TEST

RPR test

A blood test that looks for antibodies often produced during a syphilis infection.

WHAT IT MEASURES
Antibodies linked to cell damage, often caused by syphilis

SAMPLE
Blood

FASTING NEEDED?
No

HOW LONG IT TAKES
Usually less than five minutes

RESULTS IN
One to three days, varying by laboratory

USED FOR
Screening, supporting diagnosis, and monitoring syphilis treatment

MAIN LIMITATION
Not syphilis-specific, and early infection can be missed

Overview

RPR stands for rapid plasma reagin . It is a blood test commonly used to screen for syphilis and to follow the response to syphilis treatment.

Syphilis is a sexually transmitted infection caused by the bacterium Treponema pallidum . The RPR test does not look for the bacterium itself. Instead, it measures antibodies made in response to fats released from damaged cells. These are sometimes called reagin antibodies.

Because other conditions can also cause these antibodies, a reactive RPR result does not confirm syphilis by itself. A second test that looks for antibodies specific to T. pallidum , called a treponemal test, is usually needed.

Some laboratories start with an RPR test. Others begin with a treponemal test and use RPR afterward. This is known as the reverse screening sequence.

Why the test is ordered

An RPR test may be ordered to:

The RPR result can be reported as reactive or nonreactive. When reactive, it may also be measured as a titer . A titer shows how much the blood can be diluted before antibodies are no longer detected.

- Screen for syphilis when you do not have symptoms
- Investigate symptoms or a sexual exposure that could be related to syphilis
- Help clarify another syphilis blood test
- Establish a starting antibody level before treatment
- Check whether antibody levels fall after treatment
- Look for possible reinfection after previous treatment

Who should have the test

Testing may be appropriate if you have symptoms that could be caused by syphilis, such as a painless genital, anal, or mouth sore or an unexplained rash, especially on the palms or soles. These symptoms can have other causes, so testing is needed rather than relying on appearance alone.

Testing may also be offered after sexual contact with someone who has syphilis, or when your sexual history places you at increased risk. Screening recommendations may consider factors such as new or multiple partners, condom use, HIV status, and local infection rates.

Syphilis screening is recommended during pregnancy because untreated infection can affect the pregnancy and baby. The timing and need for repeat testing are based on local guidance and individual risk.

A clinician may recommend repeat testing even after a nonreactive result if the exposure was recent. It can take time for the antibody level to become detectable.

How to prepare

You do not need to fast. You can usually eat, drink water, and take your usual medicines before the blood draw.

Tell the healthcare professional interpreting the result about:

Do not stop prescribed medicine for an RPR test unless the prescriber has specifically told you to do so.

- Recent possible exposure to syphilis
- Previous syphilis tests or treatment
- Pregnancy
- Conditions affecting the immune system
- Recent infections or vaccinations
- Medicines that suppress the immune system

What happens during the test

A healthcare professional cleans an area of skin, usually inside your elbow, and places a needle into a vein. A small amount of blood is collected into a tube.

You may feel a brief scratch or sting. The blood collection usually takes less than five minutes, although the full visit may take longer.

The sample is sent to a laboratory. If the RPR is reactive, the laboratory may perform a titer and may also complete a treponemal confirmation test.

Understanding your results

A nonreactive result means the test did not detect reagin antibodies. This usually makes active syphilis less likely, but it does not always rule it out. Infection may be too recent, or the disease may be at a stage when RPR is less likely to react.

A reactive result means reagin antibodies were detected. It does not prove that you have syphilis. A treponemal test is generally used to help confirm whether the antibodies are related to syphilis.

A reactive result may include a titer such as 1:4 or 1:32. The second number reflects how far the sample could be diluted while remaining reactive. Higher numbers generally mean more antibody was detected, but the number does not reliably show how long you have had an infection or how severe it is.

For treatment follow-up, clinicians look for a meaningful change in titer. A fourfold change, such as from 1:32 to 1:8, represents a change across two dilution steps. Results are easiest to compare when the same type of test, preferably from the same laboratory, is used.

Some people continue to have a low reactive RPR after adequate treatment. This is sometimes called a serofast result. It does not automatically mean treatment failed.

Ranges and interpretation vary by laboratory, age, sex, pregnancy status, medicines, previous treatment, and clinical context.

What affects the results

The timing of the test matters. RPR may still be nonreactive during the first weeks after infection. It can also become less reliable during late syphilis.

Very high antibody levels can occasionally interfere with the reaction and produce a falsely nonreactive result. This is called the prozone effect . If symptoms or exposure strongly suggest syphilis, the laboratory can dilute the sample and repeat the test.

A reactive result can occur without syphilis. Possible reasons include:

These factors do not mean that a reactive result should be ignored. They are reasons to interpret it alongside a treponemal test, previous results, symptoms, and exposure history.

Treatment can lower the RPR titer. Previous treatment therefore changes how a later result is interpreted. Immune-suppressing illness or medicine may also alter antibody production, although there is no single predictable effect for every person.

Recent exercise, coffee, ordinary meals, and the time of day are not known to cause a meaningful change in RPR results. A recent blood transfusion is not a common cause of misleading RPR results, but it should be mentioned if the result is unexpected.

- Pregnancy
- Autoimmune conditions
- HIV or certain other infections
- Recent vaccination
- Injecting drug use
- Older age

Accuracy and limitations

RPR is useful, but it is not equally accurate at every stage of syphilis. In studies reviewed by the Centers for Disease Control and Prevention, RPR detected roughly half to three-quarters of primary syphilis cases when compared with direct testing of a sore. It detected nearly all secondary syphilis cases in the reviewed studies. Detection becomes less reliable again in later infection.

This means RPR is more likely to miss very early or late syphilis than secondary syphilis. Repeat testing or a different test may be needed when exposure, examination findings, or symptoms do not match the result.

RPR can also say "reactive" when syphilis is not present. These biological false-positive results are uncommon in general screening populations but occur more often in some medical settings and during pregnancy.

A treponemal antibody test is better for confirming that your immune system has encountered T. pallidum . However, it often stays positive for life and is usually not useful for measuring response to treatment. RPR titers are better suited to follow-up.

If nervous system, eye, or ear involvement is suspected, blood tests alone are not enough. Examination and other tests, sometimes including testing of the fluid around the brain and spinal cord, may be needed.

Risks and complications

The risks are those of a routine blood draw. You may have brief discomfort, a small bruise, or feel lightheaded.

Serious complications from collecting the sample are uncommon.

What happens next

A nonreactive result may need no further action when screening was routine and there was no recent exposure. Repeat testing may be recommended if the possible exposure was recent.

A reactive result usually leads to review of a treponemal test, previous results, treatment history, symptoms, and sexual exposure. If syphilis is confirmed, treatment and partner notification can be discussed without waiting for symptoms to develop.

After treatment, RPR titers may be repeated at planned intervals. The schedule is based on the stage of infection, pregnancy, HIV status, treatment given, and local guidance.

A reactive screening result without severe symptoms usually needs prompt routine follow-up, not emergency care. Seek urgent medical assessment for new vision changes, eye pain, sudden hearing loss, severe headache, weakness, numbness, confusion, or problems with balance. Call emergency services for stroke-like symptoms, loss of consciousness, or another rapidly worsening medical emergency.

Common questions

Can I drink coffee before an RPR test?

Yes. Coffee does not usually affect the result, and fasting is not required.

Does the time of day matter?

No. RPR testing can generally be performed at any time the collection service is open.

Can I exercise beforehand?

Yes. Ordinary exercise is not known to meaningfully affect RPR results. If you feel dehydrated or faint after strenuous exercise, resting and drinking water may make the blood draw easier.

How soon after exposure will the test be positive?

Antibodies may not be detectable immediately. If an early test is nonreactive, repeat testing may be recommended based on when the exposure occurred and whether symptoms develop.

Does a reactive RPR mean I have syphilis?

Not by itself. Other conditions can produce a reactive result, so a syphilis-specific treponemal test and clinical review are usually needed.

Will the RPR become negative after treatment?

It may become nonreactive, but some people keep a low reactive titer after successful treatment. Changes over time are more informative than one result alone.

Sources

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