

ROTARY CLUB OF CHIKHLI RIVER FRONT

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HEALTH



LIVER DISEASES SPECIAL ISSUE

OUR SINCERE THANKS TO ALIPORE HOSPITAL TEAM

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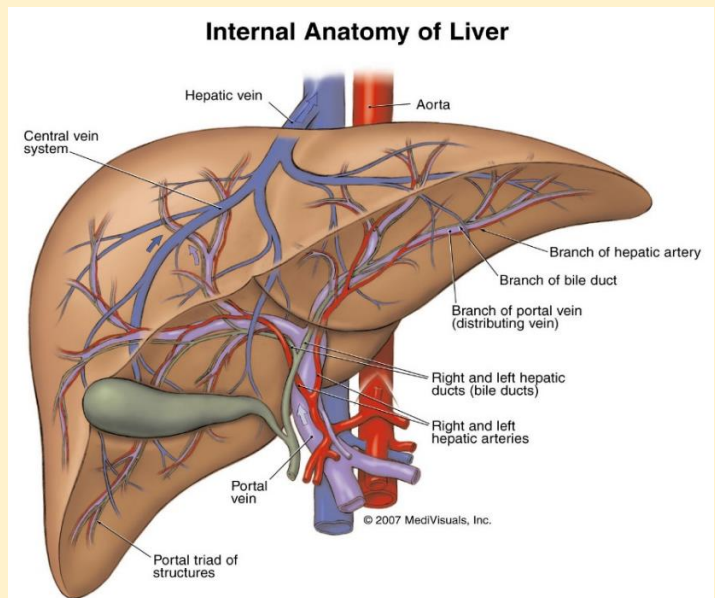
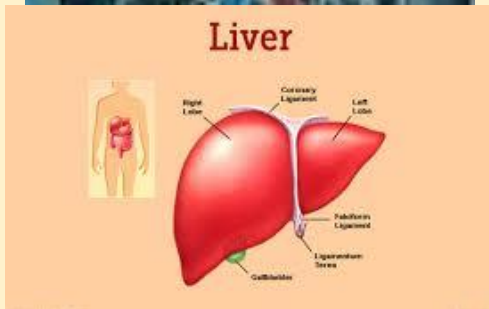
EDITORIAL

ROTARY GREETINGS TO ALL OF YOU!!!

SEASONS GREETINGS TO ALL OF YOU

We feel pleased to present this booklet to bring awareness amongst all of us all against deadly disease in our body organ, that is Liver especially we have felt that Fatty Liver has nowadays spread widely. The reason being to publish this booklet, Chakra Health Liver Disease Special Issue is to bring about awareness to this deadly disease.

There are many types of liver disease. Some of the most common types are treatable with diet and lifestyle changes, while others may require lifelong medication to manage. If you begin treatment early enough, you can often prevent permanent damage. But you may not have symptoms in the early stages. Late-stage liver disease is more complicated to treat.



As the above picture suggests, we want all those who read this booklet to be well-informed about the problems caused.

Your liver is a large and powerful organ that performs hundreds of essential functions in your body. One of its most important functions is filtering toxins from your blood. While your liver is well-equipped for this job, its role as a filter makes it vulnerable to the toxins it processes. Too many toxins can overwhelm your liver's resources and ability to function. This can happen temporarily or over a long period of time. When healthcare providers refer to liver disease, they're usually referring to chronic conditions that do progressive damage to your liver over time. Viral infections, toxic poisoning and certain metabolic conditions are among the common causes of chronic liver disease. Your liver has great regenerative powers, but constantly working overtime to restore itself takes its toll. Eventually, it can't keep up.

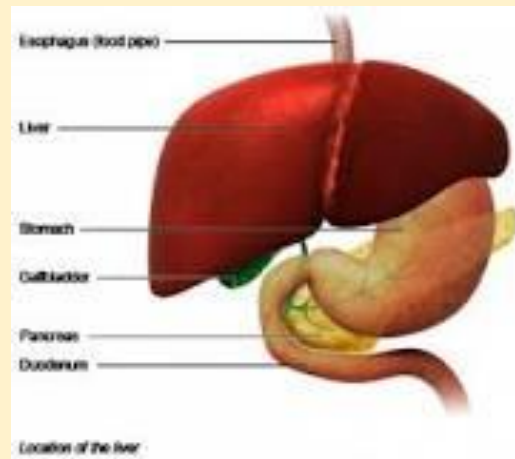
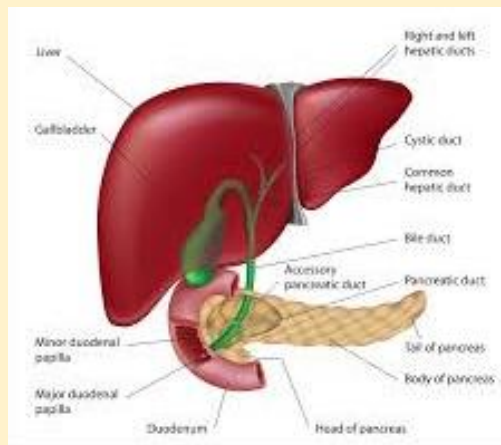
Lastly, enjoy reading and keep yourselves informed. Our sincere thanks to all those who have helped us with information to prepare this booklet, especially from the Alipore Hospital Team. Please note this booklet is for private circulation and is for informational purposes only. For medical advice or diagnosis, consult a medical professional.

Yours sincerely

Rtn Hassan Mayet

Rtn Swetal Desai





LIVER

The liver is a vital organ in the human body that performs many functions, including:

- Digestion
- The liver produces bile and processes blood that contains nutrients from the small intestine.
- Metabolism
- The liver converts nutrients from food into substances the body can use, and stores and supplies these substances to cells.
- Detoxification
- The liver removes toxic substances from the body by converting them into harmless substances or releasing them.
- Vitamin storage
- The liver stores vitamins.

The liver is located in the upper right-hand portion of the abdominal cavity, beneath the diaphragm, and on top of the stomach, right kidney, and intestines.

Shaped like a cone, the liver is a dark reddish-brown organ that weighs about 3 pounds.

There are 2 distinct sources that supply blood to the liver, including the following:

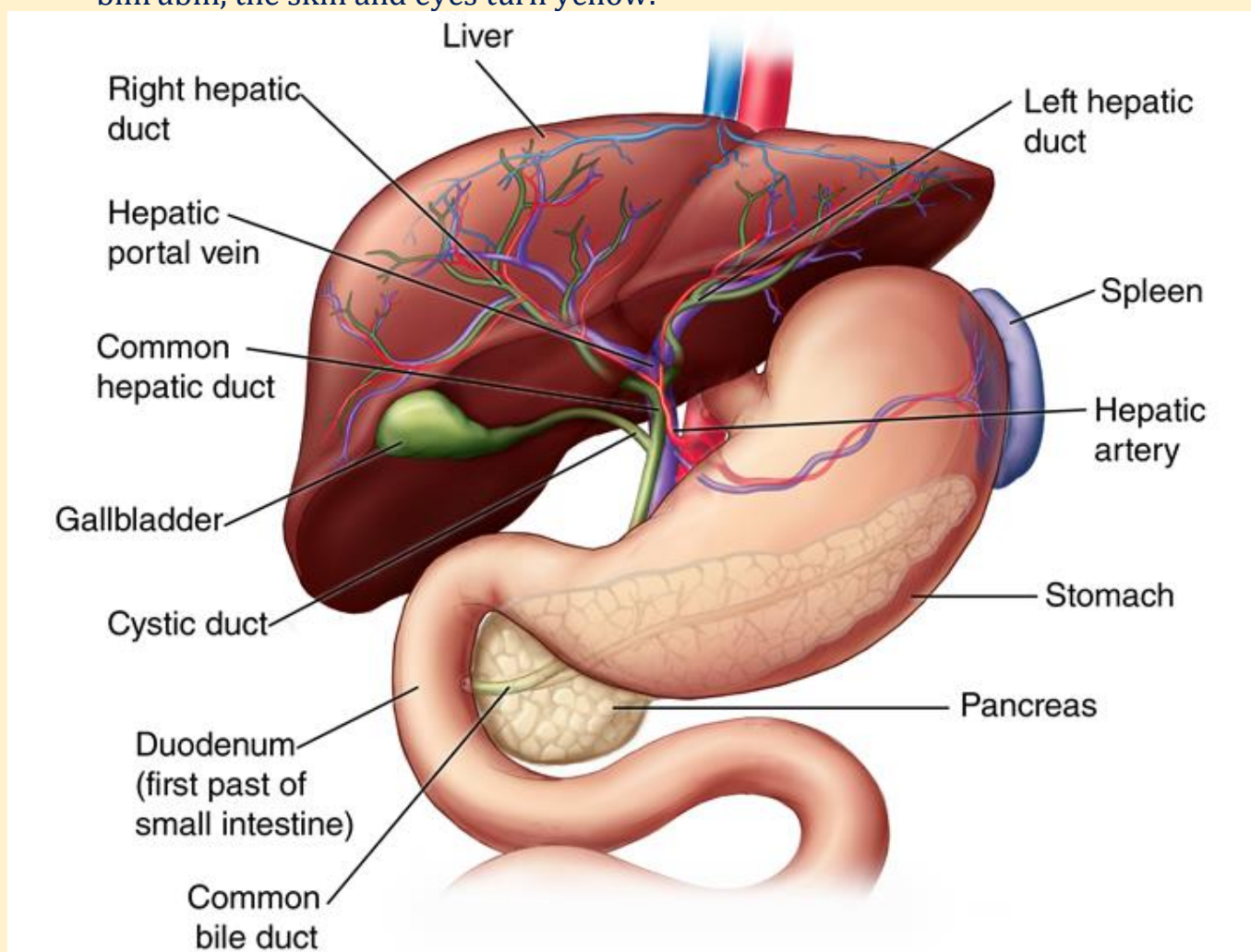
- Oxygenated blood flows in from the hepatic artery
- Nutrient-rich blood flows in from the hepatic portal vein

The liver holds about one pint (13%) of the body's blood supply at any given moment. The liver consists of 2 main lobes. Both are made up of 8 segments that consist of 1,000 lobules (small lobes). These lobules are connected to small ducts (tubes) that connect with larger ducts to form the common hepatic duct. The common hepatic duct transports the bile made by the liver cells to the gallbladder and duodenum (the first part of the small intestine) via the common bile duct.

Functions of the liver

The liver regulates most chemical levels in the blood and excretes a product called bile. This helps carry away waste products from the liver. All the blood leaving the stomach and intestines passes through the liver. The liver processes this blood and breaks down, balances, and creates the nutrients and also metabolizes drugs into forms that are easier to use for the rest of the body or that are nontoxic. More than 500 vital functions have been identified with the liver. Some of the more well-known functions include the following:

- Production of bile, which helps carry away waste and break down fats in the small intestine during digestion
- Production of certain proteins for blood plasma
- Production of cholesterol and special proteins to help carry fats through the body
- Conversion of excess glucose into glycogen for storage (glycogen can later be converted back to glucose for energy) and to balance and make glucose as needed
- Regulation of blood levels of amino acids, which form the building blocks of proteins
- Processing of haemoglobin for use of its iron content (the liver stores iron)
- Conversion of poisonous ammonia to urea (urea is an end product of protein metabolism and is excreted in the urine)
- Clearing the blood of drugs and other poisonous substances
- Regulating blood clotting
- Resisting infections by making immune factors and removing bacteria from the bloodstream
- Clearance of bilirubin, also from red blood cells. If there is an accumulation of bilirubin, the skin and eyes turn yellow.



When the liver has broken down harmful substances, its by-products are excreted into the bile or blood. Bile by-products enter the intestine and leave the body in the form of faeces. Blood by-products are filtered out by the kidneys, and leave the body in the form of urine.

The liver regulates most chemical levels in the blood and excretes a product called bile. This helps carry away waste products from the liver. All the blood leaving the stomach and intestines passes through the liver.

BACKGROUND

- * OCCURS when FAT DEPOSITED in LIVER
- ~ "FATTY LIVER"

CAUSES

- * ALCOHOL-INDUCED LIVER DISEASE
- * NON-ALCOHOLIC FATTY LIVER DISEASE

TREATMENT

- * ADDRESSING UNDERLYING CAUSE
- ~ LIFESTYLE MODIFICATIONS LIKE WEIGHT LOSS, EXERCISE, ELIMINATING ALCOHOL

SIGNS & SYMPTOMS

- * TYPICALLY ASYMPTOMATIC, EVEN in ADVANCED STAGES
- ~ WHEN SYMPTOMS PRESENT, OFTEN VAGUE (FATIGUE or MALAISE)
- * HEPATOMEGALY
- * PAIN in UPPER RIGHT QUADRANT
- * JAUNDICE
- * With CIRRHOSIS:
 - ~ ESOPHAGEAL VARICES
 - ~ ASCITES
 - ~ EASY BRUISING
 - ~ LIVER CANCER

DIAGNOSIS

- * ABNORMAL LIVER FUNCTION TESTS
- * IMAGING STUDIES
- ~ FATTY INFILTRATES
- * BIOPSY

OSMOSIS from Elsevier

The liver is the largest solid organ in the body, weighing about 3.1 pounds in adults. It's located in the upper right abdomen, below the diaphragm and under the ribs. The liver is wedge-shaped, spongy, and reddish-brown in colour.

Liver issues are called hepatic conditions, and a medical professional who specializes in the liver is a hepatologist. There are many types of liver disease, some of which can be treated with diet and lifestyle changes, while others may require medication. If caught early, liver disease can often be reversed.

OVERALL, the liver is a critical organ in the human body responsible for an array of functions that help support metabolism, immunity, digestion, detoxification, and vitamin storage, among other functions. It comprises around 2% of an adult's body weight. The liver is a large and powerful organ that performs hundreds of essential functions in your body. One of its most important functions is filtering toxins from your blood. While your liver is well-equipped for this job, its role as a filter makes it vulnerable

to the toxins it processes. Too many toxins can overwhelm your liver's resources and ability to function. This can happen temporarily or over a long period of time.

What are the signs and symptoms of later-stage liver disease?



Jaundice.



Dark-colored pee.



Light-colored poop.



Digestive difficulties, especially with fats.



Weight loss and muscle loss.



Musty-smelling breath.



Mild brain impairment (hepatic encephalopathy).



Pruritus (itchy skin, but with no visible rash).

Fatty liver disease is a condition where fat builds up in the liver. It can be caused by a number of factors, including:

- Alcohol
- Heavy alcohol use can cause alcoholic fatty liver disease. Alcohol is metabolized in the liver, and high amounts can act as a toxin.
- Obesity
- Being overweight or obese, especially around the abdomen, can contribute to fatty liver disease.
- Diet
- A high-fat diet can contribute to fatty liver disease.
- Diabetes
- Having type 2 diabetes or insulin resistance can contribute to fatty liver disease.
- High cholesterol
- Having high levels of cholesterol or triglycerides in the blood can contribute to fatty liver disease.
- Chemical pollution
- Some chemicals, such as vinyl chloride, have been linked to fatty liver disease

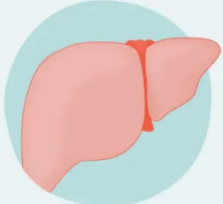
What is LFT (Liver Function Test)?

The liver function tests typically include alanine transaminase (ALT) and aspartate transaminase (AST), alkaline phosphatase (ALP), gamma-glutamyl transferase (GGT), serum bilirubin, prothrombin time (PT), the international normalized ratio (INR), total protein and albumin.


An LFT (Liver Function Test) assesses the overall health of your liver. It helps diagnose and monitor liver disease or damage and monitor or track the recovery process of any

known liver problems. It also helps determine if you need dose adjustments of medicines you might be taking. An LFT is also done as a part of routine preventive health check-ups.

**WHEN IS A
LIVER FUNCTION TEST USED?**



to check for damage from liver infections or diseases



to monitor side effects of medications



to assess treatment for a disease



to diagnose symptoms of a liver disorder



to check for liver damage from heavy alcohol use

The liver is the largest organ situated in the right upper part of the belly. Interestingly, it is the only organ that can regenerate efficiently. It performs various vital bodily functions, including the metabolism of nutrients like fats, proteins, carbohydrates, and certain medicines. Also, the liver cleanses your blood (a process called detoxification) by converting toxins into waste products. Hence, keeping your liver healthy is essential to maintain your overall health.

An LFT (Liver Function Test) helps with the early detection of liver problems such as fatty liver disease, cirrhosis, jaundice, and hepatitis.

Your doctor may advise an LFT if you experience symptoms such as chronic fatigue, belly pain, dark-coloured urine, and yellowing of the skin or whites of eyes or have risk factors such as obesity, high blood pressure, diabetes, excessive alcohol consumption, or a family history of liver disease.

Usually, no special preparation is required for an LFT (Liver Function Test). You may eat and drink normally as per your daily routine.

Test result ranges are approximate and may differ slightly between labs depending on the methodology and laboratory guidelines. Talk to your doctor about your specific test results. Narrate your complete medical history to help them correlate your clinical and laboratory findings.

Tests	Patient	Normal range
Bilirubin (total), µmol/L	11.2	2-17
Direct bilirubin, µmol/L	4.9	2-7
Albumin, g/L	45	36-52
Total proteins, g/L	69	62-82
Globulin, g/L	24	18-36
Aspartate aminotransferase, µ/L	36	Up to 37
Alanine aminotransferase, µ/L	34	Up to 42
Alkaline phosphatase, µ/L	102	60-306
Gamma glutamyl transferase, µ/L	58	10-55

The test results will help the doctor determine your medical condition, make recommendations for lifestyle modifications such as diet and exercise, decide whether or not medication will be required to manage your liver health, and formulate your overall treatment plan.





What does LFT (Liver Function Test) measure?

Contains 11 tests

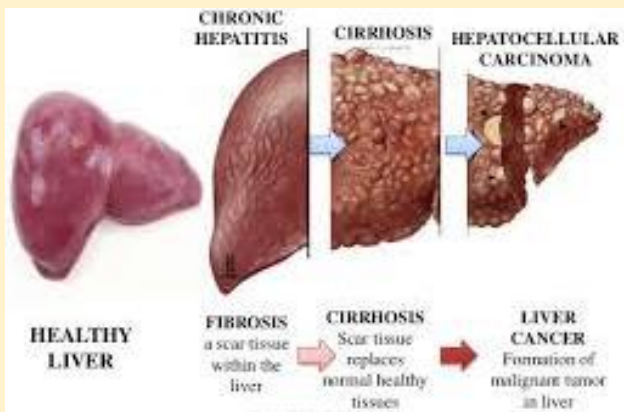
An LFT (Liver Function Test) helps determine the health of your liver by measuring various components like enzymes, proteins, and bilirubin. These components help detect inflammation, infection, diseases, etc., of the liver and monitor the damage due to liver-related issues

What is LFT (Liver Function Test) used for?

An LFT (Liver Function Test) is done:

As part of a routine health check-up.

- To diagnose or measure the progression of liver diseases, such as hepatitis, fatty liver disease, jaundice, liver cirrhosis, or liver cancer.
- To monitor the treatment response of existing liver disease.
- To monitor the effects of certain medications like penicillin, tetracycline, valproic acid, nonsteroidal anti-inflammatory drugs (NSAIDs), and high doses of paracetamol, as these may affect your liver function.
- To monitor for alcohol abuse.



SIGNS AND SYMPTOMS OF LIVER

- Yellowish skin & Eyes.
- Light coloured stool.
- Dark coloured urine.
- Increase fatigue.
- Loss of appetite.
- Nausea and vomiting.
- Itching sensation.
- Pain and swelling in abdomen.

. Gamma Glutamyl Transferase

Gamma-Glutamyl Transferase (GGT) is an enzyme found in various organs, with the highest concentration in the liver. Usually, this enzyme is present in low levels in the blood.

SUMMARY:

- GGT is the most sensitive enzyme indicator of the Hepatobiliary disease.
- Normal values are rarely found in the presence of liver disease.
- GGT is of little value in attempting to discrimination between kinds of liver diseases.

However, when there is liver damage or disease, GGT is released into the bloodstream, causing an increase in GGT levels. In addition to the liver, GGT can also be elevated in conditions affecting the bile ducts or the pancreas. It is usually, the first liver enzyme to rise in the blood when there is any damage or obstruction in the bile duct, making it one of the most sensitive liver enzyme tests for detecting bile duct problems.

SGPT



An SGPT test measures the amount of ALT or SGPT enzyme in your blood. ALT is most abundantly found in the liver but is also present in smaller amounts in other organs like the kidneys, heart, and muscles. Its primary function is to convert food into energy. It also speeds up chemical reactions in the body. These chemical reactions include the production of bile and substances that help your blood clot, break down food and toxins, and fight off an infection.

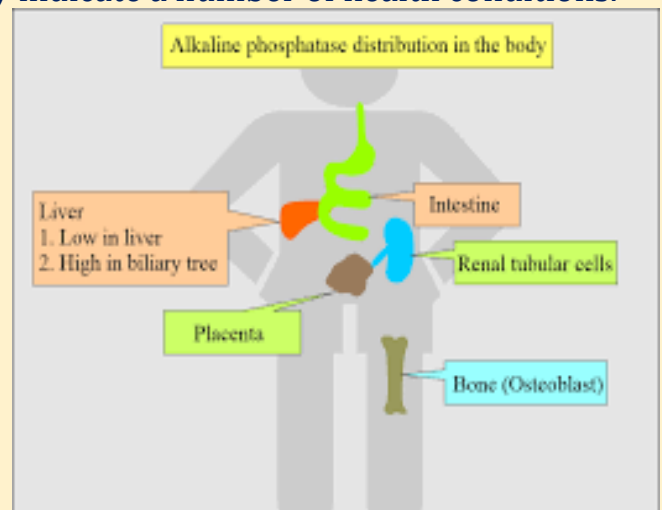
Elevated levels of ALT in the blood may indicate liver damage or injury. When the liver cells are damaged, they release ALT into the bloodstream, causing an increase in ALT levels. Therefore, the SGPT/ALT test is primarily used to assess the liver's health and to detect liver-related problems such as hepatitis, fatty liver disease, cirrhosis, or other liver disorders.



Alkaline Phosphatase (ALP)

Alkaline phosphatase (ALP) is a protein enzyme found in many tissues in the body, including the liver, bones, kidneys, and digestive system. ALP levels can be measured with a blood test, and abnormal levels may indicate a number of health conditions.

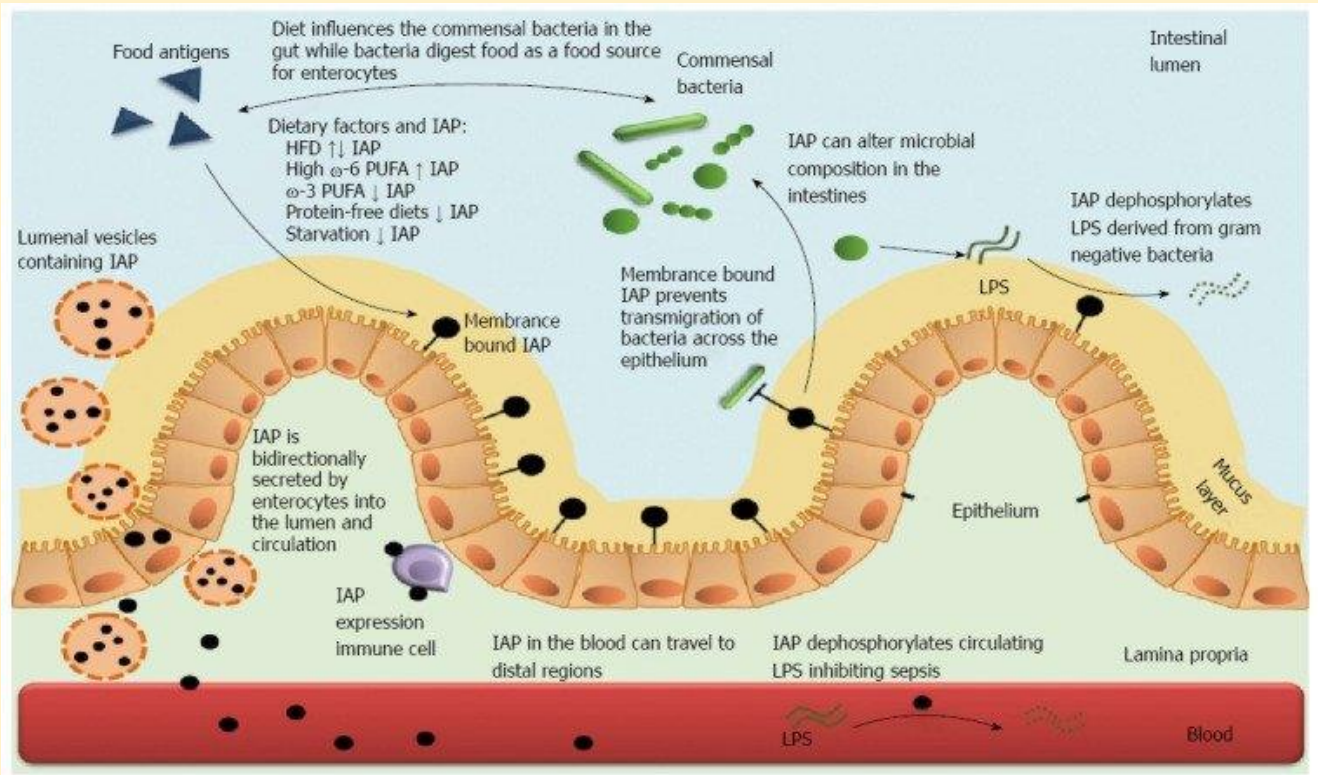
An Alkaline Phosphatase (ALP) test measures the quantity of ALP enzyme present throughout the body. The main sources of this enzyme are the liver and bones. It exists in different forms depending on where it originates, such as liver ALP, bone ALP, and intestinal ALP. In the liver, it is found on the edges of the cells that join together to form bile ducts. ALP levels can be increased during pregnancy as it is found in the placenta of pregnant women.



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Alkaline phosphatase (ALP) is also higher in children because their bones are in the growth phase. ALP is often high during growth spurts (a short period when an individual experiences quick physical growth in height and body weight).

Alkaline Phosphatase

Normal Range: 20 - 140 U/L

alkaline phosphatase

alkaline phosphatase triggered probes for diagnosis

phosphorylated prodrugs

phosphate-functionalized drug delivery systems

Alkaline Phosphatase (AP)

Inflammatory bowel disease \uparrow Liver \uparrow Bone \uparrow

Inhibitors

Placenta \uparrow Ovarian cancer \uparrow Pregnant women with Chagas' disease \uparrow (PLAP)

Germ cells \uparrow Embryo \uparrow Germ Cell¹

Time in expression

Liver function tests

ALT	✓	Total protein	✓
AST	✓	Total bilirubin	✓
ALP	✓	Albumin	✓
BUN	✓	Cholesterol	✓
GGT	✓	Glucose	✓

www.labtestsguide.com

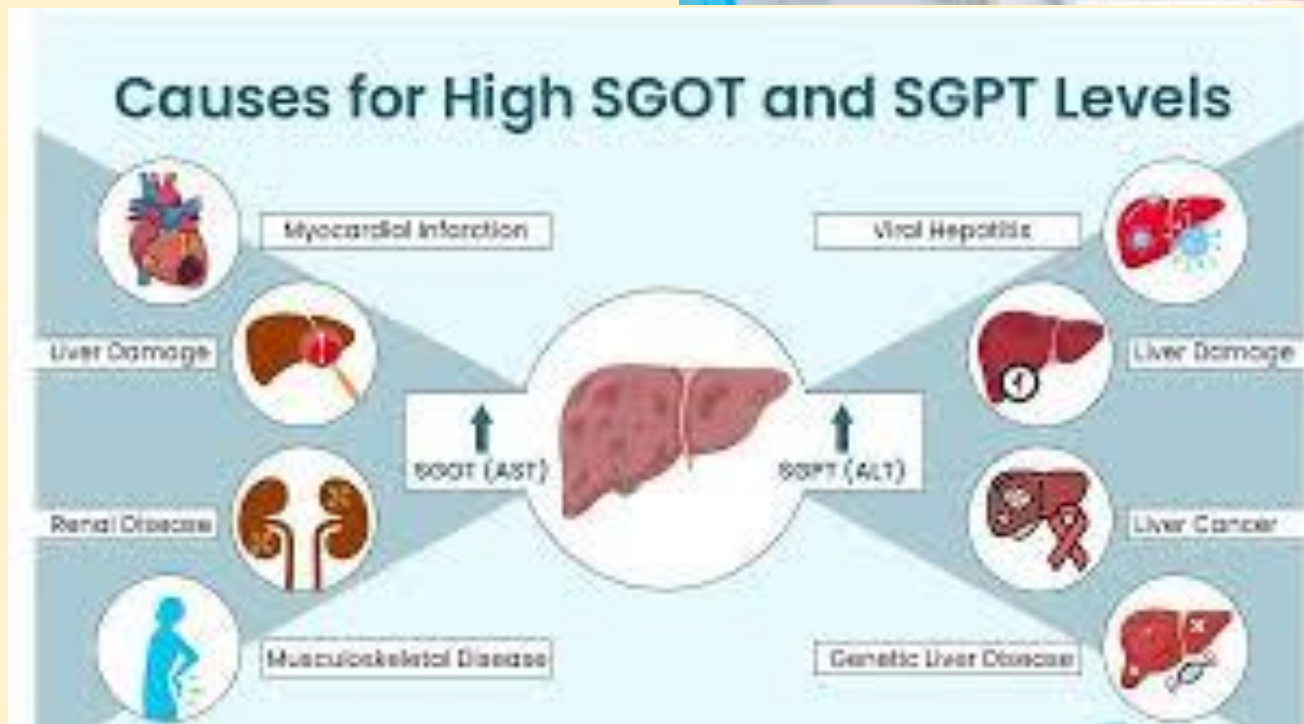
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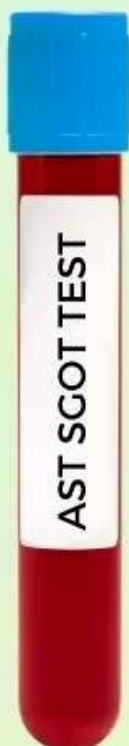
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SGOT (SERUM GLUTAMIC-OXALOACETIC TRANSAMINASE)

An SGOT test measures the levels of serum glutamic-oxaloacetic transaminase (SGOT), also known as aspartate aminotransferase (AST), an enzyme produced by the liver. SGOT is present in most body cells, most abundantly in the liver and heart.



The aspartate aminotransferase (AST) also known as serum glutamic oxaloacetic transaminase (SGOT) blood test is crucial in assessing the health & functioning of the liver, heart & other vital organs



NORMAL RANGE



14 TO 20 UNITS/L



10 TO 36 UNITS/L

What Causes an Increase in SGOT Normal Range?



Viral Hepatitis A and B



Excessive alcohol consumption



Obesity



Diabetes



Heart attack



Pancreatitis



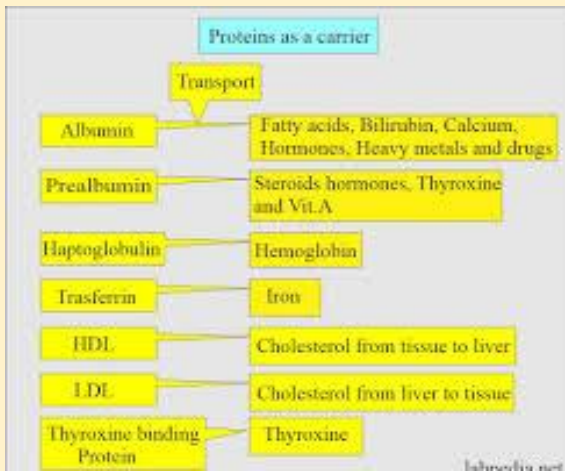
Muscle injuries

The primary function of this enzyme is to convert food into glycogen (a form of glucose), which is stored in the cells, primarily the liver. The body uses this glycogen to generate energy for various body functions.

Protein Total, Serum

The Protein Total, Serum test measures the amount of proteins in the body. Proteins are known as the building blocks of all cells and tissues. They play a crucial role in the growth and development of most of your organs and in making enzymes and hormones.





Total Serum Protein:-

A total serum protein test measures the total amount of protein in the blood. It also measures the amounts of two major groups of proteins in the blood: albumin and globulin.

❖ Types:-

- 1) Albumin.
- 2) α 1globulin (α 1 Antitrypsin)
- 3) α 2globulin (haptoglobin)
- 4) β globulin (transferrin, fibrinogen)
- 5) γ globulin (Immunoglobulins).

It helps to carry small molecules such as hormones, minerals, and medicines throughout the body. It also serves as a source of amino acids for tissue metabolism. On the other hand, globulin is a group of proteins that are made by the liver and the immune system.

They play an important role in liver functioning, blood clotting, and fighting off infections.

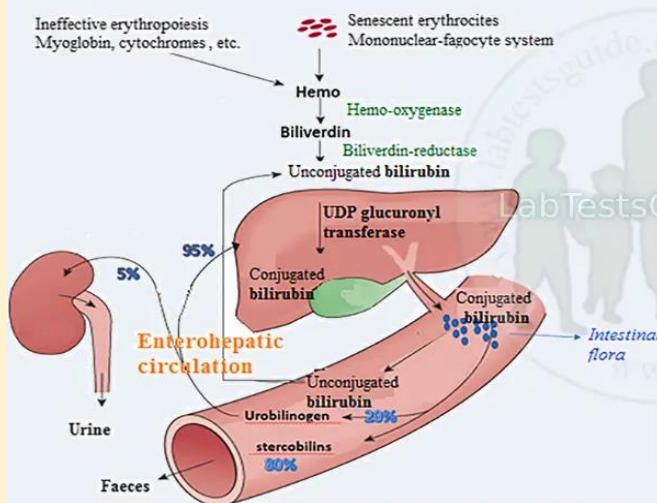
- Protein Total, Serum
- This further contains
- Albumin/Globulin Ratio, Serum
- Globulin, Serum
- Serum Albumin
- Protein Total

Bilirubin (Total, Direct and Indirect)

The Bilirubin (Total, Direct and Indirect) test measures the level of three forms of bilirubin such as total bilirubin, direct (conjugated bilirubin), and indirect (unconjugated) bilirubin in the blood.



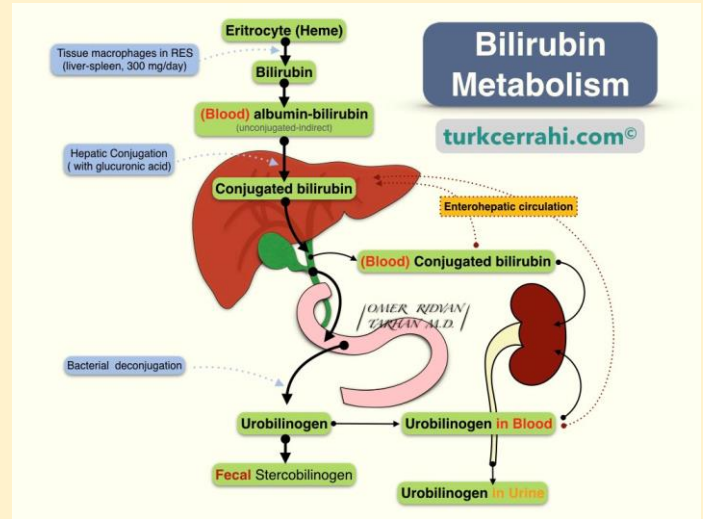
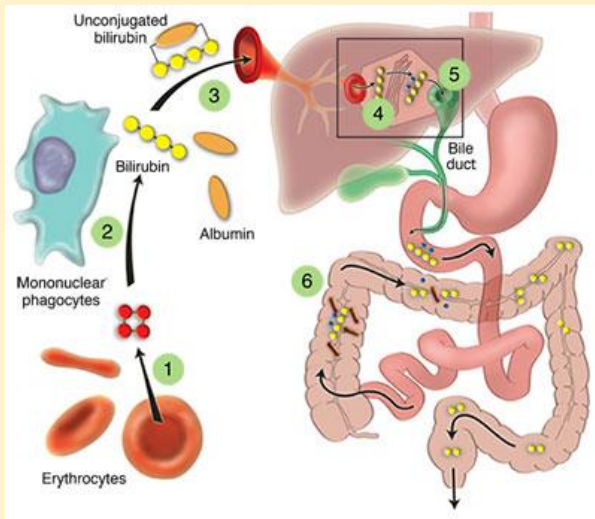
Direct Bilirubin VS InDirect Bilirubin



Difference	Conjugated Bilirubin	Unconjugated Bilirubin
Chemical composition	Water-soluble and less lipid-soluble	Water-insoluble and lipid-soluble
Solubility in water	Soluble in water	Not soluble in water
Transport in blood	Transported in the blood in a free form	Transported in the blood bound to albumin
Processing in the liver	Already processed and ready for elimination from the body	Processed in the liver by being conjugated with glucuronic acid to form conjugated bilirubin
Ability to pass through the blood-brain barrier	Cannot pass through the blood-brain barrier	Can pass through the blood-brain barrier and cause neurotoxicity
Urinary excretion	Excreted in the urine	Not excreted in the urine
Color	Does not contribute to yellow coloration	Responsible for the yellow color of bruises and jaundice
Clinical Significance	Typically elevated in conditions such as obstructive jaundice and biliary atresia	Typically elevated in conditions such as hemolytic anemia and Gilbert's syndrome

Total bilirubin represents the sum of direct and indirect bilirubin.

Direct bilirubin is the water-soluble form of bilirubin that has been processed by the liver via a conjugation process with glucuronic acid and is ready to be excreted into the bile ducts and ultimately into the intestines.



Indirect bilirubin is the water-insoluble form of bilirubin that has not yet been processed by the liver and is bound to albumin in the blood. It is formed in the spleen and liver during the breakdown of haemoglobin from old or damaged red blood cells and cannot be excreted directly by the liver. Instead, it is transported to the liver, where it undergoes conjugation to become direct bilirubin.

Getting tested with the *Bilirubin (Total, Direct and Indirect)* test provides valuable information into various aspects of liver function, bile duct health, and the body's ability to break down and eliminate bilirubin.

This further contains:

- Bilirubin Indirect
- Bilirubin Direct
- Bilirubin Total
- Interpreting LFT (Liver Function Test) results

DISCLAIMER: Some information in this booklet is written by health care providers affiliated with Alipore Hospital and the editor, and some content is provided from the internet.

The content such as graphics, images, text etc, is provided for awareness, reference and educational purposes only. The content is not meant to be complete or exhaustive or to apply to any specific individual's medical condition. This booklet is not an attempt to create awareness or provide particular health information, and it should not be used to make a diagnosis or to replace or overrule a qualified healthcare provider's judgment. Users should not rely on this booklet for emergency medical treatment. This booklet is not intended to be a substitute for professional medical advice, diagnosis or treatment. **Always consult with a qualified and licensed physician or other medical care provider, and follow their advice without delay regardless of anything read in this booklet.**

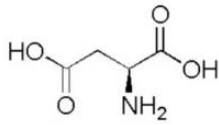


Interpretations

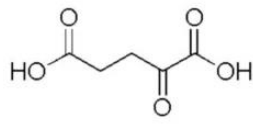
Alanine Aminotransferase (ALT)

Aspartate Aminotransferase (AST): What's Optimal For Health And Longevity?

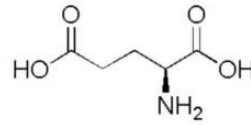
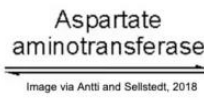
What does AST do?



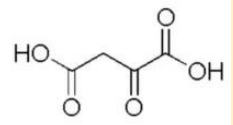
Aspartic acid



α-Ketoglutaric acid

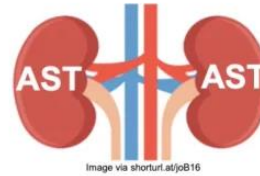


Glutamic acid



Oxaloacetic acid

The reference range for AST is 0 – 40 IU/L (Labcorp)



Increased levels of AST in blood reflect cellular damage

Is the reference range for AST optimal for health and longevity?



Although AST isn't found exclusively within the liver, it is strongly associated with liver disease and liver cancer

The normal ALT levels range from 0-35 U/L.

Lower ALT levels indicate a healthy liver; however, lower levels can also be seen in patients with malnutrition.

A mild to moderate increase in ALT levels is seen in patients with alcoholic liver disease, cirrhosis, chronic liver disease, bile duct obstruction, liver trauma, or any physical injury, or patients taking certain medicines that are harmful to the liver.

<p>BACKGROUND:</p> <p>Pediatric metabolic associated steatotic liver disease (MASLD) can be screened and diagnosed by measuring alanine aminotransferase (ALT). It is unclear if the recommended NHANES cut-offs of 21 U/l for girls and 25 U/l for boys are suitable for all populations and different age groups</p>	<p>METHODS & AIMS:</p> <p>AIM 1: To create ALT cutoffs in healthy pediatric population while testing the effect of various exclusions</p> <p>N=1,167</p> <p>AIM 2: To test the prevalence of elevated ALT and MASLD by using previous and new cutoffs in children with overweight or obesity</p> <p>N=1,044</p>	<p>RESULTS:</p> <ul style="list-style-type: none"> ➤ The now obtained ALT cutoffs were higher than previously presented NAHNES cutoffs. ➤ The new cutoffs resulted in lower prevalence of elevated ALT and MASLD. <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>OLD CUTOFFS</p> </div> <div style="text-align: center;"> <p>NEW CUTOFFS</p> </div> </div> <p>● Elevated ALT % ● MASLD %</p> <p>CONCLUSIONS:</p> <ul style="list-style-type: none"> ➤ The used reference population has major impact on the prevalence of increased ALT and MASLD in children
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A high increase in ALT levels is seen in patients with acute hepatitis like viral hepatitis (Hepatitis A, Hepatitis B, Hepatitis C) or in patients who have taken very high doses of some medicines like paracetamol.

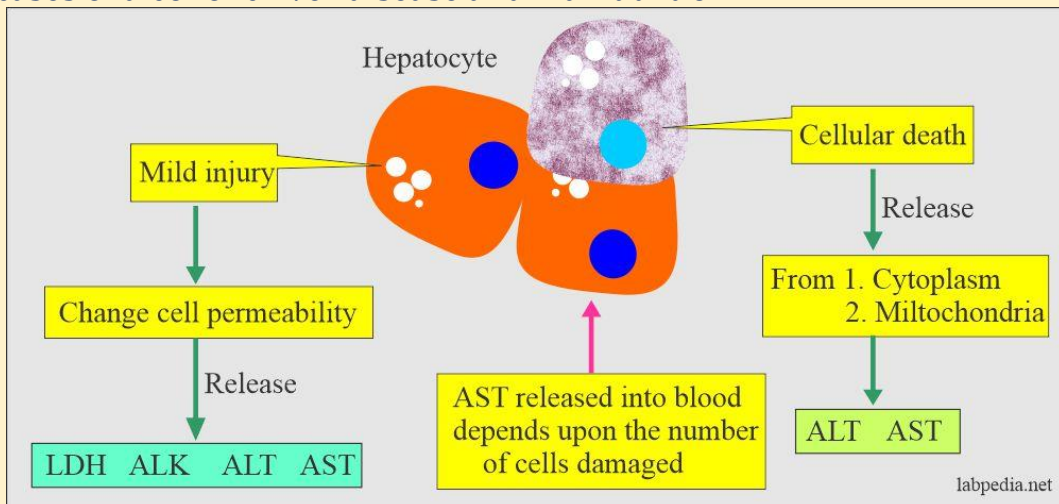
Aminotransferases

Facts you must know about AST & ALT



The normal AST test results range from 0-35 U/L.

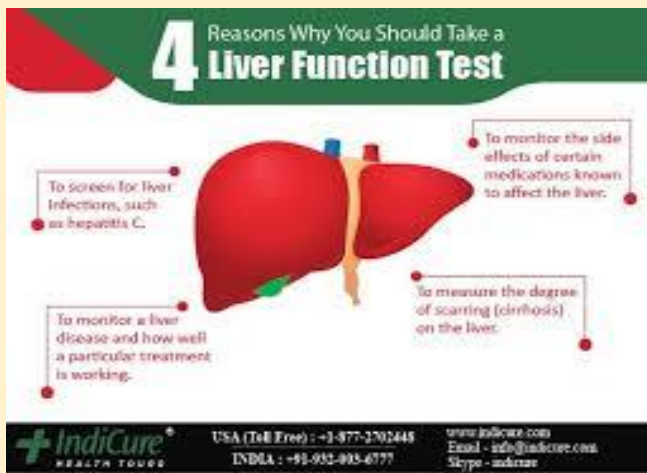
Lower levels of AST in the blood are considered normal, although very low levels are seen in cases of alcoholic liver disease and malnutrition.



High levels of AST are seen in patients with alcoholic liver disease (AST often increases much more than ALT), cirrhosis, chronic liver disease, bile duct obstruction, liver trauma, non-alcoholic fatty liver disease (NAFLD), viral hepatitis (Hepatitis A, Hepatitis B, Hepatitis C) and in patients taking medicines that are harmful to the liver or taking very high doses of some medicines like paracetamol.

High levels of AST are also seen in patients with heart attack and muscle injury (however, ALT levels are normal in these patients). A high level of AST with normal levels of ALT indicates that the source of AST is not the liver.





Alkaline phosphatase (ALP)

The normal level of ALP in the blood is 13-100 μL

High levels of ALP are seen in patients with bile duct obstruction, hepatitis, cirrhosis, and in liver cancer.

High levels of ALP are also seen in growing children and pregnant women and are considered normal.

Low levels of ALP are seen in patients with malnutrition and certain genetic disorders. ALP levels also decrease temporarily after heart surgery and blood transfusion.

Total Serum Protein

The normal level of Total protein in blood is 5.5-8.0 g/dL.

Albumin & Globulin

The normal level of Albumin is 3.5-5.5 g/dL, approximately 50-60%, and that of Globulin is 2.0-3.5 g/dL, approximately 40-50%. a normal A/G ratio of slightly over 1.

Variables	Study group (n=176)	Control group (n=80)
Serum total protein (g/dL)	7.5 \pm 1.30*	7.8 \pm 0.54
Serum albumin (g/dL)	4.09 \pm 0.54	4.10 \pm 0.42
Serum globulin (g/dL)	3.40 \pm 1.41*	3.70 \pm 0.57
Albumin/globulin ratio	1.41 \pm 0.87*	1.15 \pm 0.29

There are two types of proteins found in the body, namely albumin and globulin. About 60% of the total protein is made up of albumin, which is produced by the liver.

Albumin: Low levels indicate that you may suffer from a disorder where the protein isn't synthesized, digested, or absorbed properly. Lower levels are seen in patients with chronic liver diseases such as cirrhosis, inflammatory liver diseases like hepatitis, and hepatocellular necrosis. Higher levels are seen in liver infections like Hepatitis A, Hepatitis B, and Hepatitis C. High levels may also be seen if you are having a protein-rich diet or if you are dehydrated.

Globulin: Low levels are seen in patients with malnutrition. High levels are seen in chronic active hepatitis and alcoholic hepatitis. It is also increased in acute infection and chronic inflammatory diseases.

A/G Ratio: A low A/G ratio is indicative of overproduction of globulin and reduced production of albumin, which occurs with liver cirrhosis. A high A/G ratio often suggests the decreased production of globulins and is seen in some genetic diseases or leukaemia.

Bilirubin

The normal level of Total Bilirubin in the blood is 0.3-1.0mg/dL.

The normal level of conjugated bilirubin (direct) is 0.1-0.3mg/dL.

The normal level of unconjugated bilirubin (indirect) is 0.2-0.7mg/dL.

The lower levels are usually not a concern.

Unconjugated Bilirubin: Higher levels of unconjugated bilirubin are seen in patients with jaundice, acute hepatocellular damage, cirrhosis, viral hepatitis, alcoholic liver disease, bile duct obstruction, liver failure, and in conditions involving an unusual amount of RBC destruction (hemolysis). Increased levels are also commonly seen in newborns, typically 1 to 3 days old. If the bilirubin levels do not return to normal and are increasing rapidly, this may indicate neonatal jaundice.

Higher unconjugated bilirubin levels compared to conjugated bilirubin are suggestive of transfusion reactions and cirrhosis.

Conjugated bilirubin: Higher levels of conjugated bilirubin are seen in patients with hepatitis, gallstones, or inflammation of the bile duct (the duct that carries bile from the liver to the gut).

Gamma-glutamyl transferase (GGT)

The normal level of GGT in the blood is 9-48 U/L.

High levels of GGT are seen in patients with obstructive liver disease, acute and chronic viral hepatitis, cirrhosis, fatty liver disease, cholestasis, alcoholic liver disease, and liver tumours, and in case the patient is taking medicines like phenobarbitone, phenytoin, paracetamol and antidepressants. The low levels of GGT in the blood indicate the absence of liver disease and confirm no alcohol consumption.

<p>The diagram illustrates the progression of liver disease in four stages from left to right: <ul style="list-style-type: none"> HEALTHY LIVER: A smooth, reddish-brown liver. CHRONIC HEPATITIS: The liver becomes more irregular and inflamed. CIRRHOSIS: The liver is significantly scarred and shrunken. Below this stage, text reads: "FIBROSIS a scar tissue within the liver" and "CIRRHOSIS Scar tissue replaces normal healthy tissues". HEPATOCELLULAR CARCINOMA: The liver is severely distorted and contains a tumor. Below this stage, text reads: "LIVER CANCER Formation of malignant tumor in liver". </p>	<p>There are other conditions as well in which high GGT levels are seen as heart failure, pancreatitis, or diabetes. GGT levels are measured along with ALP. If both enzymes are elevated, it indicates liver disease. If GGT is normal and ALP is elevated, it indicates an underlying bone disease</p>
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Note: Your doctor will interpret your results depending on your gender, age, medications/treatment, or diet you are taking.

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Frequently Asked Questions about LFT (Liver Function Test)

Q. What is the full form of LFT?

LFT stands for Liver Function Test which measures different components released by the liver to determine liver health.

Q. What is an LFT (Liver Function Test) used for?

An LFT (Liver Function Test) is a group of blood tests that provide information about how well your liver is functioning. The test is also used to diagnose various liver diseases, such as hepatitis, alcoholic liver disease, liver cirrhosis, and fatty liver diseases. It also determines your response to liver disease treatment.

FATTY LIVER

Causes of Fatty Liver

Fatty liver disease causes in the liver can arise from the following:

- 1) Hyperlipidaemia
 - Obesity
 - Diabetes
 - Inherited hyperlipidaemia
- 2) Liver cell damage
 - Starvation
 - Chronic illnesses
 - Alcoholic liver disease (most prevalent)
 - Protein calorie malnutrition
 - Acute fatty liver during late pregnancy
 - Reye's syndrome
 - Hepatotoxins
 - Drug-induced liver cell injury

Complications of Fatty Liver

Complications of Non-Alcoholic Fatty Liver Disease (NAFLD) is proportional to the severity of the histology stage and grade of liver disease

- Hepatocellular carcinoma
- Cardiovascular disease
- End-stage liver disease

Common complications of Alcoholic Fatty Liver

- Spontaneous Bacterial Peritonitis
- Variceal Hemorrhage
- Hepatopulmonary syndrome
- Ascites
- Hepatic hydrothorax
- Hepatorenal syndrome
- Hepatic encephalopathy

In most cases, fatty liver disease doesn't cause any symptoms or serious liver problems. However, in some cases, it can lead to liver damage and inflammation. If left untreated, fatty liver disease can progress to cirrhosis, which can cause more severe symptoms, such as:

- Jaundice, or yellowing of the skin and eyes
- Itchy skin
- Swelling in the legs, ankles, feet, or abdomen
- Fluid buildup in the stomach area, called ascites
- Swollen veins in the esophagus, or esophageal varices
- Confusion, sleepiness, and slurred speech, also called hepatic encephalopathy
- Liver cancer
- End-stage liver failure

In most cases, people with fatty liver disease are advised to modify their diets, exercise regularly, and lose weight.

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Chikhli River Front



Alipore Hospital



આલીપોર સોશયલ વેલફેર ટ્રસ્ટ સંચાલિત

દરેક સારવાર એક જ છત્ર નીચે સહકારે ઉપલબ્ધ

આલીપોર હોસ્પિટલ



નેશનલ હાઇવે નં. ૪૮, આલીપોર. તા. ચીખલી, જી. નવસારી.

ફોન : (૦૨૬૩૪) ૨૯૬૧૪૬, ૨૯૬૧૪૭, ૨૩૩૧૪૬, ૨૩૪૧૪૬, મો. . ૯૪૮૪૯ ૪૧૦૦૬

દર ગુરુવારે
મફ્ત
ઓપીડી

ફિઝિશિયન, જનરલ સર્જરી,
ઓર્થોપેડીક, ગાયનેક તથા
બાળરોગ વિભાગના
દર્દીઓ માટે
ઓ.પી.ડી. ફ્રી

જનરલ મેડીસીન વિભાગ (ફિઝિશિયન)

ડૉ. સૌરભ પટેલ

M.D. (General Medicine),
Fellowship in 2D Echo

ડૉ. યુનુસ માયત

M.D. (Physician)

ઓર્થોપેડિક વિભાગ

ડૉ. હિતેષકુમાર કાછડીયા

MBBS, D. Ortho, FIAA
(Orthopadic Surgeon)

જનરલ સર્જરી વિભાગ

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ગાયનેક વિભાગ

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MD (OBS & Gynec)

બાળરોગ વિભાગ

ડૉ. શ્રેયા પટેલ

MD, Paediatrics and
Neonatologist (FNNF)

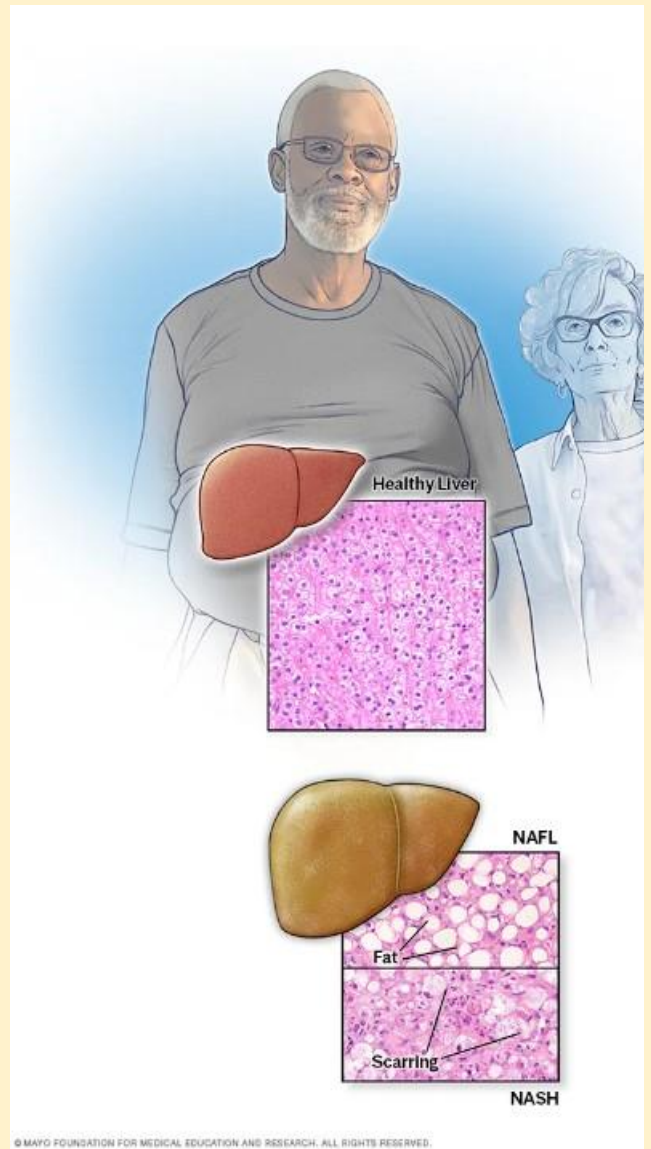
NONALCOHOLIC FATTY LIVER DISEASE

Non-alcoholic fatty liver disease, often called NAFLD, is a liver problem that affects people who drink little to no alcohol. In NAFLD, too much fat builds up in the liver. It is seen most often in people who are overweight or obese.

NAFLD is becoming more common, especially in Middle Eastern and Western nations as the number of people with obesity rises. It is the most common form of liver disease in the world. NAFLD ranges in severity from hepatic steatosis, called fatty liver, to a more severe form of disease called **non-alcoholic steatohepatitis (NASH)**.

NASH causes the liver to swell and become damaged due to the fat deposits in the liver. NASH may get worse and may lead to serious liver scarring, called cirrhosis, and even liver cancer. This damage is like the damage caused by heavy alcohol use.

A move is currently underway to change the name non-alcoholic fatty liver disease to **metabolic dysfunction-associated steatotic liver disease (MASLD)**. Experts also have recommended changing the name non-alcoholic steatohepatitis to **metabolic dysfunction-associated steatohepatitis (MASH)**.



Nonalcoholic fatty liver disease

Causes of NAFLD



fatty liver



genetic inheritance



obesity



side effect of medications



rapid weight loss



fats in the blood



diabetes



આલીપોર સોશયલ વેલફેર ટ્રસ્ટ સંચાલિત

દરેક સારવાર એક જ છત્ર નીચે સહતરે ઉપલબ્ધ

આલીપોર હોસ્પિટલ



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જનરલ મેડીસીન વિભાગ

**ડૉ. સૌરભ પટેલ**

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**ડૉ. યુનુસ માયત**

M.D., Physician, CMO cum Administrator

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જનરલ સર્જરી

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હાડકાના રોગો

**ડૉ. હિતેશકુમાર ઝાહડીયા**

Orthopedic Surgeon

નાક, કાન, ગળાના રોગો

**ડૉ. મેલની કાપડીઆ**

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આલીપોર સોશયલ વેલફેર ટ્રસ્ટ સંચાલિત

દરેક સારવાર એક જ છત્ર નીચે સહતરે ઉપલબ્ધ

આલીપોર હોસ્પિટલ



નેશનલ હાઈવે નં. ૪૮, આલીપોર. તા. ચીખલી, જી. નવસારી.

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આજના સમયમાં દરેક વ્યક્તિઓએ સમયાંતરે ફુલ બોડી ચેકઅપ કરાવવું ખૂબ જ જરૂરી છે ફુલ બોડી ચેકઅપ અલગ-અલગ પેકેજમાં આપણા વિસ્તારમાં સૌથી સસ્તા દરે ઉપલબ્ધ.

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TSH (THYROID)
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TSH (THYROID)
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- સુગર (ડાયાબીટીસ) ની તપાસ
FASTING BLOOD SUGAR
HBA1C (3 MONTHS AVG. SUGAR)
- ક્રીડની ને લગતી તપાસ
KIDNEY FUNCTION TEST
(UREA, CREAT, ELECTROLYTE, URIC ACID)
- કેલ્શિયમની તપાસ
BONE (CALCIUM, PHOSPHORUS)
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(SGPT, SGOT, ALP, BILIRUBIN, PROTEIN)
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(S.CHOLESTEROL, S.TRIGLYCERIDES, HDL / LDL / VLDL)
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CRP
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- વંધ્યત્વ આવી શકે. ■ ઘનકારાનું પ્રમાણ વધી જાય.

Nonalcoholic
steatohepatitis

NASH Symptoms



In patients with NASH and cirrhosis of the liver can eventually lead to the appearance of signs and symptoms such as:



NON-ALCOHOLIC FATTY LIVER DISEASE SYMPTOMS

NAFLD often has no symptoms. When it does, they may include:

- Fatigue.
- Not feeling well, or malaise.
- Pain or discomfort in the upper right belly area.

Possible symptoms of NASH and cirrhosis, or severe scarring, include:

- Itchy skin.
- Abdominal swelling, also called ascites (uh-SY-teez).
- Shortness of breath.
- Swelling of the legs.
- Spider-like blood vessels just beneath the skin's surface.
- Enlarged spleen.
- Red palms.
- Yellowing of the skin and eyes, or jaundice.

When to see a doctor

Make an appointment with a member of your healthcare team if you have lasting symptoms that worry you.

Testing for Nonalcoholic Fatty Liver Disease (NAFLD)

NAFLD is characterized by liver inflammation, liver enlargement, and fatty deposits in the liver.

Blood test

Liver enzyme levels in the blood are used to assess liver inflammation.

Ultrasound, computed tomography, magnetic resonance imaging

Imaging studies are used to visualize the size and texture of the liver.

Transient elastography

Acoustic signals bounced off the liver are used to measure liver stiffness.

Liver biopsy

A biopsy needle is used to obtain a piece of liver to study under a microscope.

Nonalcoholic fatty liver disease (NAFLD) refers to fatty accumulation and inflammation of the liver that affects people who drink little to no alcohol.

What Is Non-alcoholic Fatty Liver Disease?

Non-alcoholic fatty liver disease (NAFLD) describes fatty accumulation and inflammation in liver cells from any cause other than alcohol use. Over time, this liver inflammation can progress to more severe liver function disturbances, called non-alcoholic steatohepatitis (NASH), which is the accumulation of fat in the liver

that then causes fibrosis (scarring) of the liver, which can lead to cirrhosis when scar tissue replaces liver cells, causing the liver to stop functioning normally. If severe enough, cirrhosis can lead to death.



WHAT IS NAFLD?

NONALCOHOLIC FATTY LIVER DISEASE

NAFLD is excess fat stored in the liver
not caused by alcohol use¹



Healthy Liver
Filters blood, regulates sugar levels and blood clotting, and performs hundreds of other vital functions²



Nonalcoholic Fatty Liver (NAFL)
Fat in the liver with little or no inflammation or cell damage, can progress to NASH¹



Nonalcoholic Steatohepatitis (NASH)
Fat in the liver with inflammation and cell damage, can lead to cirrhosis or liver cancer¹

NAFLD in the United States



NASH
is expected to be the leading cause of liver transplant in the U.S. between 2020-2025⁴

Risk factors and disparities

Risk factors for NAFLD and liver cancer include overweight and obesity (BMI > 25), diabetes or insulin resistance, and other metabolic factors^{5*}

Racial disparities exist in many aspects of NAFLD, including prevalence, severity, genetic predisposition, and overall chance of recovery⁷

Hispanics and Asian Americans have higher prevalence of NAFLD compared with other ethnic and racial groups⁷

How can I lower my risk of NAFLD?⁶



Maintain a healthy weight and exercise most days of the week



Limit sugar; choose a plant-based diet rich in fruits, vegetables, whole grains and healthy fats



Ask your physician about screening for NAFLD and NASH

The exact cause of NAFLD is unknown, although risks are higher for patients with obesity and metabolic syndrome, which is a group of health conditions that includes increased abdominal fat, poor response to insulin (diabetes), high blood pressure (hypertension), and high blood lipids (dyslipidaemia, such as high levels of low-density lipoprotein cholesterol and triglycerides). In some cases, patients can have NAFLD and not be obese or have metabolic syndrome.

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NAFLD & NASH



Non-alcoholic fatty liver (NAFL) is not progressive in nature, does not lead to any severe complication whereas Non-alcoholic steatohepatitis (NASH) can possibly lead to severe complications like Fibrosis, cirrhosis, liver cancer, liver failure.

Who Should Be Tested for Non-alcoholic Fatty Liver Disease?

Because most patients with NAFLD have no symptoms, testing is usually recommended for people who are overweight and whose blood tests show high liver enzyme levels, suggesting possible liver inflammation. The diagnosis is made after excluding other causes of liver inflammation, so the purpose of testing is both to assess the severity of liver inflammation and to exclude other potential causes of liver inflammation, such as gallstones or a viral infection.

Testing for NAFLD in people without any pre-existing conditions or signs of liver inflammation is not recommended because of the very low likelihood of finding NAFLD and the potential risk of finding abnormalities that ultimately prove to be unimportant but that could lead to unnecessary tests and potentially harmful interventions performed.

Tests to Diagnose NAFLD

Three major types of tests are used to diagnose NAFLD: (1) blood tests such as liver function tests that measure inflammation of the liver; (2) tests to visualize the appearance of the liver, such as ultrasound, computed tomographic (CT) scan, and magnetic resonance imaging (MRI); and (3) newer tests that quantify the amount of fat in the liver, such as transient elastography, an ultrasound-based test that measures how stiff the liver is. However, when the liver has a great deal of fat, these ultrasound-based tests may not be very reliable for diagnosing more advanced liver disease, such as NASH and liver fibrosis.

If there is a suspicion of advanced liver disease or some other cause of liver problems, a liver biopsy may be recommended, in which a small piece of liver is obtained using a needle inserted through the skin into the liver.

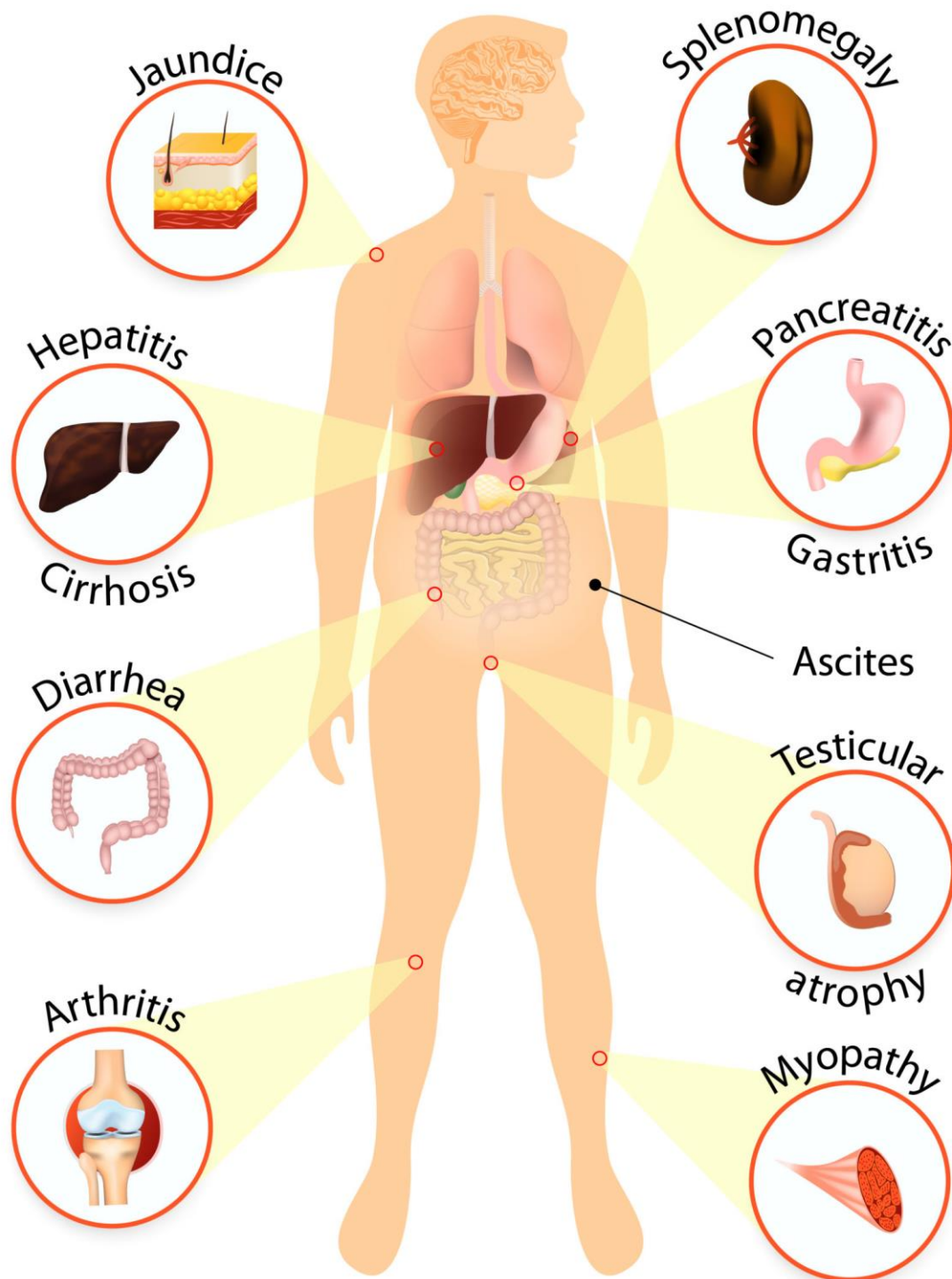
What is the cause of fatty liver?

When the liver does not process and break down fats as it normally should, too much fat will accumulate. People tend to develop fatty liver if they have certain other conditions, such as obesity, diabetes or high triglycerides. Alcohol abuse, rapid weight loss and malnutrition may also lead to fatty liver.

What is a stage 1 fatty liver?

Grade 1 fatty liver is also known as simple or mild fatty liver. It is the least severe type of fatty liver disease. At this stage, the fat buildup in the liver has not yet caused significant damage. Most people will only develop grade or stage 1 fatty liver.

SYMPTOMS OF LIVER DAMAGE



What foods cause fatty liver?

Avoid when possible

- Alcohol: Alcohol can be a major cause of fatty liver disease as well as other liver diseases.
- Added sugar: Avoid sugary foods like candy, cookies, sodas, and fruit juices. ...
- Fried foods: These are high in fat and calories.
- Added salt: Consuming too much salt can increase the risk of NAFLD.

Can fatty liver be cured?

If you have NASH, no medication is available to reverse the fat buildup in your liver. In some cases, the liver damage stops or even reverses itself. But in others, the disease continues to progress. If you have NASH, it's important to control any conditions that may contribute to fatty liver disease.

Medical professionals may grade fatty liver disease based on the severity of a person's symptoms. The grades are:

- Grade 1: mild
- Grade 2: moderate
- Grade 3: severe

Treatment of NAFLD

No specific medications are available to treat NAFLD. However, increased physical activity; improved diet; medications to control blood glucose, blood pressure, and blood lipids; and, in select cases, weight-loss surgery may slow and sometimes reverse progression of NAFLD.

How can I remove my fatty liver?

Protect Against Fatty Liver Disease

- Try to maintain a healthy weight and eat sensible portions.
- Try to lose weight gradually if you're overweight.
- Limit how much fat you eat.
- Eat more fruits, vegetables, and whole grains.
- Avoid foods and drinks with large amounts of sugars, especially fructose.
- Avoid heavy alcohol use.

How to avoid fatty liver?

Prevention

- Eat a healthy diet. Eat a healthy diet that's rich in fruits, vegetables, whole grains and healthy fats.
- Limit alcohol, simple sugars and portion sizes. Avoid sugary drinks like soda, sports drinks, juices and sweet tea. ...
- Keep a healthy weight. ...
- Exercise.

What are the 5 liver super foods?

We'll run through the best foods that can boost liver health or help repair some of the damage.

- Cruciferous vegetables. If you love broccoli, you're in luck. ...
- Berries. It's smart to add blueberries, strawberries, and raspberries to your meals and snacks because they're rich in fiber. ...
- Grapes. ...
- Nuts. ...
- Beans. ...
- Fatty fish. ...
- Coffee. ...
- Tea.



Which fruit is best for the liver?

Top foods and drinks for liver health

- Berries. ...
- Grapes. ...
- Grapefruit. ...
- Prickly pear. ...
- Plant foods in general. ...
- Fatty fish. ...
- Nuts. Eating nuts may be another simple way to keep the liver healthy and protect against NAFLD. ...
- Olive oil. Eating too much fat is not good for the liver, but some fats may help it.

Is rice good for fatty liver?

White rice and its unrefined form, brown rice, contain numerous compounds that are beneficial to human health. However, the starch content of rice can contribute to obesity, a main risk factor for nonalcoholic fatty liver disease (NAFLD).

BEST FOODS TO CLEANSE YOUR LIVER



OLIVE OIL



LEMON JUICE



CARROTS



BEETS



GREEN TEA



TURMERIC



LEAFY GREENS



AVOCADO



GARLIC



SPINACH

Is milk good for fatty liver?

Scientific studies support the consumption of milk, particularly low-fat options, to combat fatty liver disease. With its rich nutritional composition, milk offers proteins, vitamins, and minerals that aid liver function and regeneration.



Is egg good for fatty liver?

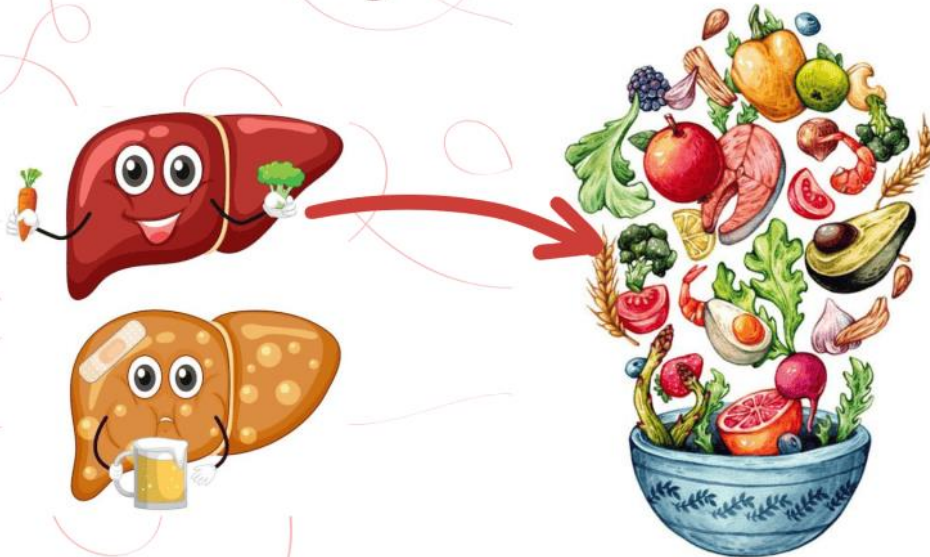
According to a study led by the University of North Carolina, choline deficiency may contribute to the development of fatty liver disease. Including choline-rich foods like eggs in the diet may help maintain optimal liver function. While egg yolks can be part of a balanced and nutrient-rich diet, moderation is crucial.

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Fatty Liver Diet



Can lemon remove fatty liver?

Recent studies have shown that lemons contain a compound called naringenin, which reduces liver inflammation associated with fatty liver disease. Drinking fresh lemon juice 2-3 times a day, continuously for a month or thinly sliced lemon in a bottle of water and drinking daily also helps improve fatty liver.

Is curd good for fatty liver?

Is curd good for fatty liver? Low-fat yoghurt or curd is an excellent complement to a fatty liver-friendly diet since it contains protein and bacteria that promote digestive health. To avoid excessive calorie and fat intake, moderation is essential.



Is tomato good for the liver?

Tomato is also good for liver health. Tomato has a detoxification effect in the body. Probably it is due to the presence of chlorine and sulphur in tomatoes. According to some studies, 51 mg of chlorine and 11 mg of sulphur in 100 grams size of tomato have a vital role in detoxification process.

Does drinking water flush liver?

Stay Hydrated: Drinking an adequate amount of water is essential for liver health. Water helps flush out toxins and aids in digestion. Aim to drink at least 8 cups (64 ounces) of water each day.

How to reduce liver heat?

To prevent heat in the body and liver, patients can use vegetables or herbal medicines known for their heat-clearing and detoxifying effects such as gotu kola, lettuce, bitter melon, watermelon, water, lemon, kumquat, artichoke ... In the hot and sultry days, if there is no need to go to the street, limit it.



Which fruit is best for fatty liver?

Blueberries: If you have a fatty liver, blueberries are a must-addition to your everyday diet. Blueberries are rich in antioxidants and can help you overcome liver problems, particularly fatty liver disease.

Bananas: Doctors also suggest bananas for fatty liver disease patients.



What is the best drink for fatty liver?

Below, we explore 11 drinks that are often reported to support liver health — and tell you what the research says about each one.

- Ginger tea. ...
- Grapefruit juice. ...
- Apple cider vinegar. ...
- Lemon water. ...
- Cranberry juice. ...
- Coffee. ...
- Oat tea. ...
- Beetroot juice. Several studies have been done to evaluate the potential benefits of beetroot juice.

FATTY LIVER DISEASE DIET: FOODS TO EAT AND AVOID

EAT



Whole grains



Non-starchy vegetables
and low-sugar fruits



Unsaturated fats



Lean proteins



Low-calorie drinks

AVOID



Refined sugar



Refined grains



Starchy vegetables
and sugary fruits



Saturated and trans fats



Alcohol



Foods to avoid

In general, doctors will recommend a balanced diet for overall health. However, there are also some foods and food groups Trusted Source that the liver may find harder to process. These include:

- **Fatty foods:** These include fried foods, fast food meals, and takeout meals from many restaurants. Packaged snacks and chips may also be surprisingly high in fats.
- **Starchy foods:** These include low fibre, highly processed breads, pastas, cakes, and baked goods.
- **Sugar:** Cutting back on sugar and sugary foods — such as cereals, baked goods, and candies — may help reduce the stress on the liver.
- **Salt:** Some simple ways to reduce salt intake include eating out less often, choosing low sodium canned meats or vegetables, and reducing or avoiding salted deli meats and bacon.
- **Alcohol:** Anyone looking to give their liver a break may wish to consider reducing their intake of alcohol or eliminating it from the diet completely.

Is fatty liver 100% reversible?

Here's the good news. Fatty liver disease is treated with a combination of diet and exercise. With this regimen, the liver can heal itself and actually reverse the damage that has occurred over the years.



What is stage 2 fatty liver?

“Grade 2 fatty liver disease” is the term for moderate fatty liver disease and its symptoms. To treat grade 2 fatty liver disease, a doctor may suggest that a person lose weight. This can help reduce liver inflammation and the amount of fat in the liver.

Consume



Healthy liver

Carbohydrates: 40–45%
from complex carbohydrates:
fibers, whole grains, low
glycemic index foods
Increased consumption of
fruits and vegetables

Lipids: 30–35%
Extra-virgin olive oil, olives
Seed and nuts rich in MUFAs
and n-3 PUFAs

Proteins: 15–20%
from vegetable protein
sources: legumes
Increased consumption of
poultry and fish than red meat
Low or non-fat dairy
products. Probiotic enriched
yogurt (*L. acidophilus*)

**Extras: 2–3 cups of coffee a
day**

Avoided/elimination



Fatty liver

Carbohydrates
Simple carbohydrates: refined
grains, pastries, confiture,
desserts, salty food, high
glycaemic index foods, soft
drinks (fructose-containing
beverages)

Lipids
High saturated fat: whole
dairy, animal fat, butter
Trans fat: processed foods,
densely caloric fast food

Proteins
Increased consumption of red
meat intake, particularly
processed meat

7 Foods Good for Fatty Liver:

1) **HIGH FIBRE:** high-fibre foods, (such as bran, whole grains and legumes) which benefit fatty liver since they help lower liver enzymes. They also improve cholesterol, blood sugars, triglycerides and improve blood pressure. Likewise, fibre is the indigestible component of foods, so it slows digestion, which can help us feel full longer. This “fibre-filling effect” acts as ‘roughage’ and supports bowel regularity and weight management, which can be helpful for managing fatty liver.



2) **EGG:** Many don't know that eggs are a food that's good for fatty liver. This is because eggs are rich in choline, which plays a role in transporting and lowering LDL or “bad” cholesterol. Therefore, choline deficiency can manifest as non-alcoholic fatty liver disease because choline is required to synthesize very low-density lipoprotein (VLDL) particles, which transport fat from the liver. Similarly, studies have shown that insufficient choline intake worsens liver disease (increases liver enzymes and liver fat). A serving of two eggs contain 300 mg of choline, which equates to 70% of daily choline requirement for women and 55% of daily requirement for men. Keep in mind that population groups like pregnant and breastfeeding women require higher intakes of choline. **Choline is an essential nutrient that is often under-consumed. It's also important for transporting cholesterol away from the liver, which helps improve fatty liver.**



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3) SALMON: salmon as a food that's good for fatty liver. This is because it's rich in omega 3 fatty acids, which are a type of "polyunsaturated fat or PUFA" with positive effects on fatty liver, as well as cholesterol and insulin sensitivity. Polyunsaturated fats in foods like salmon help reduce oxidative stress and inflammation which are both present in fatty liver. In addition, research shows that saturated fats increase liver fat compared to PUFAs such as omega 3's.



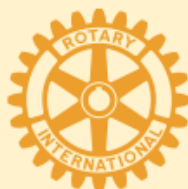
4) COFFEE: This one might have you rejoicing if you love your morning brew as much as I do. Recent research shows that regular coffee consumption is significantly associated with reduced risk of fatty liver and decreased risk of advancement to liver fibrosis. Caffeine appears to lower the number of abnormal liver enzymes in those at risk for liver disease.



5) COLOURFUL BERRIES & VEGGIES: Eating the figurative rainbow of fruits and vegetables is a good idea for liver health. This is due to the fact that berries and veggies contain plant-based antioxidants (known as polyphenols), which have health-protective effects. Research shows that higher phenolic acid intake relates to lower incidence and better management of liver health. Research also demonstrates that including plant-based antioxidants in the diet can improve insulin resistance and help with liver scarring or fibrosis.



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6) SUNFLOWER SEEDS: as a food that's good for fatty liver because they're super-high in vitamin E. Since vitamin E is an antioxidant, it has anti-inflammatory properties that counter oxidative stress and can improve liver functioning or slow the progression of NAFLD. Interestingly, one quarter cup of sunflower seeds has over 70% of your daily vitamin E. Additionally, research shows that those with fatty liver tend to have decreased levels of vitamin E.



7) GARLIC: garlic and its bioactive components have a positive effect on liver enzymes and liver fat for those with NAFLD. A recent, double-blind, randomized controlled trial found that garlic powder improved liver enzymes, cholesterol, triglycerides and fasting blood sugar. But another research study found that frequent consumption of raw garlic is inversely associated with NAFLD in Chinese men. Nevertheless, further research is needed to determine the amount of garlic, the form and recommendations for possible liver health benefits. For now, don't mind the garlic breath!



Nutrition plays a major role in improving fatty liver disease. Additionally, many foods are good for fatty liver, such as bran, salmon, coffee, berries, sunflower seeds, eggs and garlic. Be sure to include these nutrient-dense options regularly and always consider your overall diet and lifestyle habits. This includes limiting processed, high-fat, high-sugar and salty foods. Importantly, working with a registered dietitian and your medical doctor can help to monitor your liver enzymes for improvement.

How to check fatty liver?

Imaging tests used to diagnose NAFLD include: Abdominal ultrasound, which is often the first test used when liver disease is suspected. Magnetic resonance imaging (MRI) or computerized tomography (CT) scanning. These tests are better at finding mild liver fibrosis but can't tell NASH from NAFLD.

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How can I clean my liver in 7 days?

Love your liver in 7 days

- Day 1: Drink more water and less alcohol. ...
- Day 2: Drink two cleansing teas per day. ...
- Day 3: Eat two portions of broccoli, kale or cauliflower a day. ...
- Day 4: Add herbal supplements into your diet every day. ...
- Day 5: Try tongue scraping. ...
- Day 6: Apply a castor oil pack to your liver. ...
- Day 7: Get a sweat on.



How to clean your liver in 3 days?
Here are some tips:

- Adopt a diet rich in fruits, vegetables, lean proteins, and healthy fats.
- Limit your consumption of alcohol, sugar, and processed foods.
- Drink at least 1.5 liters of water per day to promote toxin elimination.
- Practice regular physical activity to stimulate circulation and detoxification.

An infographic titled 'BACKGROUND' explaining fatty liver disease. It includes sections for 'CAUSES', 'TREATMENT', 'SIGNS & SYMPTOMS', and 'DIAGNOSIS'. The infographic features illustrations of a liver, a person drinking beer, a person with a large belly, a person with a liver icon, and a test tube. A speech bubble with yellow circles containing smiley faces points to the liver illustration.

BACKGROUND

* OCCURS when **FAT DEPOSITED** in LIVER
~ "FATTY LIVER"

CAUSES

- * ALCOHOL-INDUCED LIVER DISEASE
- * NON-ALCOHOLIC FATTY LIVER DISEASE

TREATMENT

- * ADDRESSING UNDERLYING CAUSE
~ LIFESTYLE MODIFICATIONS LIKE WEIGHT LOSS, EXERCISE, ELIMINATING ALCOHOL

SIGNS & SYMPTOMS

- * TYPICALLY ASYMPTOMATIC, EVEN in ADVANCED STAGES
~ WHEN SYMPTOMS PRESENT, OFTEN VAGUE (FATIGUE or MALAISE)
- * HEPATOMEGALY
- * PAIN in UPPER RIGHT QUADRANT
- * JAUNDICE
- * With CIRRHOSIS:
 - ~ ESOPHAGEAL VARICES
 - ~ ASCITES
 - ~ EASY BRUISING
 - ~ LIVER CANCER

DIAGNOSIS

- * ABNORMAL LIVER FUNCTION TESTS
- * IMAGING STUDIES
~ FATTY INFILTRATES
- * BIOPSY

TIPS TO PREVENT FATTY LIVER DISEASE



Limit intake of saturated fats & trans fats



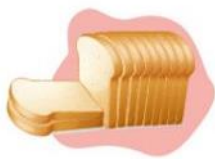
Quit smoking



Eat a balanced diet



Exercise regularly



Limit consumption of refined carbohydrates



Limit or avoid alcohol



Maintain a healthy weight



Take medications as prescribed

Lemon to treat Fatty Liver Disease

- 1 Squeeze the juice of ½ lemon in a glass of water.
- 2 Drink it 2 or 3 times a day for several weeks.



How is fatty liver disease treated?

1. Follow a healthy diet and avoid sugar.
2. lose weight.
3. exercise regularly.
4. control your blood sugar.
5. treat high cholesterol if you have it.
6. avoid medicines that can affect your liver.
7. drink no or very little alcohol, and quit smoking.

Food That Cleans The Liver

GRAPEFRUIT



BEETS



CARROTS



GREEN TEA



APPLES



BROCCOLI



LEMONS & LIMES



ARUGULA



WALNUTS



CABBAGE



CAULIFLOWER



AVOCADO



SPINACH



GARLIC



TURMERIC



Boldo

Its active compounds, **boldine**, **proanthocyanidins**, and **catechins**, exert hepatoprotective and antioxidant activities, promoting liver health.



Garlic

The **organosulfur** compounds of garlic have a hepato-stimulant and cholagogue properties that prevent liver damage.



Chicory

It promotes bile secretion and prevent liver damage thanks to its active compounds, **lactucin** and **lactucopicrin**.



Best Herbs for Fatty Liver

Hepatica

Also known as liverleaf, it is rich in **antioxidants** and has been traditionally used to treat liver problems such as jaundice, hepatitis, and cirrhosis.



Dandelion

Dandelion's **sesquiterpenes** have hepatoprotective effects. This humble herb has been traditionally used to treat poor digestion due to a sluggish liver.



Milk Thistle

Its active compound, **silymarin**, prevents toxins from binding and accumulating into liver cells as well as stimulating the production of new cells to repair liver damage.



www.herbazest.com

HOW TO TREAT FATTY LIVER WITH HOMEOPATHY?

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Homeopathic Medicines for Fatty Liver

Homeopathic Medicine for Fatty Liver provides a holistic approach to treating the condition, focusing on stimulating the body's natural healing processes. This method tailors remedies to individual symptoms and overall health profiles, potentially easing liver inflammation and improving liver function. Here are some commonly prescribed

Homeopathy Medicines for Fatty Liver:

Homeopathic Medicine for Fatty Liver provides a holistic approach to treating the condition, focusing on stimulating the body's natural healing processes. This method tailors remedies to individual symptoms and overall health profiles, potentially easing liver inflammation and improving liver function. Here are some commonly prescribed

Homeopathy Medicines for Fatty Liver:

Chelidonium Majus: Often recommended for individuals experiencing right-sided upper abdominal pain, jaundice, and general sluggishness. This remedy effectively addresses liver dysfunction accompanied by digestive disturbances, making it a reliable Homeopathy Medicine for Fatty Liver.

Nux Vomica: Suitable for those whose Fatty Liver may be linked to overindulgence in food, alcohol, or stress. This Homeopathy Medicine for Fatty Liver aids in digestive complaints and benefits sedentary individuals prone to irritability and aggression.

Phosphorus: Ideal for patients with additional complications such as diabetes or gastrointestinal issues, including bloating and gas after eating. This remedy is often chosen for those showing signs of fatigue and susceptibility to colds, marking its importance as a Homeopathy Medicine for Fatty Liver.

Calcarea Carb: Best suited for overweight patients who lead a sedentary lifestyle. This remedy supports those with a sluggish metabolism and addresses excess fat accumulation in the liver, along with sensitivity to cold.

Lycopodium: Addresses liver disorders in individuals prone to bloating, especially after consuming sweets. This remedy is useful for those who experience discomfort on the right side of the body and frequent night-time urination.

Carduus Marianus (Milk Thistle): Specifically used for liver health, this remedy helps manage symptoms of liver disease such as abdominal swelling, jaundice, and malaise."

Disclaimer: These Homeopathy Medicines for Fatty Liver should be taken under the supervision of a qualified homeopathy Doctor to ensure the best outcomes tailored to each individual's unique health profile.

7 Management Tips for Fatty Liver Disease



Lose Weight if Overweight or Obese



Control Blood Sugar Levels



Manage Other Health Conditions



Lower Cholesterol and Triglycerides



Eat a Healthy, Balanced Diet



Take Vitamins and Supplements Wisely

What to avoid for fatty liver?

Fatty Liver Foods to Avoid:

- Poultry, except for lean white meat.
- Full-fat cheese.
- Yogurt, except low-fat.
- Red meat.
- Baked goods and fried foods made with palm or coconut oils.
- Sugary items like candy, regular soda, and other foods with added sugars including high-fructose corn syrup.



ADVANCED INSTITUTE OF LIVER & BILIARY SCIENCES

WHAT IS NONALCOHOLIC FATTY LIVER SYMPTOMS?



Feeling Tired All the Time



Discomfort in Your Belly



Bloating and Swelling



Changes in Skin and Eye Color

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Is fatty liver serious?

Early-stage NAFLD does not usually cause any harm, but it can lead to serious liver damage, including cirrhosis, if it gets worse. Having high levels of fat in your liver is also associated with an increased risk of serious health problems, such as diabetes, high blood pressure and kidney disease.

Is Himalaya Liv 52 Tablet good for fatty liver?

Yes, Himalaya Liv 52 Tablet can help support healthy liver function and reduce fat build-up in the liver, helping those suffering from fatty liver disease. However, please consult your doctor to determine if it is right before taking it.

Is hot water good for the liver?

Drinking warm water with lemon in the morning can help in reducing the layer of fat on the liver and help in detoxifying the system. Apart from that, it helps in better digestion and boosts liver functioning.



Is chicken OK for fatty liver?

Lean proteins.

Getting enough protein is crucial for your liver, and lean chicken, turkey, fish and beef are good options. Try to have them instead of processed foods such as hot dogs, bologna and salami, which can contain a lot of fat and salt.



What juice cleanses the liver?

Beetroot juice: Beetroot juice is a great way to detox your liver and improve its function. They are high in antioxidants and help to cleanse the blood. They also promote healthy liver function by helping to break down toxins. Try adding some beet juice to your diet for better liver health.

What foods help repair a liver?

Food for healthy liver function:

- Milk, yoghurt and cheese.
- Meat and fish (fresh or tinned low salt) and/or eggs, tofu, nuts and seeds.
- Fruits (fresh or tinned low sugar)
- Vegetables, beans and legumes (fresh or tinned low salt)
- Grains (like breads, cereals, rice and pasta)
- And drinking lots of water.

How can I repair my liver quickly?

Key points

- make sure you are a healthy weight.
- eat a balanced diet.
- cut down on highly processed foods and drinks (sweets, soft drinks, pizza and chips) and foods that have a lot of sugar.
- move more.
- look after high blood pressure and cholesterol.
- reduce further harm to your liver by not drinking alcohol.

Can Walking reduce fatty liver?

To reduce liver fat, it's recommended that people with fatty liver disease do 150 to 240 minutes per week of at least moderate intensity aerobic exercise. But even as little as 135 minutes per week of moderate intensity exercise (e.g. a 45 minute walk on three days per week) has been shown to be beneficial.

What is stage 3 fatty liver?

Grade 3 fatty liver disease means a person has a large percentage of fat deposited in their liver. Grade 3 NAFLD occurs when a person's liver contains a percentage of fat greater than 66% and severe inflammation. The excessive fat associated with grade 3 increases a person's risk of disease progression.



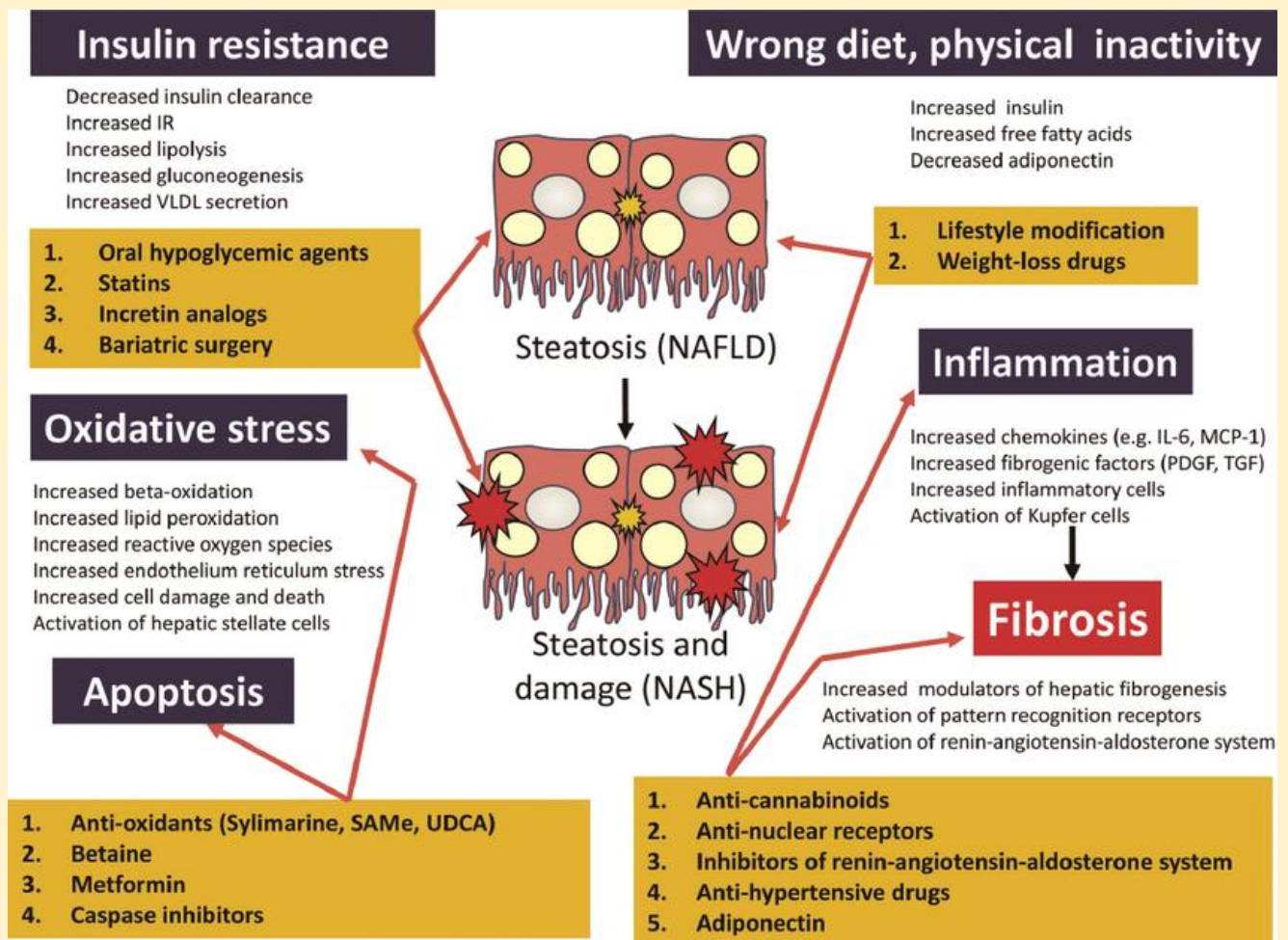
What are the symptoms of grade 3 fatty liver disease?

NAFLD does not cause symptoms. Some experts refer to it as a silent disease because of this. Even people who develop cirrhosis may not develop any symptoms for some time.

When they occur, symptoms can include pain or discomfort in the upper right abdomen and fatigue.

A person with cirrhosis due to NASH, end-stage liver disease, or liver cancer may experience :

- weight loss
- edema (fluid build-up that causes swelling in the legs)
- weakness
- nausea
- loss of appetite
- jaundice (yellowing of eyes and skin)
- mental confusion
- itching
- spider-like blood vessels



What causes grade 3 fatty liver disease?

Researchers continue to look into the exact underlying cause of NAFLD. Several factors can increase a person's risk of developing the condition, including:

- high cholesterol or high triglycerides in the blood
- living with type 2 diabetes or insulin resistance
- having overweight or obesity

People living with metabolic syndrome or at least one of its associated traits have a higher risk of NAFLD than those who do not. Metabolic syndrome is a group of conditions and traits linked to overweight and obesity. Traits include:

- high levels of triglycerides
- larger waist size
- low levels of high-density lipoprotein (HDL) cholesterol
- higher than usual blood glucose levels
- type 2 diabetes
- high blood pressure

A person who has at least one of these traits has a higher chance of developing NASH. Genetics and diet may also play a role. Certain genes may increase a person's chances of developing NAFLD. Certain diets, such as consuming large amounts of sugar, may also increase a person's risk, though more research is necessary.

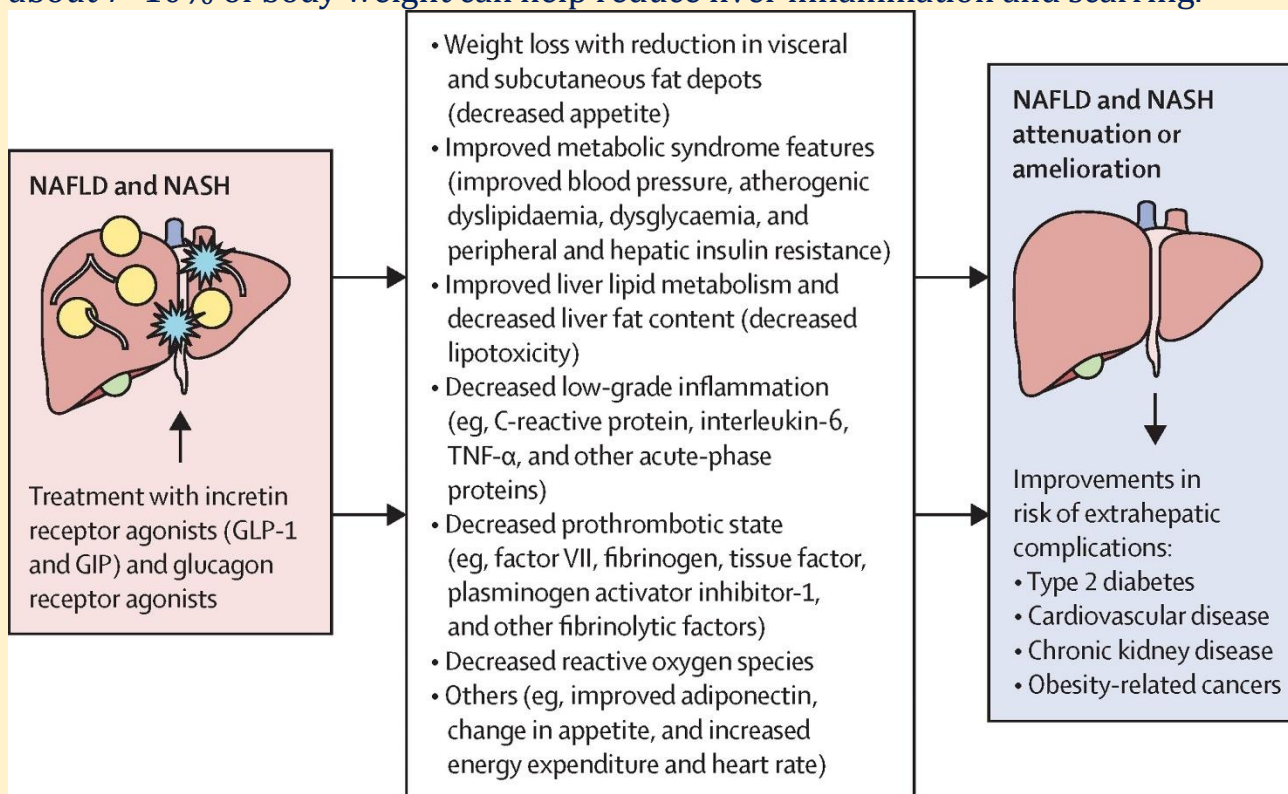
What are the treatments for grade 3 fatty liver disease?

Treatments for grade 3 fatty liver disease typically involve lifestyle strategies. Currently, there are no medications approved for the treatment of NAFLD.

Instead, a doctor will likely recommend a person to:

- get enough regular exercise or physical activity
- manage underlying health conditions, such as diabetes or high cholesterol
- consume more vegetables and fruits and avoid foods and drinks that contain large amounts of simple sugars
- avoid drinking alcohol
- maintain a moderate weight

According to the National Institute of Diabetes and Digestive and Kidney Diseases, losing about 3–5% of body weight can help reduce fat around the liver, while losing about 7–10% of body weight can help reduce liver inflammation and scarring.



A person's doctor can advise on whether they recommend weight loss and, if so, how to achieve this as safely as possible.

A doctor may recommend additional treatments due to complications associated with inflammation and scarring. These treatments may include:

- **medications**
- **minor procedures and surgery**
- **liver transplant**

It is best to contact a doctor as soon as a person has concerns about complications of NAFLD. The doctor can advise on the most suitable treatments for individual complications.

The healthy liver zone



Bilirubin (Total)	0.10 to 1.20 mg/dL
Bilirubin (Indirect)	0.20 to 1.00
Bilirubin (Direct)	Less than 0.2
AST	5.0 to 37.0 IU/L
ALT	10 to 50.0
ALP	45 to 135
Total Protein	6.0 to 8.2 g/dL
Serum Albumin	3.5 to 5.0
Serum Globulin	1.8 to 3.4
Albumin/Globulin ratio	1.10:1.80

Always consult a doctor and do not try to decode any test results without expert supervision

How do doctors diagnose grade 3 fatty liver disease?

To diagnose grade 3 fatty liver disease, a doctor typically performs a physical examination, reviews medical history, and orders various tests.

A physical examination often includes checking for signs of liver issues and taking the person's body weight and height.

A doctor can use weight and height to calculate a person's body mass index (BMI). A higher BMI increases a person's risk of having NAFLD.

A doctor may also check for the following:

- signs of cirrhosis, including:
- fluid build-up in the abdomen
- muscle loss
- enlarged spleen
- dark skin patches, which can indicate insulin resistance
- signs of an enlarged liver



During the appointment, a doctor will also likely ask questions about a person's personal and family medical history. They may ask about a person's history with:

- insulin resistance or type 2 diabetes
- overweight or obesity
- metabolic syndrome
- high triglyceride or high cholesterol levels

The doctor may also review the person's lifestyle and habits, including how much they exercise and what they eat.

Reviewing this medical information can help a doctor determine whether a person has a higher risk of developing NAFLD.

If a doctor suspects a person may have NAFLD based on a physical examination and review of medical history, they will likely order one or more tests to confirm the diagnosis. These tests include:

- Blood tests: Blood tests can help check for liver enzymes and other factors that could indicate liver scarring or damage.
- Imaging tests: Imaging tests can include an ultrasound, MRI, or CT scan. These can show fat build-up in the liver but cannot show inflammation.
- Biopsy: A person may need a liver biopsy to confirm a diagnosis of NASH.

What are the possible complications of grade 3 fatty liver disease?

Grade 3 fatty liver disease puts a person at higher risk of developing complications, including inflammation and scarring, if they are not already present.

NAFLD can also lead to other complications, such as:

- cardiovascular disease
- liver cancer
- end stage liver disease

A person's doctor can advise on reducing their risk of complications.

Can fatty liver grade 3 be cured?

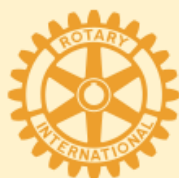
Losing a small percentage of weight can help reduce the percentage of fat in the liver and help the liver heal from damage associated with inflammation.

However, the damage is typically irreversible in the later stages. At that point, treatment focuses on managing symptoms and preventing further damage.

How do you manage fatty liver grade 3?

In most cases, a person can manage NAFLD with lifestyle strategies. These can include getting enough regular physical activity and maintaining a moderate weight. A person can also take steps to manage high cholesterol levels and type 2 diabetes where applicable.

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The diagram illustrates the progression of Non-Alcoholic Fatty Liver Disease (NAFLD) to Non-Alcoholic Steatohepatitis (NASH). On the left, a woman with a normal body mass index (BMI) is shown with a healthy, reddish-brown liver. An arrow labeled 'NAFLD/ NASH' points to a second woman who is overweight and has a significantly enlarged, yellowish, fatty liver.

Risk factors	Symptoms/Complications
<ul style="list-style-type: none"> -Gender -Physical inactivity -Toxins -High caloric intake -Age -Infections (HCV) -Overweight, BMI ≥ 30 -Type 2 diabetes/ Insulin resistance -Hypertension -Heart disease -wide waste circumference (central obesity/visceral fat) -High triglycerides Low HDL-cholesterol/high LDL/ high total cholesterol -metabolic syndrome (abdominal obesity, hypertriglyceridemia, hyperlipidemia) -Genetic factors and heredity -High fasting glucose -Rapid weight loss -Certain medicines and drugs -Microbiome and dysbiosis? -Deficiencies in parenteral nutrition -Alcohol consumption 	<ul style="list-style-type: none"> -Fatigue, malaise -abdominal discomfort -Mild jaundice -Fatty liver -Steatosis -Liver damage -Liver fibrosis/cirrhosis -Liver cancer -Cardiovascular disease
	Treatment
	<ul style="list-style-type: none"> -Energy restriction and weight loss -Lifestyle changes & physical exercise -Medication -Replacement of saturated & trans fats in diet -Avoidance of sugars (fructose) in diet -Avoidance of alcohol -Synbiotics (probiotics, prebiotics) -Bariatric surgery -Liver transplant after liver failure
	Diagnosis & Monitoring
	<ul style="list-style-type: none"> -Blood & liver function tests -Imaging -Liver biopsy

NASH

If a person has NASH and high levels of fat in their liver, they also have inflammation and liver damage.

This inflammation and liver damage can lead to:

- liver fibrosis, or scarring of the liver
- cirrhosis
- liver cancer
- liver failure

Causes

The ALF estimates that about 20% of people with NAFLD will develop NASH. Older individuals are also more likely to develop NASH, but some children may get it.

NASH is also more likely to occur in people with:

- excess weight or obesity
- body fat concentrated around the waist
- insulin resistance or type 2 diabetes
- high blood pressure
- obstructive sleep apnea

Treatments

To reduce liver inflammation and fibrosis, people should aim to lose between 7% to 10% of their body weight. Health experts recommend doing this over time rather than rapidly, as losing weight too quickly can worsen liver disease.

Doctors may use medications to treat complications of NASH, which may require minor medical procedures or surgery. People experiencing liver failure or liver cancer may need a liver transplant.

Diagnosis

A liver biopsy is the only test that can diagnose NASH, as it needs to show precisely how far the condition has progressed. Liver biopsies can rule out other conditions or give healthcare providers a better view of advanced liver disease or cirrhosis than imaging tests can.

Similarities and differences between NAFL and NASH

	NAFL	NASH
Full name	NONALCOHOLIC FATTY LIVER	NONALCOHOLIC STEATOHEPATITIS
Excess fat in the liver	Yes	Yes
Inflammation	No	Yes
Liver damage	No	Yes
Reversible	Usually	Depends on progression
Treatment	3–5% body weight loss	7–10% body weight loss
Possible complications	Typically, none	Fibrosis, cirrhosis, liver cancer, liver failure

Diet and Cirrhosis

How does cirrhosis affect eating, diet, and nutrition?

Cirrhosis can lead to malnutrition, meaning that your body is not getting the right amount of the vitamins, minerals, and other nutrients it needs to stay healthy. Research suggests that 50% to 90% of people with cirrhosis have malnutrition.⁶ People with cirrhosis are at risk for malnutrition for several reasons.

The symptoms of cirrhosis, such as nausea and vomiting, may cause people with cirrhosis to eat and drink less. Cirrhosis also affects how the liver works. When the liver isn't working well, the body may have problems digesting foods and drinks or absorbing nutrients.

What should I eat or drink if I have cirrhosis?

What you eat and drink is important. Your doctor may refer you to a registered dietitian to help create healthy meal plans that fit your nutrition needs.

Meal plans will vary depending on how severe cirrhosis is and other factors. Health care professionals can recommend a meal plan that will provide the amount of calories and nutrients, especially protein, that your body needs. Health care professionals may recommend that people who do not get enough nutrients, or who have low levels of some vitamins and minerals, take certain dietary supplements [NIH external link](#). If you have cirrhosis, talk with your doctor before taking dietary supplements, including herbal supplements.

Cirrhosis changes the way the body stores nutrients and uses them for energy. People with cirrhosis should avoid fasting, or going without food, for too long. Health care professionals may recommend⁷

- having smaller, more frequent meals
- eating every 3 or 4 hours while awake
- having a snack before going to sleep at night or having an early breakfast after waking up

Having cirrhosis or advanced liver disease usually means you will need to make some changes to your diet. As well as generally eating healthily you may need to follow special advice to make sure you get enough energy (calories) and protein, and not too

much salt. This is important to stop you from becoming malnourished and losing muscle mass.

People who have cirrhosis often eat 'little and often', a style of eating called grazing. Eating more often means your body doesn't start breaking down the protein in your muscles for energy.

Around 2 in 10 people with compensated cirrhosis are malnourished, but this increases to more than 5 in 10 people with decompensated cirrhosis.

For specific advice on your diet, ask your doctor to refer you to a dietitian. When you see a dietitian, the advice you receive will be specific for you. The guidance here is more general and you shouldn't make any changes without first discussing them with the professionals looking after you.

When cirrhosis develops your liver is no longer able to store glycogen, a form of carbohydrate which it needs to meet your body's energy demands. Your liver tries to make up for this but you often need more energy and protein in your diet.

You can increase the amount of protein in your diet by eating:

- Beans and pulses such as lentils, kidney beans, or baked beans
- Nuts such as almonds or walnuts
- Eggs, cheese and other dairy products
- Fish such as cod, salmon, and tinned or fresh tuna, sardines or mackerel
- Meats such as turkey, chicken, or lean cuts of beef, pork and lamb

If you are underweight or malnourished then you will need to increase the amounts of energy and protein you eat even more. Regular snacking can top them up. There are also a number of high protein supplements that your dietitian may recommend and your doctor can prescribe.

Snacks to top up your energy and protein levels

- Teacake with butter
- 3 crackers with butter and cheese
- Breakfast cereal with full cream milk
- Fruit scone with butter and jam
- 2 slices of toast with jam
- Milky drinks
- 2 slices of fruit loaf
- Hot chocolate and a banana

If you are overweight you may be advised to lose weight. This should be done by reducing your fat and carbohydrate intake, but keeping your protein intake high and increasing physical activity levels to ensure you do not compromise your muscle mass.

1. Eat little and often.
2. Instead of having three main meals aim to eat something every 2 to 3 hours and eat a snack before bedtime. This should be something high in starchy carbohydrates such as cereal, porridge, rice pudding or shortbread.
3. Eat more calories and protein.
4. Reduce salt to help manage fluid retention and bloating (ascites and oedema)
5. Managing hyperglycaemia (high blood sugar) and diabetes.
6. Supplements for people with or at risk of bone disease (osteoporosis)

People with hepatic encephalopathy should also follow the above guidance including to eat more protein. In the past, patients were advised to cut down on protein. We now know this is wrong, but you may still see it in some information or hear it said by health professionals.

You might find it helpful to:

- Spread your protein intake out over the day. Avoid having all of your daily protein in one meal.
- Take as much of your protein from vegetable sources as possible. Vegetable protein is better tolerated than dairy or meat. Try lentils, beans, peas, nuts, oatmeal, wild rice, and soybean products such as soy milk, tofu and edamame.

Choose dairy sources of protein such as eggs and cheese over meat sources. Dairy can be better tolerated than protein from meat sources. Fish and poultry are better sources than red meat.

Which dry fruit is good for liver cirrhosis?

Almonds. Nuts in general and almonds, in particular, are rich in Vitamin E and unsaturated fats. These help the liver in eliminating bad cholesterol from the body and lowering blood pressure, besides protecting against fatty liver disease.

Can you put weight on with cirrhosis?

Myth: It's always good to gain weight when you have cirrhosis.

Fact: If your weight gain is from eating too many calories, this can lead to fat deposits on your liver, which can cause further injury. If your weight gain is due to fluid retention, it may be a sign that your liver is deteriorating.

What is the best home remedy for cirrhosis?

Home Remedies for Liver Cirrhosis

Dietary Changes: Adopting a balanced, nutrient-rich diet that is low in sodium and high in fibre can improve liver health and manage symptoms. Specific nutritional recommendations may include: Optimal intake of fruits, vegetables & whole grains.

What is the best diet for someone with cirrhosis of the liver?

Reducing the amount of animal protein, you eat. This will help limit the buildup of toxic waste products. Increasing your intake of carbohydrates to be in proportion with the amount of protein you eat. Eating fruits and vegetables and lean protein such as legumes, poultry, and fish.

How can I gain weight with a weak liver?

To help avoid muscle loss, you need to eat foods high in protein at each meal and snack throughout the day (e.g., every 3 hours). This is important for people with chronic liver disease as the protein is used to maintain muscles and body tissues (including the liver) and to keep the body working normally.

Which fruit is best for liver cirrhosis?

Here are a few examples of foods to prioritize on a liver cirrhosis diet: Fruits: apples, oranges, berries, pears, peaches, plums. Vegetables: broccoli, cauliflower, asparagus, tomatoes, peas, potatoes. Protein foods: eggs, dairy products, seafood, lean cuts of meat and poultry.

Is milk OK for liver cirrhosis?

Dairy: Full-fat dairy products will likely be too hard for your body to digest. Stick to low-fat Greek yogurt, small portions of low-sodium hard cheese, and fortified dairy-free milk alternatives like almond or soy. Rich, milk-based desserts like pudding, custard, and ice cream should be limited.

Is curd good for liver patients?

Regular consumption of yogurt is beneficial for your liver for the following reasons: It helps reduce weight, body mass index, and serum levels of fasting insulin. These are some of the main risk factors of non-alcoholic fatty liver disease (NAFLD). It reduces cholesterol and sugar levels in your body.

How can I help my liver with weight loss?

Wise Choices

1. Try to maintain a healthy weight and eat sensible portions.
2. Try to lose weight gradually if you're overweight.
3. Limit how much fat you eat. ...
4. Eat more fruits, vegetables, and whole grains.
5. Avoid foods and drinks with large amounts of sugars, especially fructose. ...
6. Avoid heavy alcohol use. ...
7. Quit smoking.

What slows down cirrhosis?

If you have cirrhosis, you can take steps to help keep cirrhosis from getting worse. Do not drink alcohol or use illegal drugs. prescription medicines. over-the-counter medicines, including pain relievers, such as nonsteroidal anti-inflammatory drugs (NSAIDs) and acetaminophen link, and sleep aids.

What not to take with cirrhosis?

Pain Medications

They should not be used by cirrhotic patients at all. Narcotics such as morphine, codeine, hydrocodone, fentanyl, demerol, etc., can cause severe confusion/hepatic encephalopathy in patients with advanced liver disease. They should be avoided, if at all possible.

Which fruit detox liver?

Lemons, orange, grapefruit, amla which has high vitamin C and antioxidants, citrus fruits like grapefruits, oranges, limes and lemons support the natural cleansing abilities of the liver. 3. Turmeric root: Turmeric root is your liver's best friend!



Do's And Dont's While Following Cirrhosis Diet Plan

Do's

1. Eat whole grain cereals
2. Include salad with meals.
3. Eat fruits inbetween main meals
4. Include fresh Garlic and Ginger for gravy.

DON'Ts

Dietary Restrictions: What Not To Eat in Cirrhosis

1. More oil for the food preparation
2. Fast foods
3. Sweets, pastries and baked foods
4. Meat and meat products
5. Alcohol and alcoholic beverages.

What are the three worst things for your liver?

Foods that are high in sugar, fat, and salt put extra stress on the liver. Fast food, packaged foods, and processed foods tend to contain a lot of these elements.

Food Items You Can Easily Consume in Liver Cirrhosis

- a) Cereal: Brown rice, whole wheat, oats, jowar, bajra, ragi
- b) Pulses: red gram, green gram, black gram, bengal gram
- c) Vegetables: all gourds-bitter melon, snake melon, ridge melon, bottle melon, ivy melon, ladies finger, tindora, green leafy vegetables
- d) Fruits: citrus fruits-orange, muskmelon, grapefruit, lemon; berries-strawberry, blueberry, blackberry; cranberry, cherries, papaya, pineapple, guava.
- e) Milk and milk products: low fat milk, low fat curd.
- f) Meat, fish & egg: Skinless chicken, egg white, fish like salmon, sardines, trout, mackerel, tuna.
- g) Oil: 2 tsp (10ml)
- h) sugar: 2 tsp (10gm)
- i) Other beverages: green tea.

Summary

Grade 3 NAFLD is the most severe level. It indicates a high percentage of fat in the liver and inflammation of surrounding structures. It can occur in both NAFL and NASH.

Conditions that can increase the risk of grade 3 NAFLD include obesity, type 2 diabetes, and metabolic syndrome. Without treatment, NAFLD can lead to complications such as cardiovascular disease, liver cancer, or liver failure.

A person may not experience symptoms of NAFLD. If a doctor suspects NAFLD, they may order various tests, such as blood tests, imaging tests, and a liver biopsy.

Treatment typically involves following certain lifestyle strategies and managing other health conditions, such as diabetes or high cholesterol. Lifestyle strategies typically include losing weight or maintaining a moderate weight, eating a balanced diet, and getting enough regular exercise.

NAFL, NAFLD, and NASH are connected, in that NAFL and NASH are both types of NAFLD.

While NAFL is easily treatable and reversible, NASH may advance to a stage where all a person can do is prevent further damage.

Slowly and steadily losing weight is the best treatment for all forms of nonalcoholic fatty liver conditions.

LIFESTYLE ADVICE FOR ALL PATIENTS WITH NAFLD

Overweight/obesity NAFLD

Non-obesity NAFLD

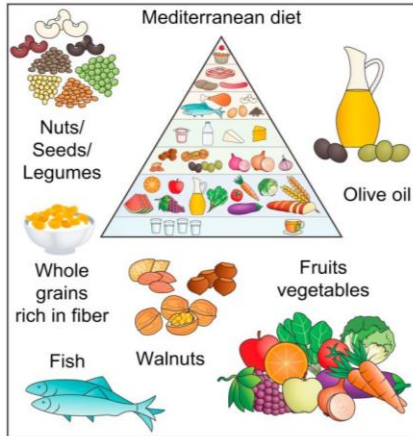
Weight reduction

- The more severe the liver disease is, the higher the goals are in terms of weight loss
- Healthy diet with caloric restriction tailored for your preferences

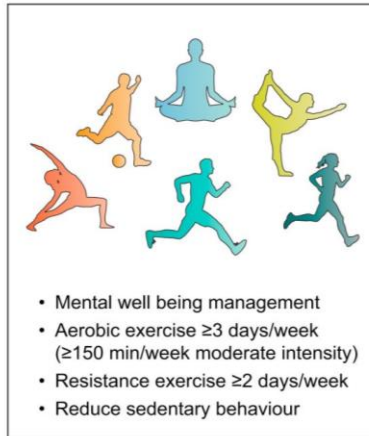
- 3-5% reduction of weight even within the normal BMI range (especially if recent weight gain occurred or if abdominal obesity is present)

Lifestyle advice for ALL patients with NAFLD

Recommended foods

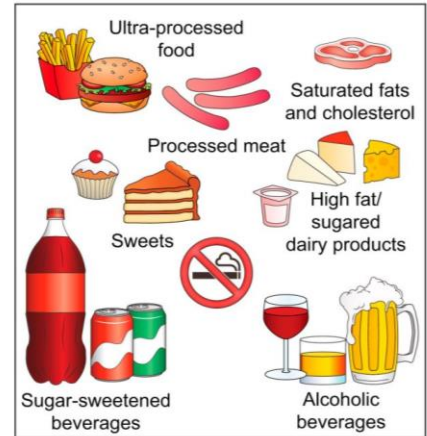


Recommended activity



- Mental well being management
- Aerobic exercise ≥ 3 days/week (≥ 150 min/week moderate intensity)
- Resistance exercise ≥ 2 days/week
- Reduce sedentary behaviour

Non-recommended foods/ Minimize consumption



- Reduce added sugar (e.g. by reducing sweets, processed foods, sugared dairy products, etc.)
- Avoid sugar-sweetened beverages
- Reduce saturated fat and cholesterol (e.g. by eating low fat meat and low fat dairy products)

- Increase n-3 fatty acids found in fish, and walnuts; utilize olive oil over other oils more often
- Minimize "fast food" and ultra-processed food
- Home-cooked meals are preferable
- Try to follow the Mediterranean dietary pattern

Weight loss achieved through a combination of healthy eating patterns that encompass the principles of the Mediterranean diet and regular physical activity is the most evidence-based treatment for nonalcoholic fatty liver disease.

If you are diagnosed with NAFLD, your doctor will talk to you about making healthy diet and lifestyle choices. This is the cornerstone of NAFLD treatment and should always be the first treatment option. There are currently no medicines to specifically treat NAFLD, although research is underway to develop them. Without specific drugs for treatment, weight loss is key, and this can be achieved through a combination of dietary changes and increasing physical activity/exercise levels. These changes can help to:

- Reduce the amount of fat and inflammation in your liver. Even if your liver is scarred, there can be some improvement if you make and sustain lifestyle changes, given that the liver has the ability to regenerate.
- Improve your metabolic profile and thereby lower your risk of CVD, T2D and liver cancer.

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LIFESTYLE MODIFICATION

- Overweight and obesity are important risk factors for NAFLD/NASH, mainly when the calorie overload exceeds the capacity of your fat tissue to store the excess energy you have taken up.
- Lifestyle modification, which includes changes in dietary pattern and composition as well as increasing physical activity levels, is the first step and cornerstone of NAFLD management.
- Achieving sustained weight loss can improve NAFLD across the disease spectrum. The amount of weight loss is the most important determinant of improvement, regardless of the type of diet that has been followed.
- The Mediterranean diet is one of the most studied and beneficial. Even without weight loss, a healthier food pattern, especially the Mediterranean diet, can result in NAFLD improvement.
- Added sugars, especially fructose, play a major role and should be avoided as much as possible. A reasonable fruit consumption of 1-3 fruits per day, should not be further restricted and should be a part of a balanced diet and a source for fiber and vitamins.
- Decreasing overall sedentary time and breaking up sedentary time throughout the day is a useful treatment strategy for all people with NAFLD/NASH.
- Any increase in physical activity is useful, even without weight loss. In order to induce significant changes, over 150 min/week of moderate intensity physical activity over 3-5 sessions including a combination of aerobic (“cardio” e.g. brisk walking, cycling, swimming) and resistance (“strength” e.g. lifting weights) training are recommended.
- Both the changes in diet and physical activity/exercise levels need to be tailored to your individual needs, preferences and abilities in order to find a way of living that you enjoy and can sustain in the long term.

WEIGHT LOSS AND FAT

Weight loss can be achieved by any dietary method that reduces calorie intake. Many different types of diet are effective for inducing weight loss, though there is no “magic” diet. You can choose a diet with health benefits that you feel able to follow in the long term, guided by your doctor and/or dietician/nutritionist.

Saturated fat has been shown in several studies to have a reinforcing effect on liver fat accumulation. For example, in a study comparing the addition of muffins high in saturated fat vs. muffins high in unsaturated fat to the habitual diet there was a similar increase in body weight across both groups.

A Patient Guide to Fatty Liver Disease



What are NAFLD and NASH?

Non-alcoholic fatty liver disease (NAFLD) occurs when abnormal amounts of fat deposit in your liver. Alcohol can cause the same injury to the liver, but NAFLD occurs in the absence of excess alcohol intake. NAFLD makes your liver unhealthy and can inflame and scar your liver, causing non-alcoholic steatohepatitis (NASH).



Why is it important to know about these conditions?

NAFLD and NASH can have no symptoms until you develop permanent complications that can sometimes include liver damage, liver cancer, and heart disease, such as heart attack and heart failure. If NAFLD and NASH are identified early, treatments are available that can reverse the condition and help prevent serious complications.



Where is my liver?

It is in the right upper section of your belly, usually covered by your ribcage. If your liver extends below your ribcage, it may be enlarged.



What are the causes of NAFLD?

Major risk factors for NAFLD are the metabolic syndrome, obesity (especially in the belly), insulin resistance, diabetes, and abnormal blood fats. Other conditions such as lipodystrophy (loss of fat), chronic kidney disease, and polycystic ovarian syndrome also increase the risk of NAFLD.



How can I tell if I am at risk?

You may have increased risk if you have features of the metabolic syndrome (elevated blood sugar, elevated blood triglycerides [oils in the blood], increased waist circumference [belt size], and high blood pressure), diabetes, and obesity. The more of these conditions you have the higher your risk of developing NAFLD. Having a family member with NAFLD or NASH may also increase your risk. Evaluation for NAFLD and NASH needs to be discussed with your health care professional, possibly in collaboration with a specialist.



What can I do about it if I have NAFLD or NASH?

Ask your health care professional to discuss your condition and make a treatment plan. Exercise 3 or more hours weekly, make dietary changes, lose weight (5-10%), and avoid alcohol intake. Consultation with a dietitian may be beneficial. Management of underlying conditions is needed, which may include possible treatment with medications.



Is it safe for me to take a statin?

If your cholesterol level is high, it is important to take a statin to help prevent heart attack and stroke. Statins are safe in most patients with NAFLD, but this should be discussed with your health care professional.

How much alcohol can I drink if I have NAFLD or NASH?

The liver can heal itself the best if you have no alcohol intake. If your liver recovers during treatment, you may be able to have small amounts of alcohol after discussing your condition with your health care professional.



Questions you may want to ask your health care professional(s).

- Why do I have NAFLD/NASH?
- Do I have other health risks from it?
- What is the best treatment for me?
- Will lifestyle changes heal my liver?
- Are my heart and arteries okay?
- Will drugs heal my liver?
- Do I need to see a liver specialist?
- Do I need a liver biopsy?



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ડૉ. કેમ મુલ્તાની

M.S. (General Surgeon)

લેપ્રોસ્કોપી તથા જનરલ સર્જન
દૂરબીનથી થતા ઓપરેશનના નિષ્ણાંત

સમય : કુલ ટાઇમ દરરોજ
સવારે ૧૧ થી ૨ સાંજે ૪ થી ૬

- સારણગાંઠ, હાઈડ્રોસીલ, એપેન્ડીક્સના ઓપરેશનો
- હરસ-મસા, ભગંદર, પીતાશચની પથરીની સારવાર તથા ઓપરેશન
- શરીરની કોઈપણ નાની મોટી ગાંઠનું સચોટ નિદાન તથા સારવાર
- જુનો કબજિયાત તથા એસીટીડી, સુગરના લીધે સડી ગયેલા પગ (ડાયાબિટીક ફૂટ) ની સારવાર
- કોઈ પણ રીતે દાગેલાની સારવાર
- હરસ - મસા, ફિશર, ભગંદરની કાપ વગર લેઝરથી સારવાર
- થાઈરોઈડ તથા પેટના આંતરડાના તમામ રોગોની સારવાર તથા ઓપરેશનો
- અકસ્માતનાં કેસોની સારવાર
- આધુનિક પદ્ધતિ દ્વારા બાળકોની ખતના (Circumcision) કરી આપવામાં આવશે.



ડૉ. હિતેશકુમાર કાઠડીયા

Orthopedic Surgeon

હાડકાના રોગોના નિષ્ણાંત

દરરોજ સવારે ૧૦ થી સાંજે ૫

- હાડકાના રોગના તથા ફ્રેક્ચરના નિષ્ણાંત
- સંધિવાના રોગોની સારવાર
- કમરના દુ:ખાવા તેમજ ઓસ્ટીયોપોરાસીસની સારવાર
- ઘુંટણ અને થાપાના સાંધા બદલવાની સર્જરી
- ખભા અને ઘુંટણના દૂરબીનથી થતા ઓપરેશનો
- ઘુંટણ તથા સાંધાના ઘસારા માટે કુદરતી સાંધો બચાવવા માટેના ઓપરેશન
- દરેક પ્રકારના ફ્રેક્ચરની IITV ગાઈડેડ સારવાર
- અકસ્માતના કેસો, તમામ પ્રકારના ફ્રેક્ચરના ઓપરેશનો
- સ્પોર્ટ્સ ઈન્જરી, રમત-ગમત દરમિયાન થતી સ્નાયુઓ તથા લીગામેન્ટની ઈજાઓની આધુનિક ટેકનોલોજીથી સારવાર



પ્રસુતિ તથા સ્ત્રી-રોગની સારવાર

ડૉ. સ્વાતિ પાડવી

MD (Obs. & Gynecologist)

- લેબરરૂમ, નોર્મલ ડિલિવરી
- જોખમી ડિલિવરી તથા પીડારહિત ડિલિવરી
- સીઝેરીયન ઓપરેશન
- ગર્ભાશયનું ટાંકવાળું તથા ટાંકા વગરનું ઓપરેશન

ગર્ભવતી માતાની સંપૂર્ણ કાળજી નિદાન અને સારવાર, સ્ત્રીરોગને લગતી અન્ય તકલીફો જેવી કે માસિકની અનિયમિતતા તેમજ પેટાને લગતી તકલીફો તથા ત્યાંની ગાંઠોનું નિદાન તથા સારવાર.

નિ:સંતાનપણાની વૈજ્ઞાનિક અને આધુનિક સારવાર

ઉત્તમ સારવાર સૌથી સસ્તા દરે



૨૪ કલાક ઈમરજન્સી સુવિધા



ડૉ. શ્રેયા પટેલ

(M.D. Paedia.)

દરરોજ સવારે 10 થી 1 સુધી

ઈમરજન્સી 24 કલાક

WE TAKE CARE OF EVERY NEED OF YOUR CHILD



નીચે પ્રમાણેના લક્ષો ધરાવતા દર્દીઓની ઓપીડી તેમજ દાખલ દર્દી તરીકે સારવાર ઉપલબ્ધ

લક્ષણો

- શરટી, ઉધરસ, તાવ, ન્યુમોનીયા
- ડેબ્રુ, મેલેરીયા, ટાયફોઈડ
- આંચકી
- ઝાડા, ઉલ્ટી, ડીહાઈડ્રેશન, પેટમાં દુ:ખાવો
- મગજમાં તાવ
- બાળકોનો શારિરિક વિકાસ ન થવો
- ઝેરી કમળો
- સોડ એકસીડન્ટ ઈન્જરી
- કિડની / હૃદયને લગતી તકલીફો

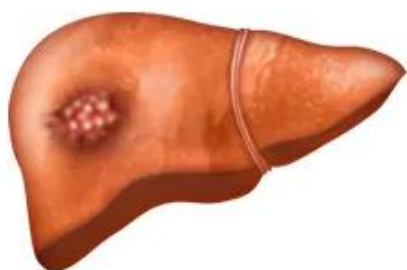
ઉપલબ્ધ સારવાર

- દરેક પ્રકારના રસીકરણ (Vaccination)
- ઓક્સિજન તથા નેબ્યુલાઈઝર દ્વારા સારવાર
- ડેબ્રુ, મેલેરીયા, ન્યુમોનીયાના ગંભીર કેસોની એક્સ્પર્ટ દ્વારા સારવાર
- અદ્યતન આઈસીયુ
- વેન્ટીલેટર તેમજ મોનીટરની સુવિધા સાથે 24 કલાક ઈમરજન્સી સારવાર
- તાલીમબદ્ધ નર્સિંગ સ્ટાફ દ્વારા ઉત્તમ સારવાર
- X-Ray - સોનોગ્રાફી - સીટી સ્કેન પેથોલોજી - 2D ECHO



LIVER CANCER

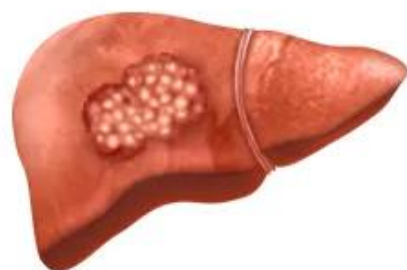
Types of Liver Tumour



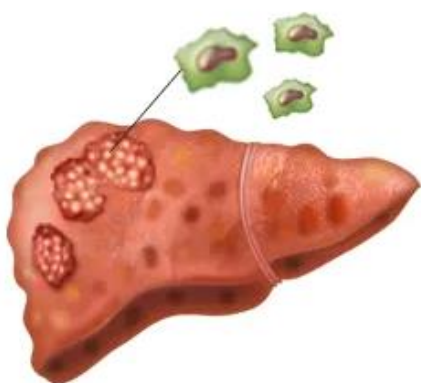
• Hemangioma



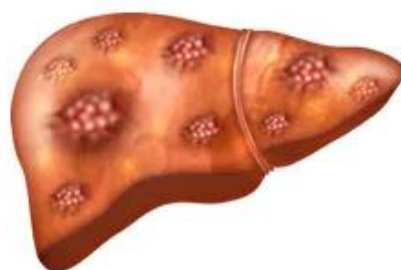
• Adenoma



• FNH



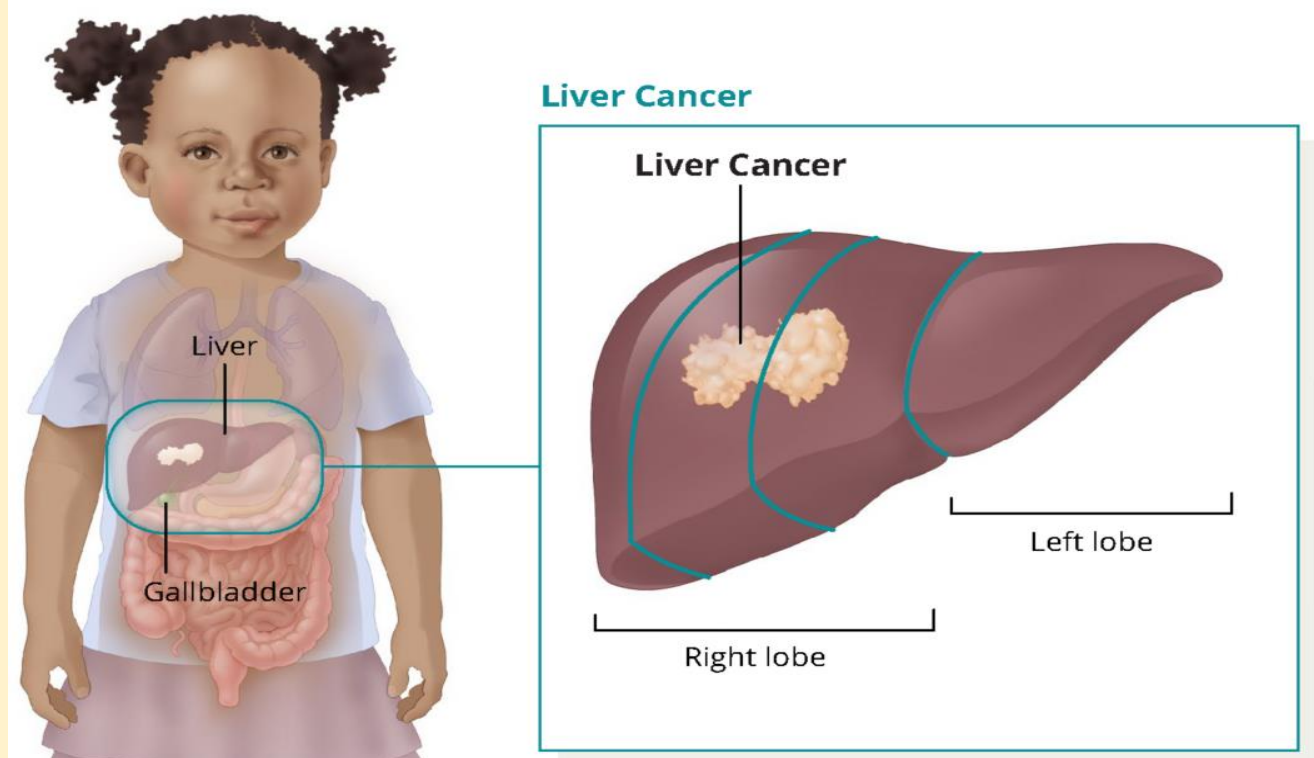
• HCC



• Metastasis

What is the best way to fight liver cancer?

The best way to fight liver cancer is to follow the advice of one's doctor or oncologist. While certain dietary choices can promote liver health, nutrition alone cannot fight liver cancer and is not a replacement for treatment.





આલીપોર સોશ્યલ વેલ્ફેર ટ્રસ્ટ સંચાલિત

દરેક સારવાર એક જ છત્ર નીચે રાહતદરે ઉપલબ્ધ

આલીપોર હોસ્પિટલ



નેશનલ હાઈવે નં. ૪૮, આલીપોર. તા. ચીખલી, જી. નવસારી. ફોન : (૦૨૬૩૪) ૨૩૩૧૪૬, ૨૩૪૧૪૬, ૨૩૧૭૪૨

જનરલ મેડીસીન વિભાગ

ડૉ. સૌરભ પટેલ

M.D. (Gen. Medicine)
Fellowship in 2D ECHO

દરરોજ સવારે ૧૦ થી ૨ અને સાંજે ૪ થી ૬

ડૉ. યુનુસ માયત

M.D., Physician
CMO cum Administrator

દરરોજ સવારે ૧૦ થી ૨ અને સાંજે ૪ થી ૬

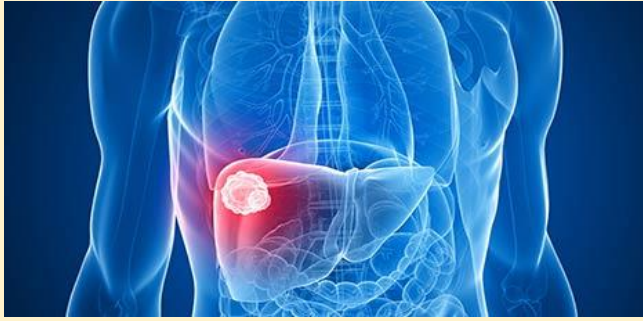
- ડાયાબીટીસની સારવાર
- દમના રોગ, તાવ, પ્લડપ્રેશરની સારવાર
- પેટના રોગોની સારવાર
- I.C.U. વિભાગ નિષ્ણાંત
- દરેક પ્રકારના તાવની સારવાર
- પ્લડપ્રેશરની વધ-ઘટ
- શરીરની સામાન્ય બિમારીઓની સારવાર
- સર્પદંશ તથા ઝેરી દવા પીધેલાની સારવાર
- મગજના રોગોની સારવાર
- હૃદયરોગનું નિદાન તથા સારવાર
- લીવરનો સોજો તથા સારવાર
- ફેફસાના રોગોની સારવાર
- ટીબી, ન્યૂમોનિયાની સારવાર
- પેટમાં પાણીનો ભરાવો (Ascites) ની સારવાર



૨૪ કલાક
ઈમરજન્સી
સુવિધા



CONSULT DOCTOR



What foods are good for liver cancer?

No individual foods can prevent or cure liver cancer. However, some foods that can promote overall liver health include oatmeal, berries, garlic, green tea, and coffee.

LIVER CANCER: THE TNM STAGING SYSTEM

Liver cancer is often staged using the TNM system.

“T,” which stands for tumour, is followed by a number that indicates the size of the tumour and how far it has spread. In general, the higher the number, the larger and/or more invasive the cancer:

- **TX** - Primary tumour cannot be assessed
- **T0** - No evidence of primary tumour
- **T1** - One tumour with no vascular invasion
- **T2** - One tumour with vascular invasion or multiple tumours that are 5 centimetres or smaller in diameter
- **T3a** - Multiple tumours larger than 5 centimetres in diameter
- **T3b** - One or more tumours of any size that involve a major branch of the portal vein or hepatic vein
- **T4** - One or more tumours with spread to adjacent organs other than the gallbladder or perforation of the visceral peritoneum

“N” stands for nodes, which is followed by a number that indicates whether the cancer has spread to the lymph nodes, and if so, to what extent:

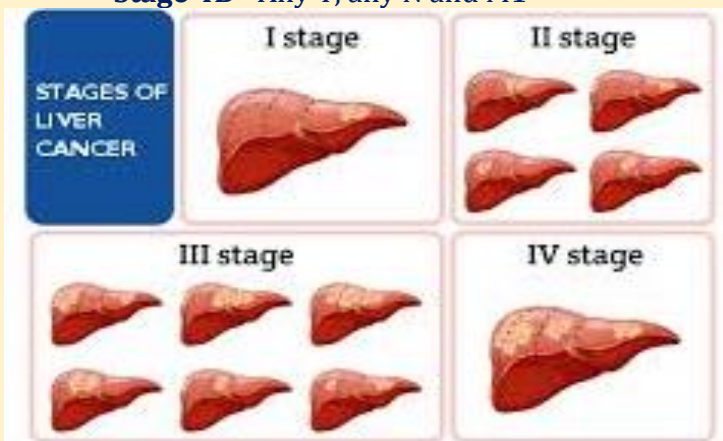
- **NX** - Regional lymph nodes cannot be assessed
- **N0** - No cancer in regional lymph nodes
- **N1** - Cancer has spread to regional lymph nodes

“M” stands for metastasis, which is followed by a number that indicates whether the cancer has metastasized to distant organs or tissues.

- **M0** - No metastasis
- **M1** - Cancer has metastasized to at least one site distant from the kidney

Liver cancer stages are assigned based on the T, N and M values:

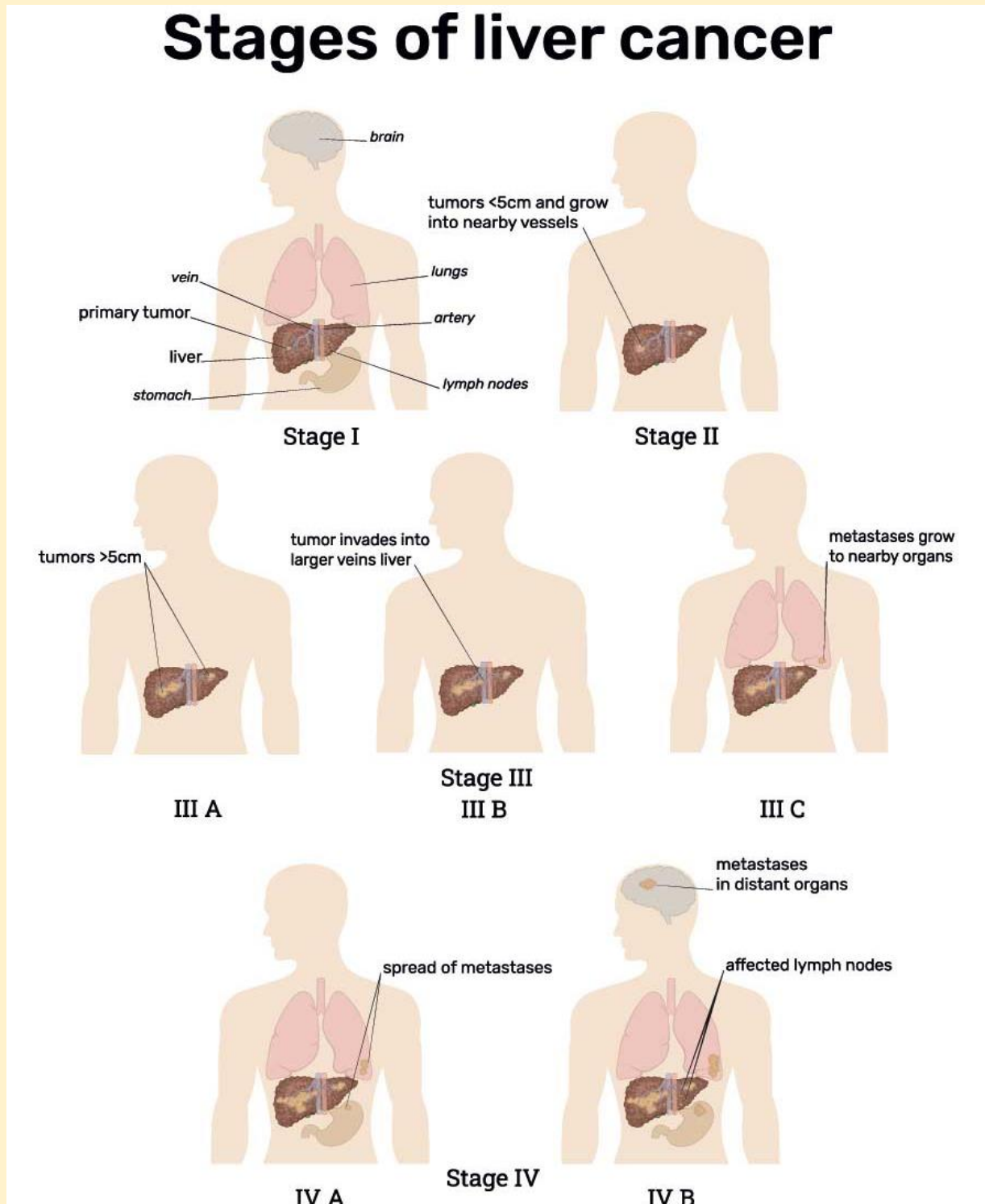
- **Stage 1** - T1, N0 and M0
- **Stage 2** - T2, N0 and M0
- **Stage 2A** - T3a, N0 and M0
- **Stage 3B** - T3b, N0 and M0
- **Stage 3C** - T4, N0 and M0
- **Stage 4A** - Any T, N1 and M0
- **Stage 4B** - Any T, any N and M1



What foods should you avoid with liver cancer?

Some foods that are harder for the liver to process include highly processed and fatty foods, sugary foods, and alcohol.

Stages of liver cancer

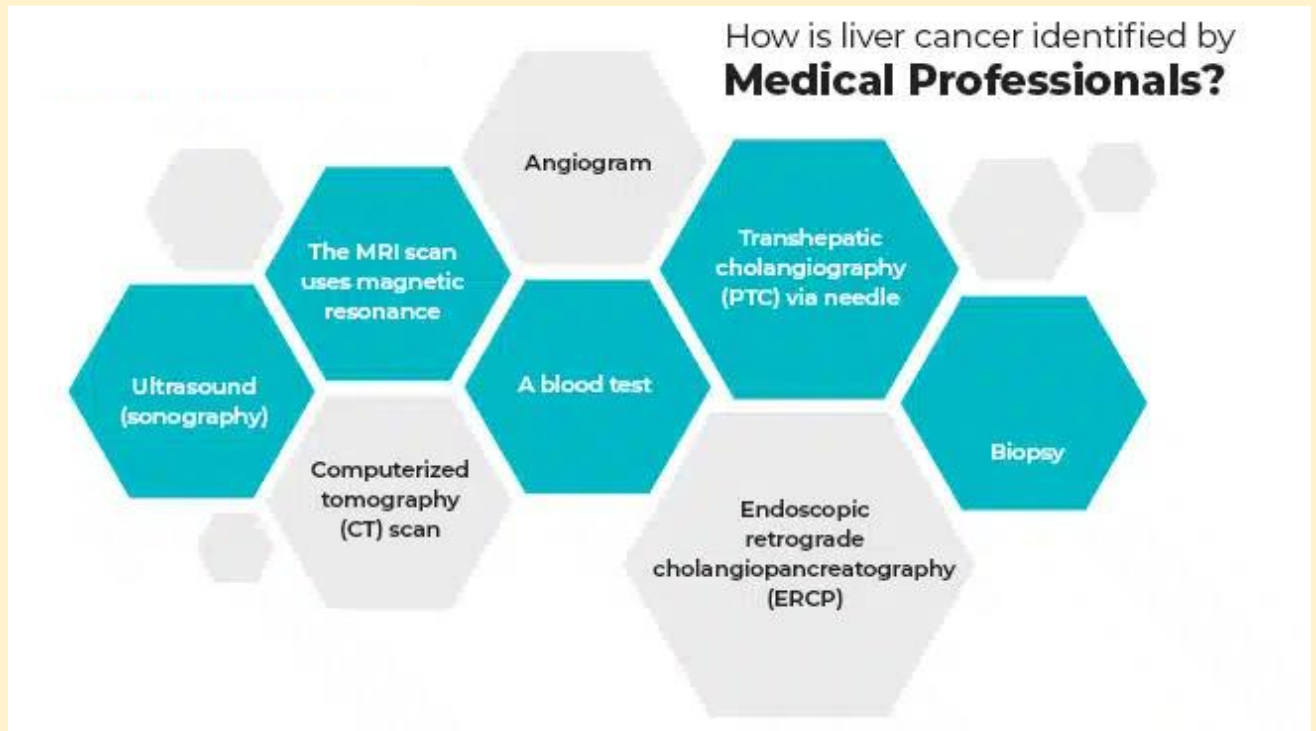


BCLC STAGING SYSTEM

While the TNM system is widely used for liver cancer staging, it does not take into account the effects of declining liver function. The BCLC staging system factors in key aspects of liver health and classifies the cancer into five main stages:

- **Stage 0 (very early stage)** - The tumour is smaller than 2 centimetres in diameter, the tumour is not pressuring the portal vein and bilirubin levels are normal.
- **Stage A (early stage)** - The tumour is smaller than 5 centimetres in diameter, the tumour is pressuring the portal vein and bilirubin levels are normal or elevated.
- **Stage B (intermediate stage)** - There is a single large tumour or multiple tumours, but the liver is functioning well overall.
- **Stage C (advanced stage)** - The cancer has spread to blood vessels, lymph nodes or other organs, but the liver is functioning relatively well.
- **Stage D** - The liver is severely damaged and noticeable symptoms have developed.

How is liver cancer identified by **Medical Professionals?**



METHODS TO DETECT LIVER CANCER

The presence of liver cancer signs and liver cancer symptoms during your physical examination may lead healthcare professionals to believe you have the disease. For more information, they could request the following tests:

ULTRASOUND (SONOGRAPHY)

Your soft tissue architecture can be seen in photographs thanks to this exam. Ultrasound is a tool that medical professionals use to check for liver tumours.

COMPUTERIZED TOMOGRAPHY (CT) SCAN

With the use of this unique kind of X-ray, your liver is captured in fine detail, revealing the size and location of any liver tumours.

MRI -The MRI Scan Uses Magnetic Resonance:

A big magnet, radio waves, and a computer are used in this exam to create extremely sharp photographs of your body.

ANGIOGRAM

Examining your liver's blood arteries is made easier by this test for medical professionals. During this procedure, your healthcare professional injects dye into an artery to track blood vessel activity and look for blockages.

A BLOOD TEST

Blood tests for cancer, such as a liver function test, may be performed by medical professionals to examine the liver's proteins, enzymes, and other constituents, which can indicate whether the liver is healthy or damaged. Alpha-fetoprotein testing might be performed (AFP). Increased AFP levels may be a sign of liver cancer.

BIOPSY

Medical professionals take liver tissue out to check for cancerous growth. The most accurate method for diagnosing liver cancer is through biopsies.





If your doctor suspects you have IHC, he or she may order the following tests: ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY (ERCP)

Your bile ducts are inspected with an endoscope and a catheter (thin, flexible tubes) during an ERCP procedure.

TRANSHEPATIC CHOLANGIOGRAPHY (PTC) VIA NEEDLE

A PTC, like an ERCP, produces X-rays of your bile ducts. Your healthcare practitioner administers contrast dye by putting a needle into your bile ducts and liver instead of using an endoscope and catheter. Those who are unable to get an ERCP usually only qualify for a PTC.

CAN LIVER CANCER BE CURED?

Wondering can liver cancer be cured? Well, liver transplants are successful and can cure patients with liver cancer, but not every patient in need of a transplant will be in good enough health or be able to find a donor. According to studies, those who undergo surgery to have a portion of their liver removed typically live longer than those whose disease prevents surgery. When that occurs, medical professionals concentrate on providing therapies that will assist patients to maintain a high standard of living as long as feasible.

LASTLY

A life-threatening condition is primary liver cancer. People frequently discover they have liver cancer after it has spread to an advanced stage, which reduces the range of available treatments. When that occurs, medical professionals concentrate on providing you with therapies that will reduce your symptom burden and slow the spread of cancer while preserving your quality of life. The team of skilled doctors will make sure that all of your needs are addressed while maintaining your safety and giving you a dependable experience while using their services.

This is for informational purposes only and private circulation to bring about health awareness. For medical advice or diagnosis, please consult a medical professional.

“Everything we do opens another opportunity for someone, somewhere”

HOLGER KNAACK

Rotary Worldwide Numbers

36,526 Rotary Clubs	1,14,4423 Rotarians	8,673 Rotaract Clubs
13,502 RCC's	114,625 Rotaract Members	14,781 Interact Clubs

District 3060 Numbers

102 Rotary Clubs	5004 Rotarians	777 Lady Rotarians
146 RCC's	71 Interact Clubs	49 Rotaract Clubs

Every day is a new opportunity to grow, improve, and move closer to your goals.

Believe in yourself and all that you are. Know that there is something inside you that is greater than any obstacle.

GROW ROTARY MEMBERSHIP

THROUGH USING THE ACTION PLAN



“Engagement with Rotary is more important than just attendance in Rotary.

You are here to make a difference !
What you do with your year decides your success.



ROTARY CLUB OF CHIKHLI RIVER FRONT

ro·ta·ry vol·un·teer

/'rōdərəē/

/,vələn'tir/

Agent of change, Person of action

Rotary:
where *talk* turns into *action*.



Time for FAMILY.
Time for WORK.
Time for COMMUNITY.



Time to make
A DIFFERENCE.

Time  Rotary

District 3060

Rotary

Chikhli River Front



GLOBAL GRANT PROJECT OF THE ROTARY FOUNDATION OF ROTARY INTERNATIONAL GG # 21 18317 ROTARY YEAR 2020-21

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BEST PROTECTION IS EARLY DETECTION

CANCER DETECTION ON WHEELS

- Breast Cancer
- Cervical Cancer
- Oral Cancer
- Head & Neck Cancer
- Lung's Cancer
- Prostate Cancer

ROTARY CLUB OF CHIKHLI RIVER FRONT

Alipore Social Welfare Trust
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&
ROTARY CLUB OF GANDEVI

Rotary

FOR CANCER DETECTION IN YOUR AREA
PLEASE CONTACT SUHEL SHAH +91-99794 93698

R Recognize an ethical issue

O Obtain Information about the situation and others' interests and perceptions

T Test alternative actions from various perspectives

A Act consistently with your best judgment

R Reflect on your decision after acting

Y Yield to your ethical judgments

Rotary
The National Rotarians World

1. What action benefits me most?
2. What action do my friends think I should do?
3. What action would produce the greatest amount of good and the least amount of harm?
4. What action respects the integrity of every person?

ROTARY CLUB OF CHIKHLI RIVER FRONT

Rotary

"Service Above Self"

ROTARY INTERNATIONAL

"One Profits Most Who Serves Best"

Our Two Mottos

JOIN ROTARY CONTACT
RTN SWETAL DESAI
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Rotary | **THE MAGIC OF ROTARY**



WHAT IS ROTARY?

Rotary is a global network of 1.6 million neighbours, friends, leaders, and problem-solvers who see a world where people unite and take action to create lasting change – across the globe, in our communities, and in ourselves.

Solving real problems takes real commitment and vision. For more than 110 years, Rotary's people of action have used their passion, energy, and intelligence to take action on sustainable projects. From literacy and peace to water and health, we are always working to better our world, and we stay committed to the end.

WHAT WE DO

Rotary members believe that we have a shared responsibility to take action on our world's most persistent issues. Our 46,000+ clubs work together to:

- Promote peace
- Fight disease
- Provide clean water, sanitation, and hygiene
- Save mothers and children
- Support Education
- Grow local economies
- Protect the environment

OUR MISSION

We provide service to others, promote integrity, and advance world understanding, goodwill, and peace through our fellowship of business, professional, and community leaders.

VISION STATEMENT

Together, we see a world where people unite and take action to create lasting change — across the globe, in our communities, and in ourselves.

DIVERSITY, EQUITY, AND INCLUSION

As a global network that strives to build a world where people unite and take action to create lasting change, Rotary values diversity and celebrates the contributions of people of all backgrounds, regardless of their age, ethnicity, race, colour, abilities, religion, socioeconomic status, culture, sex, sexual orientation, and gender identity.

YOUR TIME, ENERGY, AND PASSION TO IMPROVE YOUR WORLD ARE ALL YOU NEED TO GET INVOLVED WITH ROTARY.

Become one of Rotary's people of action or explore the many opportunities we have for anyone — whatever your age or interest — who wants to improve lives in communities near and far. Connect with a local Rotary club to find out how you can get involved.

JOIN ROTARY, BE A ROTARIAN!

CONTACT SWETAL DESAI +91-8511103499



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GUJARAT STATE INDIA

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Rotary

Chikhli River Front

