

The Anatomy of the Abdomen, Including the Liver in the Upper Right Quadrant

Why is the liver important?

The liver is the second largest organ in the body and is located under the rib cage in the upper right side of the abdomen. It performs hundreds of functions vital to health and well-being including regulation of metabolism, production of clotting proteins and blood detoxification.

What is fatty liver disease?

Fatty liver disease is a broad term for the buildup of triglyceride fats in the liver. This condition is common, and most people show no signs or symptoms and do not experience any adverse effects. However, fatty liver is a progressive disease and as it advances in severity it can cause irritation, inflammation and scarring known as fibrosis. When fat content of the liver increases to greater than 5-10%, its function can become significantly impaired.

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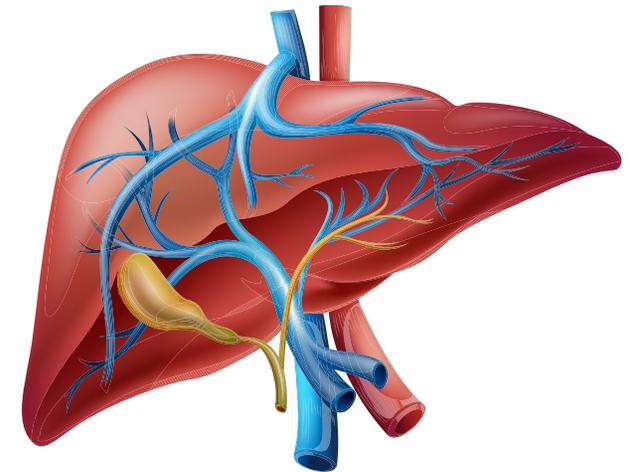
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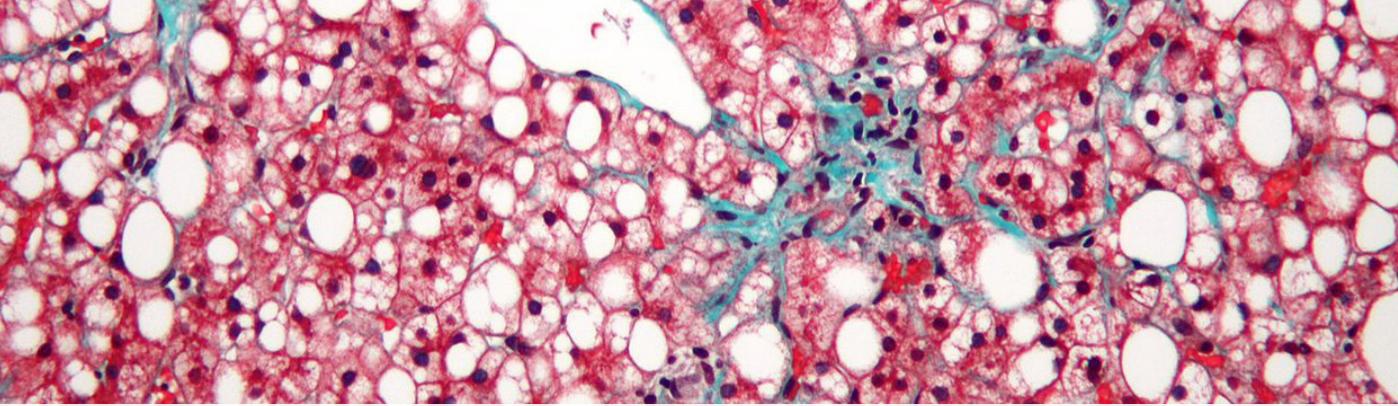
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What is **FATTY LIVER DISEASE?**



An Informational Guide
to Prevention, Diagnosis,
and Treatment Through
Lifestyle Changes.



Magnification of fatty deposits in liver tissue, as seen in fatty liver disease.

What causes fatty liver?

There are two types of fatty liver disease which have different causes but result in similar liver injuries. The first is **Alcoholic Fatty Liver Disease (AFLD)** and is caused by high alcohol consumption (>20 grams/20 milliliters per day). It is the earliest stage of alcoholic liver disease which may progress to the most severe stage, cirrhosis.

The second type is **Non-Alcoholic Fatty Liver Disease (NAFLD)** and occurs for reasons other than alcohol consumption. It is often associated with symptoms of insulin resistance (a condition affecting fat metabolism) including obesity, **Type 2 diabetes, hypertension and dyslipidemia**. Research suggests that NAFLD is the liver's manifestation of insulin resistance.

Other risk factors for fatty liver disease include some medications (such as corticosteroids, certain antidepressants and antipsychotics, Amiodarone and Methotrexate) hepatitis infections, auto-immune or inherited liver disease, fast weight loss, and malnutrition.

What are the symptoms?

Symptoms are usually absent or mild but can include

fatigue, loss of appetite and weight, weakness, nausea, confusion and difficulty concentrating. Additionally, the liver may become enlarged and cause pain in the upper middle or upper right quadrant of the abdomen.

How is fatty liver diagnosed?

Certain blood tests act as screeners, but do not provide a definitive diagnosis. Elevated levels of the enzymes ALT, AST and GGT may indicate fatty liver disease.

Imaging studies such as ultrasound, CT scans and MRI scans can help providers to visually determine if fat has infiltrated the liver. These tests, however, cannot determine how far the disease has progressed. If assessment of severity is needed, a liver biopsy will be necessary.

Is fatty liver disease curable?

There is no medication or medical procedure that can cure fatty liver disease. However, weight reduction often has a notable positive effect.

What can I do to prevent the disease from progressing?

- Create an exercise routine. Be active for at least 180 minutes per week, such as by walking with a friend or spouse.
- Eat the Mediterranean Diet which consists of fruits and vegetables (5 servings daily), whole grains, beans and nuts. Replace butter with healthier fats, such as extra virgin olive oil.
- Avoid soda and other forms of refined sugar. Try and limit intake to 15 grams of fructose per day. However, research shows that limited amounts of dark chocolate can be beneficial.
- Focus on protein-rich foods (2-3 servings daily) such as lean poultry, seafood, eggs, and Greek yogurt. Avoid red meat.
- Coffee may be beneficial. There is evidence that 2-3 cups daily can halt progression of NAFLD.
- Consider taking a daily Vitamin E supplement of 800 IU. Vitamin E is a powerful antioxidant and may relieve symptoms of NAFLD.
- Ask your primary care provider about taking a daily aspirin to address clotting issues. If your levels of cholesterol are above normal, also ask about cholesterol-lowering medication.
- Make an appointment with a dietician who can design an appropriate diet, as well as aid with weight loss if this is your goal.
- Follow up at least quarterly with your primary care provider or a GI specialist to monitor the health of your liver.

Additional Resources:

- www.liverfoundation.org (American Liver Foundation)
- www.aasld.org (American Association for the Study of Liver Disease)
- patients.gi.org (American College of Gastroenterology)