TEST

Antistreptolysin O titer

An antistreptolysin O titer is a blood test for antibodies produced after a recent group A strep infection.

WHAT IT MEASURES
Antibodies against streptolysin O made after group A strep infection

SAMPLE
Blood

FASTING NEEDED?
No

HOW LONG IT TAKES
Usually less than five minutes

RESULTS IN
Usually one to three days; laboratory turnaround differs

USED FOR
Supporting diagnosis of complications after recent group A strep infection

MAIN LIMITATION
A raised result does not prove active infection

Overview

An antistreptolysin O titer, often shortened to ASO titer , is a blood test that looks for antibodies against streptolysin O, a substance made by group A Streptococcus bacteria.

Your immune system makes ASO antibodies after some group A strep infections. Because these antibodies take time to appear, the test is mainly used to find evidence of a recent past infection , not to diagnose a current sore throat.

The word titer refers to the amount of antibody found. Some laboratories report a concentration instead. In either case, a higher result means more ASO antibody was detected.

The test may help assess delayed complications of strep infection, such as acute rheumatic fever or post-streptococcal glomerulonephritis, which is inflammation of the kidney's filtering units.

Why the test is ordered

Your healthcare professional may order an ASO titer when they need evidence that a group A strep infection happened recently. The original infection may have been mild, untested, or already cleared.

The test can support assessment for:

An ASO titer is not usually the best test for a current sore throat. A throat swab tested by rapid antigen testing, molecular testing, or culture gives more direct information about whether group A strep is currently present.

- Acute rheumatic fever , which can affect the joints, heart, skin, or nervous system
- Post-streptococcal glomerulonephritis , which can cause dark urine, swelling, or high blood pressure
- Other symptoms where evidence of a recent strep infection may help explain the clinical picture

Who should have the test

This test may be appropriate if you develop symptoms after a possible strep throat or skin infection and your healthcare professional suspects a post-streptococcal complication.

It is generally not useful for routine screening when you feel well. It cannot show whether you carry group A strep or can pass it to someone else.

The decision to test depends on your symptoms, examination, timing, and history of throat or skin infection. A single ASO result cannot diagnose acute rheumatic fever, kidney inflammation, or another condition by itself.

How to prepare

No fasting is usually needed. You can generally eat, drink water, and take your usual medicines before the blood draw.

Tell the person who ordered the test about your medicines and immune treatments. Antibiotics like amoxicillin or doxycycline taken early in an infection may reduce the later antibody response. Intravenous immunoglobulin, or IVIG, contains donated antibodies and may complicate interpretation.

You do not normally need to avoid exercise, coffee, or specific foods. Follow any separate instructions if other blood tests are being collected at the same appointment.

What happens during the test

A healthcare worker cleans the skin, usually inside your elbow, and inserts a needle into a vein. A small amount of blood is collected into a tube.

You may feel a brief scratch or sting. Collection usually takes less than five minutes, although the appointment may take longer.

The sample is sent to a laboratory. No recovery time is usually needed, and you can return to normal activities afterward.

Understanding your results

Your report may show an ASO concentration, a titer, or whether the result is above the laboratory's expected limit. Use the reference information on your report because ranges vary by laboratory, age, testing method, and clinical context.

A raised ASO result suggests that your immune system responded to a group A strep infection in the recent past. It does not show where the infection occurred, whether bacteria remain present, or whether strep caused your current symptoms.

ASO antibodies begin to rise after infection, often reach their highest level several weeks later, and may remain raised for months.

A result within the expected range does not completely rule out recent infection. Testing may have occurred too early, the antibody response may have been weak, or the infection may have involved the skin, where ASO responses can be less reliable.

Sometimes two samples are taken a few weeks apart. A clear rise between samples provides stronger evidence of a recent immune response than one isolated result.

What affects the results

Timing has the greatest effect. Testing during the first days of infection may give a low result because your body has not produced enough antibody. Testing months later may detect antibodies left over after an infection has resolved.

Other factors include:

Pregnancy and sex usually have less influence than timing, age, and recent infection. A red blood cell transfusion is less likely to affect ASO than plasma or IVIG, but mention any recent transfusion.

- Site of infection: ASO may rise less after some skin infections than after strep throat
- Previous infections: antibodies can remain raised, making a single result difficult to date
- Antibiotic treatment: early treatment may reduce the antibody response
- Immune function: conditions or medicines that weaken antibody production may cause a lower result
- IVIG or plasma-containing products: donated antibodies may affect antibody test results
- Age: children often have different expected levels from adults
- Laboratory method: assays and reference limits differ

Accuracy and limitations

An ASO titer can support evidence of a recent group A strep infection, but it cannot prove that strep caused your current symptoms. Many people have raised antibodies after an uncomplicated infection and never develop a delayed complication.

The test may miss a relevant infection if it is done too early, the antibody response is weak, antibiotics limited the response, or the infection mainly affected the skin.

Accuracy varies with sample timing, infection type, the population tested, and whether one result or paired results are used.

Other tests may be more useful for specific questions:

- A throat swab is better for detecting a current throat infection
- An anti-DNase B blood test may identify a past strep infection when ASO is not raised, especially after skin infection
- Urine, kidney function, inflammation, heart, or imaging tests may be needed to assess possible complications

Risks and complications

The risks are those of a routine blood draw. You may have mild bruising or soreness, and some people feel briefly light-headed or faint.

What happens next

Your result is interpreted with your symptoms, examination, and other tests. A raised result alone does not usually mean you need antibiotics because it may reflect an infection that has already cleared.

Follow-up may include repeating the ASO titer, ordering anti-DNase B, or checking blood and urine tests related to your symptoms. Your healthcare professional may also ask about recent sore throat, skin sores, fever, joint symptoms, swelling, or urine changes.

Seek prompt medical advice if you develop dark or much less urine, new facial or leg swelling, a painful swollen joint, or symptoms that are quickly worsening.

Call emergency services for severe trouble breathing, chest pain, fainting, confusion, or blue or grey lips or skin. These symptoms require urgent assessment regardless of the ASO result.

Common questions

Can I drink coffee before an ASO blood test?

Usually, yes. Coffee does not directly affect ASO antibodies. If other fasting tests are being collected, follow their instructions.

Do I need to fast?

No fasting is normally required. You can usually eat and drink as usual.

Does the time of day matter?

No. ASO levels do not have an important daily pattern, so the sample can generally be collected at any time.

Can I exercise beforehand?

Yes. Ordinary exercise is not expected to meaningfully change the result. Rest if exercise makes you light-headed before blood tests.

Does a high ASO titer mean I still have strep?

Not necessarily. ASO antibodies can remain raised for months after the infection clears. A throat swab is more useful for determining whether group A strep is currently in your throat.

Why might the test be repeated?

A second sample can show whether the antibody level is rising or falling. A rising level provides stronger evidence of a recent infection than one result alone.

Sources

- MedlinePlus Medical Encyclopedia: Antistreptolysin O titer , US National Library of Medicine
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- Gewitz MH, et al. Revision of the Jones Criteria for the Diagnosis of Acute Rheumatic Fever , Circulation , 2015