AST (Aspartate aminotransferase)

An aspartate aminotransferase (AST) test measures the amount of this enzyme in the blood. AST is normally found in red blood cells, liver, heart, muscle tissue, pancreas, and kidneys. AST formerly was called serum glutamic oxaloacetic transaminase (SGOT). Low levels of AST are normally found in the blood. When body tissue or an organ such as the heart or liver is diseased or damaged, additional AST is released into the bloodstream. The amount of AST in the blood is directly related to the extent of the tissue damage. After severe damage, AST levels rise in 6 to 10 hours and remain high for about 4 days. The ratio of AST to ALT sometimes can help determine whether the liver or another organ has been damaged. Both ALT and AST levels can test for liver damage.

Why It Is Done

An aspartate aminotransferase (AST) test is done to:

- Help find the cause of liver damage.
- Help identify liver disease, especially hepatitis and cirrhosis. Liver disease may produce symptoms such as pain in the upper abdomen, nausea, vomiting, and sometimes jaundice.
- Check on the recovery from or treatment for liver disease.

To prepare for an aspartate aminotransferase (AST) test:

- Avoid strenuous exercise just before having this test done.

Tell your doctor if you:

- Are taking any medicines. Many medicines can interfere with test results. Your health professional may instruct you to stop taking certain medicines for several days before having an AST test. Some herbs and natural products (such as echinacea and valerian) also can affect AST results.
- Are allergic to any medicines.
- Are or might be pregnant.

Normal values may vary from lab to lab.

**Aspartate aminotransferase (AST)**

<table>
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<th>Units</th>
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<td>8–35 units per liter (U/L) or 5–40 international units per liter (IU/L)</td>
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**High values**

Very high levels of AST may be caused by:
- Recent or severe liver damage, such as hepatitis caused by a viral infection or drug reaction.
- Decay of a large tumor (necrosis).
- Shock.

Moderately high levels of AST may be caused by:
- A heart attack or heart failure.
- Alcohol abuse.
- Having taken high doses of vitamin A.
- Kidney or lung damage.
- Liver damage, such as from cirrhosis.
- Mononucleosis.
- Duchenne muscular dystrophy.
- Some types of cancer.
- A rare autoimmune disease that affects muscles (myositis).

Slightly high levels of AST may be caused by:
- A heart attack or heart failure.
- Hemolytic anemia, such as that caused by sickle cell anemia or a reaction to blood transfusion.
- Cancer.
- Pancreatitis.
AST levels may be high when a disease first develops, which is often when tissue damage is most severe. Decreasing levels of AST in the blood may be a sign of recovery from the disease or injury. Many other conditions, including severe burns, traumatic injuries, pulmonary embolism, or heat exhaustion and heatstroke, and ingestion of poisonous mushrooms may cause elevated AST levels.

What Affects the Test?
Reasons you may not be able to have the test or why the results may not be helpful include:

- Taking medicines. Talk with your health professional about all the prescription and nonprescription medicines you are taking. You may be instructed to stop taking your medicines for several days before the test.
- Taking large doses of vitamin A.
- Taking some herbs and natural products, such as echinacea and valerian.
- Strenuous exercise, injury to a muscle, or injections into a muscle.
- Recent cardiac catheterization or surgery.

What to Think About
- The aspartate aminotransferase (AST) test is more effective than the alanine aminotransferase (ALT) test for detecting liver damage caused by alcohol dependence. The AST to ALT ratio may sometimes help determine if liver damage is related to alcohol dependence. For more information, see the medical test Alanine Aminotransferase (ALT).
- Many different conditions can raise AST blood levels. Therefore, other testing is usually needed to interpret an abnormal AST result.