

Know Your Test: Liver Function Tests

Liver Function Tests (LFTs) are one of the most commonly ordered screening blood tests. Whether for the investigation of suspected liver disease, monitoring of disease activity, or simply as 'routine' blood analysis, these tests can provide a host of valuable information on a range of disease processes. However, the term "liver function tests" is a bit of misnomer because most of the tests in this panel of tests are of little value in assessing the function of the liver *per se*. Only the bilirubin and albumin given in this panel offer information about the functional capacity of the liver. At a basic level, the evaluation of liver enzymes simply gives information as to whether a patient's primary illness is of hepatitic or cholestatic in origin. Despite these, the term "liver function tests" has been deeply entrenched in the medical lexicon and this panel, as stated before, is commonly ordered and is part of most health check-up plans or packages.

WHY DO WE NEED THEM?

When the liver doesn't work properly, it can affect one's overall health. The liver plays different important functions of the body, such as storing fuel from food, making proteins, and helping remove toxins from the body.

Doctors may order LFT as a way to check a person's liver for infection, injury, or disease. LFT is also sometimes known by alternative names, such as Hepatic Function Panel or Liver Profile.

LFTs are ordered when one has signs of liver disease – including jaundice, dark urine, nausea, vomiting, or abdominal pain or swelling. They are also ordered to help diagnose viral infection involving liver (like hepatitis) or to look for possible effects of cancer or other diseases on the liver. LFTs are also used to monitor people who are taking medicines that might cause liver-related side effects. They are also used to monitor the progression of alcoholic hepatitis and determine how well the treatment is working.

COMPONENTS OF LIVER FUNCTION TESTS

LFT check the levels of certain enzymes and proteins in the blood. Levels that are higher or lower than normal are usually indicative of liver problems. The different tests that usually make up a liver function test are:

- **ALANINE AMINOTRANSFERASE (ALT, also known as SGPT):** This enzyme plays a role in processing proteins. Large amounts of ALT occur in liver cells. When the liver is injured or inflamed (as in hepatitis), the level of ALT in the blood usually rises.
- **ASPARTATE AMINOTRANSFERASE (AST, also known as SGOT):** This is another enzyme usually found inside the liver cells. When a blood test detects high levels of this enzyme in the blood, it usually means, the liver is injured in some way. However, AST can also be released if heart or skeletal muscle is damaged.
- **ALKALINE PHOSPHATASE (ALP):** This enzyme is found in several body tissues, including the liver. Kids and teens normally have higher levels of ALP than adults because of bone growth. But ALP levels that are higher than normal can be a sign of liver diseases or blocked bile ducts.

- **BILIRUBIN:** Bilirubin is a by-product of the normal breakdown of red blood cells. It usually passes through the liver and is flushed from the body. But if that doesn't happen due to a liver disease, bilirubin levels in the blood can rise and the skin can take on the yellow discoloration known as jaundice. Test for bilirubin may be total (measuring the level of all of the bilirubin in the blood) or direct (measuring only bilirubin that has been processed by the liver and attached to other chemicals). A raised level of 'conjugated' bilirubin occurs in various liver and bile duct conditions. It is particularly high if the flow of bile is blocked. A raised level of 'unconjugated' bilirubin occurs when there is excessive breakdown of red blood cells.
- **ALBUMIN:** This is the main protein made by the liver, and it circulates in the blood stream. The ability to make albumin (and other proteins) is affected in some types of liver disorder. A low level of blood albumin occurs in some liver disorders.
- **GLOBULIN:** It is a protein made in the liver and helps the immune system fight infections. Low globulin levels can be a sign of liver damage or other conditions.
- **GAMMA-GLUTAMYLTRANSFERASE (GGT or Gamma GT):** GGT is an enzyme in the blood. Higher than normal may indicate liver or bile duct damage. It can also be helpful in identifying the cause of an isolated elevation in ALP. GGT is raised in chronic alcohol toxicity.
- **TOTAL PROTEIN:** This measures albumin and all other proteins in blood.

INTERPRETATION AND LIMITATIONS

Interpretation of liver function tests is not always easy. Patterns of test results across several parameters are usually more useful than single parameters. Also, the levels of LFT results are not always a good indication of disease severity. For example, some LFTs may be normal in advanced liver failure but results may be markedly increased in acute hepatitis, from which most patients will recover well.

The difficulty in interpreting LFTs means that, as for all laboratory tests, they must be considered carefully in the context of clinical findings, physical examinations, previous liver function tests and other test results. The role of specific disease markers, radiological imaging and liver biopsy cannot be underestimated.
