



معهد دسمان للسكري
Dasman Diabetes Institute



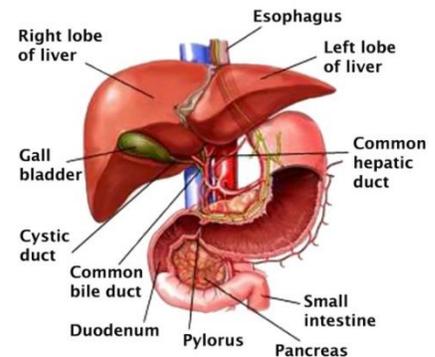
LIVER FUNCTION TEST (LFT)

What is the liver?

A large lobed glandular organ in the right side of the upper abdomen that is involved in many metabolic processes.

What does the liver do?

- Storing glycogen (fuel for the body) which is made from sugar.
- Helping to process fats and proteins from digested food.
- Making proteins for blood to clot.
- Processing medicines which we take.
- Helping to remove toxins from the body.



Liver Function Test (LFT)

It is a group of blood tests used to help diagnose and, monitor liver disease or damage. It is also to check how well the liver is working. LFT measures the level of certain enzymes and proteins in the blood and, therefore assesses the health of the liver.

Sample type:

- Blood.
- Fasting is not required.

LFT includes the following tests:

- **Aspartate Amino transferase (AST):** This enzyme is found in muscles and many other tissues besides the liver. An increase in AST levels may indicate liver damage or disease; it can also be released if the heart and skeletal muscle is damaged.
- **Alanine transaminase (ALT):** This enzyme is exclusively found in the liver. It helps the body metabolize protein. When the liver is injured or inflamed (as in hepatitis), the blood level of ALT rises.
- **Alkaline Phosphatase (ALP):** It is an enzyme in the liver, bile ducts and bone. High levels of ALP may indicate liver damage or disease, such as a blocked bile duct, or may indicate certain bone diseases.
- **Albumin (ALB):** is the main protein made by the liver. Low albumin level occurs in some liver disorders. This can also occur in kidney disease and poor nutrition.
- **Total Protein (TP):** Measures albumin and all other proteins in the blood. Elevated TP may indicate mild dehydration, chronic inflammation or infection to the liver. This can also occur in some types of blood disorders and cancers.
- **Bilirubin:** is a protein produced during the normal breakdown of red blood cells. Elevated levels of bilirubin (jaundice) may indicate liver damage or disorder, or excessive breakdown of red cells in some blood disorders.

Types of Bilirubin:

Conjugated Bilirubin/Direct Bilirubin: a raised blood level of conjugated bilirubin occurs in the following conditions:

- Gallstone
- Hepatitis
- Liver injury



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- Long term alcohol abuse
- Tumor in the pancreas

Unconjugated Bilirubin/Total Bilirubin: occurs when there is excessive breakdown of red blood cell which can be seen in hemolytic anemia.

- **Gamma-glutamyltransferase (GGT):** high level of this enzyme is associated with heavy alcohol drinking and diseases of the liver, biliary system, pancreas, or due to injuries from certain medications.

DDI Liver Function test Reference range:		
AST	15-37 U/L	
ALT	Female: 14-59 U/L	Male: 16-63 U/L
ALP	Adult: 46-116 U/L	
Albumin	34-50 g/L	
T. Protein	Adult: 64-82 g/L	Pediatric: 60-80 g/L
T. Bil	3.0-17 umol/L	
D. Bil	0-3 umol/L	
GGT	Female: 5-55 U/L	Male: 15-85 U/L

(Normal range of liver tests can vary between different laboratories.)

Other test to confirm the diagnosis of Liver Disorders:

- Blood Clotting Tests: (PT/APTT).
- Lactate dehydrogenase (LDH).
- Virus infection Test.
- Auto antibodies Screening Test.



Why is the test done?

- Examine the development of a disease, such as viral or alcoholic hepatitis, and find out how well the treatment works.
- Monitor possible side effects of medications (like statins or antibiotics).
- Screening for any liver infections.
- As part of routine checkup for normal cases.
- Assess the activity and severity of a liver disorder, such as fatty liver disease.

Risk Factors for Liver Disease

A. High Risk Behavior

- Alcohol abuse
- IV drug use
- High risk sexual activity

B. Systemic illness

- Diabetes
- Obesity
- Inflammatory bowel disease
- Autoimmune disease

References:

- *WebMD*
- *Medline Plus*
- *Lab test online*