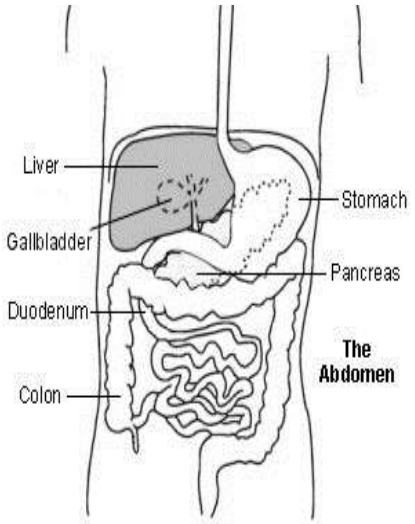
Liver function tests (LFTs)

The liver lies in the upper right part of the tummy (abdomen).



The functions of liver include:

-Storing glycogen as fuel for body which is made from sugars.

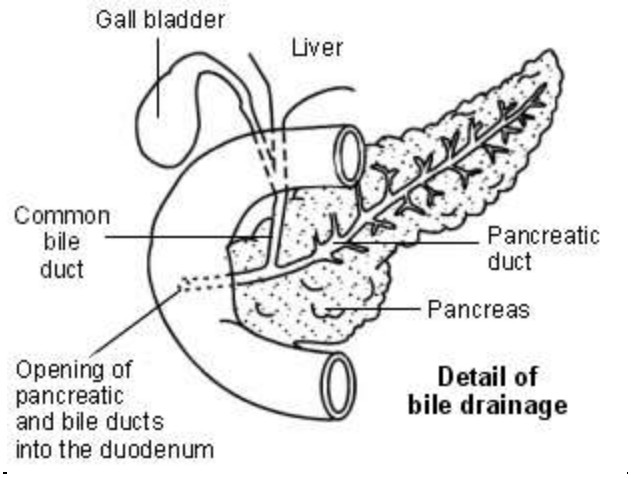
-Helping to process fats and proteins from digested food.

-Making proteins that are essential for blood clot (clotting factors).

-Processing many medicines which may take.

-Helping to remove poisons and toxins from the body.

-The liver also makes bile: This is a greenish-yellow fluid that contains bile acids, bile pigments and waste products such as bilirubin. Liver cells pass bile into bile ducts inside the liver. The bile flows down these ducts into larger and larger ducts, eventually leading to the common bile duct. The gallbladder is like a 'cul-de-sac' reservoir of bile which comes off the common bile duct. After eating, the gallbladder squeezes bile back into the common bile duct and down into the first part of the gut, known as the duodenum. Bile in the gut helps to digest fats.



As the liver performs its various functions, it makes chemicals that pass into the bloodstream. Various liver disorders alter the blood level of these chemicals. Some of these chemicals can be measured in a blood sample.

LFTs are some tests that are commonly done on a blood sample. These usually measure the following:

- **Alanine transaminase (ALT)**. This is an enzyme that helps to process proteins. (An enzyme is a protein that helps to speed up chemical reactions. Various enzymes occur in the cells in your body.) Large amounts of ALT occur in liver cells. When liver is injured or inflamed (as in hepatitis), the blood level of ALT usually rises.

- **Aspartate aminotransferase (AST)**. This is another enzyme usually found inside liver cells. When a blood test detects high levels of this enzyme in blood it usually means that liver is injured in some way. However, AST can also be released if heart or skeletal muscle is damaged. For this reason, ALT is usually considered to be more specifically related to liver problems.

- **Alkaline phosphatase (ALP)**. This enzyme occurs mainly in liver cells next to bile ducts, and in bone. The blood level is raised in some types of liver and bone disease.

- **Albumin**. This is the main protein made by liver and it circulates in bloodstream. 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. It can also occur in people who are malnourished.

- **Total protein**. This measures albumin and all other proteins in blood.
- **Bilirubin**. This chemical gives bile its yellow/green colour. A high level of bilirubin in blood will make you appear 'yellow' (jaundiced). Bilirubin is made from haemoglobin. Haemoglobin is a chemical in red blood cells that is released when red blood cells break down. Liver cells take in bilirubin and attach sugar molecules to it. This is then called 'conjugated' bilirubin which is passed into your bile ducts:
    - A raised blood level of 'conjugated' bilirubin occurs in various liver and bile duct conditions. It is particularly high if the flow of bile is blocked. For example, by a gallstone stuck in the common bile duct, or by a tumour in the pancreas. It can also be raised with hepatitis, liver injury, or long-term alcohol abuse.
    - A raised level of 'unconjugated' bilirubin occurs when there is excessive breakdown of red blood cells - for example, in haemolytic anaemia. It can also occur in people with Gilbert's syndrome which is a common, harmless condition.
- To help diagnose liver disorders - such as appearing 'yellow' (jaundiced). The pattern of the blood results may help to determine which disorder is causing the problem. For example, depending on which enzyme is highest, it may point to a particular disorder.
- To monitor the activity and severity of liver disorders.
- As a routine precaution after starting certain medicines, to check that they are not causing liver damage as a side-effect.
- To screen for any potential liver disease (for example, in those who are alcohol-dependent or in people who have been exposed to a hepatitis virus).

Other tests of the liver

LFTs are useful and are often the first marker of disease in liver. However, other tests of liver may also be done to confirm the diagnosis of a particular disorder and/or to monitor the activity of the disorder and response to treatment.

- **Blood clotting tests**. The liver makes many of the proteins needed to make blood clot. In certain liver disorders your liver cannot make enough of these proteins and so blood does not clot so well. Therefore, blood clotting tests may be used as a marker of the severity of certain liver disorders.
- **Gamma-glutamyltransferase (GGT, or 'gamma GT')**. This is another enzyme that occurs in liver cells. A high level of this enzyme is particularly associated with heavy alcohol drinking. (The liver breaks down and clears alcohol from the body and this enzyme is involved in the process.)
- **Immunology**. Blood tests may be done to detect:
- Viruses and antibodies to viruses. Various viral infections can cause inflammation of the liver (hepatitis) - for example, hepatitis A virus, hepatitis B virus, etc.
- Auto-antibodies. These are antibodies which attack a part of your own body and occur in autoimmune disorders.
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