure or when the immune system is weakened.

What affects the results

Several factors can change the skin response even when the injection and measurement are performed correctly.

A false-positive result can occur after BCG vaccination or exposure to certain bacteria related to TB that do not usually cause tuberculosis. Repeated skin testing can also "boost" an old immune response, making a later test appear newly positive. Two-step testing may be used when regular future testing is planned, helping distinguish boosting from recent infection.

A false-negative result can occur when:

Very young children may also have weaker responses. Pregnancy itself is not expected to invalidate the test, although other health factors during pregnancy may affect interpretation.

Exercise, coffee, food and the time of day are not known to meaningfully change the result. Skin irritation from scratching, tight coverings or creams may make the site harder to assess.

- Exposure happened within the past eight to ten weeks
- Your immune system is weakened by illness or medicines
- You recently had a live-virus vaccine
- You have a recent viral infection or severe illness
- The test was injected incorrectly
- The result was read too early, too late or measured incorrectly

Accuracy and limitations

The PPD test can correctly identify many people with TB infection, but it can miss infection. This is more likely soon after exposure, when the immune system has not yet developed a measurable response, or when illness or treatment weakens that response.

It can also say "positive" when TB infection is not present. BCG vaccination and some non-tuberculosis bacteria are important reasons for this.

The test depends on correct injection, a return visit within the required window and careful measurement. Differences in technique can affect the result.

A TB blood test may be more useful if you have received BCG, are unlikely to return for a reading, or have had difficulty with skin-test interpretation. However, the best test can vary with age, availability and local guidance.

Neither a skin test nor a blood test can distinguish inactive TB infection from active disease. If active TB is possible, a medical assessment, chest imaging and tests on sputum or other samples are more appropriate.

Risks and complications

The injection may briefly sting. Mild itching, redness or swelling can occur, and a strong positive reaction can occasionally cause blistering or more marked swelling.

Serious allergic reactions are rare. Seek emergency help for difficulty breathing, facial or throat swelling, or collapse after the injection.

What happens next

If the result is negative and you have no ongoing risk, you may not need further testing. After a recent close exposure, repeat testing may be arranged eight to ten weeks after the last exposure because an early test can miss infection.

If the result is positive, routine follow-up usually includes a review of your symptoms and exposure history. You may have a chest X-ray and, when appropriate, sputum testing. Treatment may be offered if inactive TB infection is confirmed and active disease has been excluded.

Contact a healthcare service promptly if you have a lasting cough, fever, night sweats, unexplained weight loss or known close exposure to infectious TB. Do not wait for a routine skin-test appointment if these apply.

Coughing up more than small streaks of blood, severe breathing difficulty, severe chest pain, confusion or collapse requires urgent or emergency care.

Common questions

Can I drink coffee before a PPD test?

Yes. Coffee, food and other non-alcoholic drinks do not affect the test.

Does the time of day matter?

No. The injection can be given at any convenient time, but you must return 48 to 72 hours later.

Can I exercise beforehand or afterwards?

Yes. Ordinary exercise does not affect the immune response. Avoid activities that heavily rub or irritate the injection site.

Can I shower with the test on my arm?

Yes. Wash and gently pat the area dry. Do not scrub it or cover it tightly.

What if the area turns red?

Redness alone does not determine the result. A healthcare professional must feel for firm swelling and measure it.

What if I miss the return appointment?

Contact the clinic. A result read after 72 hours may not be reliable, so the test may need to be repeated.

Sources

- Centers for Disease Control and Prevention. Clinical Testing Guidance for Tuberculosis: Tuberculin Skin Test
- Centers for Disease Control and Prevention. Clinical Testing and Diagnosis for Tuberculosis
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- US Preventive Services Task Force. Latent Tuberculosis Infection in Adults: Screening, 2023
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- DailyMed. TUBERSOL-tuberculin purified protein derivative injection prescribing information