ONWUEGBUNAM CHIAMAKA LAURA

17/SCI03/012

 One of the ways to access the integrity of liver after exposure to a toxicant such as acetaminophen is

1. Liver Function Tests

Many tests can be performed on the [liver](/human-body-maps/liver). Certain tests can reflect different aspects of liver function. Commonly used tests to check liver abnormalities are tests checking:

* [alanine transaminase (ALT)](/health/alt)
* [aspartate aminotransferase (AST)](/health/ast)
* [alkaline phosphatase (ALP)](/health/alp)
* [albumin](/health/albumin-serum)
* [bilirubin](/health/bilirubin-blood)

The ALT and AST tests measure [enzymes](/health/enzyme-markers)that your liver releases in response to damage or disease. The albumin test measures how well the liver creates albumin, while the bilirubin test measures how well it disposes of bilirubin. ALP can be used to evaluate the bile duct system of the liver.

Having abnormal results on any of these liver tests typically requires follow up to determine the cause of the abnormalities. Even mildly elevated results can be associated with liver disease. However, these enzymes can also be found in other places besides the liver.

Liver function tests are used to measure specific enzymes and proteins in your blood.

Depending on the test, either higher- or lower-than-normal levels of these enzymes or proteins can indicate a problem with your liver.

Some common liver function tests include:

### **Alanine transaminase (ALT) test**

[Alanine transaminase (ALT)](/health/alt) is used by your body to metabolize protein. If the liver is damaged or not functioning properly, ALT can be released into the blood. This causes ALT levels to increase.

A higher than normal result on this test can be a sign of liver damage.

According to the [American College of Gastroenterology](http://acgblog.org/wp-content/uploads/2016/12/AJG-Kwo-et-al-ACG-Liver-Chemistries-Guideline-2017.pdf%22%20%5Ct%20%22_blank), an ALT above 25 IU/L (international units per liter) in females and 33 IU/L in males typically requires further testing and evaluation.

### **Aspartate aminotransferase (AST) test**

[Aspartate aminotransferase (AST)](/health/ast) is an enzyme found in several parts of your body, including the [heart](/human-body-maps/heart), liver, and muscles. Since AST levels aren’t as specific for liver damage as ALT, it’s usually measured together with ALT to check for liver problems.

When the liver is damaged, AST can be released into the bloodstream. A high result on an AST test might indicate a problem with the liver or muscles.

The [normal range for AST](https://www.unboundmedicine.com/harrietlane/view/Harriet_Lane_Handbook/309269/all/TABLE_27_1%3A_Reference_Values%22%20%5Ct%20%22_blank) is typically up to 40 IU/L in adults and may be higher in infants and young children.

### **Alkaline phosphatase (ALP) test**

[Alkaline phosphatase (ALP)](/health/alp) is an enzyme found in your bones, bile ducts, and liver. An ALP test is typically ordered in combination with several other tests.

High levels of ALP may indicate liver inflammation, [blockage of the bile ducts](/health/bile-duct-obstruction), or a bone disease.

Children and adolescents may have elevated levels of ALP because their bones are growing. Pregnancy can also raise ALP levels. The [normal range for ALP](https://www.unboundmedicine.com/harrietlane/view/Harriet_Lane_Handbook/309269/all/TABLE_27_1%3A_Reference_Values%22%20%5Ct%20%22_blank) is typically up to 120 U/L in adults.

### **Albumin test**

[Albumin](/health/albumin-serum) is the main protein made by your liver. It performs many important bodily functions. For example, albumin:

* stops fluid from leaking out of your blood vessels
* nourishes your tissues
* transports hormones, vitamins, and other substances throughout your body

An albumin test measures how well your liver is making this particular protein. A low result on this test can indicate that your liver isn’t functioning properly.

The normal range for albumin is 3.5–5.0 grams per deciliter (g/dL). However, low albumin can also be a result of poor nutrition, kidney disease, infection, and inflammation.

### **Bilirubin test**

[Bilirubin](/health/bilirubin-blood) is a waste product from the breakdown of [red blood cells](/health/rbc-count). It’s ordinarily processed by the liver. It passes through the liver before being excreted through your stool.

A damaged liver can’t properly process bilirubin. This leads to an abnormally high level of bilirubin in the blood. A high result on the bilirubin test may indicate that the liver isn’t functioning properly.

The normal range for total bilirubin is typically 0.1–1.2 milligrams per deciliter (mg/dL). There are certain inherited diseases that raise bilirubin levels, but the liver function is normal.