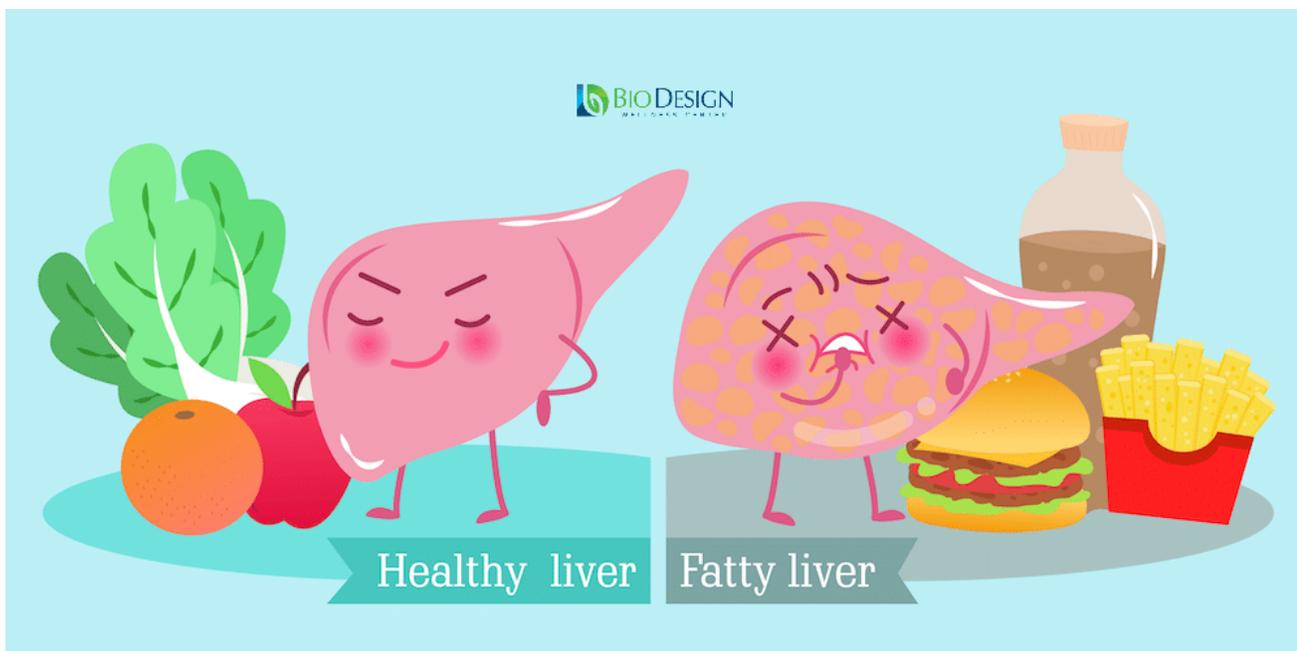


Diagnosing and Treating Nonalcoholic Fatty Liver Disease (NAFLD)

There ought to be a Liver Appreciation Day. The liver is not only the largest solid organ in the body, but it is the only organ that can regenerate. And it performs more than 500 functions in the body, including filtering and eliminating toxins from the blood, producing bile (to break down fats), making proteins and blood plasma, turning excess glucose into glycogen for storage, and facilitating the clotting of blood.



Unfortunately, the liver is susceptible to a wide range of factors that can negatively impact its health and function – factors that cause different types of liver disease, which can be grouped by cause:

- Liver diseases caused by viruses, such as hepatitis
- Liver cancer

- Liver diseases, including cirrhosis (scarring of the liver), caused by alcohol, drugs, or other toxins
- Inherited liver diseases, such as hemochromatosis and Wilson disease
- Fatty liver disease (an accumulation of excess fat in the liver), which may or may not be related to heavy consumption of alcohol

Fatty liver disease *not* caused by excessive alcohol consumption is referred to as *nonalcoholic fatty liver disease (NAFLD)*, which is becoming more and more prevalent around the world, affecting on average about 25 percent of the population. NAFLD is especially common in advanced Western nations. In fact, here in the United States, NAFLD is, by far, the most common form of chronic liver disease, affecting up to an estimated 30 percent of the population. NAFLD also accounts for more than 50 percent of all cases of chronic liver disease (followed by alcoholic liver disease, which accounts for slightly more than 20 percent).

Some people with NAFLD can go on to develop *nonalcoholic steatohepatitis (NASH)*, which is an aggressive form of NAFLD accompanied by inflammation, scarring (cirrhosis), and in severe cases liver failure – similar to the degree of liver damage from excessive alcohol consumption.

Symptoms of Nonalcoholic Fatty Liver Disease

Nonalcoholic Fatty Liver Disease is often referred to as a “silent” liver disease because people can have it without exhibiting or noticing any symptoms, and most people with NAFLD never suffer actual liver damage. Symptoms are more likely to appear when the NAFLD progresses to NASH, at which point an individual may experience the following symptoms:

- Tiredness

- Weakness
- Discomfort in the upper right abdomen
- Weight loss
- Yellowing of the skin or eyes
- Spiderlike blood vessels on the skin
- Chronic itching

If NASH progresses to cirrhosis, it can cause additional symptoms, including:

- Fluid retention
- Internal bleeding
- Muscle loss
- Confusion
- Liver failure

A recent study also suggests a possible connection between NAFLD and cognitive impairment, including Alzheimer's disease.

Recognizing the Risk Factors

The prevalence of NAFLD is increasing at about the same rate as obesity, which makes researchers believe that there is a strong connection between the two. Factors that increase a person's risk for developing NAFLD include the following:

- Carrying extra weight
- High triglycerides or LDL (bad) cholesterol
- Having diabetes (type 1 or 2), prediabetes, or metabolic syndrome
- Having high blood pressure

Hepatic iron (which can cause oxidative damage), leptin (a hormone that curbs appetite), antioxidant deficiencies, and small intestinal bacterial overgrowth (SIBO) may also contribute to NAFLD.

Discover, Repair, Optimize

Because most people who have NAFLD do not have any noticeable symptoms, doctors usually discover it when examining results from certain lab tests, such as liver enzyme or liver function tests, or medical imaging such as an abdominal ultrasound or computerized tomography (CT) scan of the abdomen.

Recognizing the important role the liver plays in keeping us healthy, here at BioDesign Wellness Center, we routinely screen for NAFLD, looking for any warning signs of a liver that is not functioning as it should and for any conditions that might negatively impact liver health and function. Ours is a three-step approach:

1. **Discover:** We conduct a thorough physical examination, examine each patient's medical and family history, and order any lab tests or medical imaging we think may be helpful based on our initial examination. If we discover evidence of dysfunction in the body, we don't stop at diagnosing and treating the illness. We continue to ask questions until we solve the mystery of why a patient has developed the illness. In the context of NAFLD, if routine lab tests reveal elevated aspartate aminotransferase (AST), alanine aminotransferase (ALT), or gamma γ -glutamyl transferase, we may order medical imaging, such as a liver ultrasound to check for inflammation, scarring, or other liver abnormalities. If we find evidence of fatty liver, we don't stop with a diagnosis of NAFLD. We want to know what caused the buildup of fat in the liver, whether it is related to diet, environment (toxins), SIBO, something else, or a combination of factors.
2. **Repair:** When we have a clear understanding of the health issue and what is causing it, we take steps to fix the problem(s). For example, if environmental toxins, such as

mold, are an issue, we provide guidance on how to limit exposure to those toxins, while at the same time ordering a medically supervised detox to help eliminate the toxins already in the body. With NAFLD, repair often must address several issues, including any metabolic dysfunction that may be making weight management difficult, problems that may be leading to inflammation in the liver and elsewhere in the body, *dysbiosis* (a microbial imbalance in the gut), and other issues.

3. **Optimize:** After repairing the dysfunction, we seek to optimize function. The medically supervised detox in Step 2 goes a long way toward supporting the liver's optimal function, but we may also prescribe nutrients and other supplements or changes to diet or lifestyle to support optimal liver health and function.

Repairing and optimizing liver health and function often includes making some dietary changes, such as the following:

- Reducing consumption of sugar, high-fructose corn syrup, and other simple carbohydrates such as those in many baked goods.
- Avoiding refined and processed foods.
- Adopting a diet rich in colorful organic fruits and vegetables.
- Avoiding trans fats, saturated fats, nitrites, and nitrates.
- Drinking green tea.
- Eating fresh fish low in mercury and other liver-friendly foods, including high-sulfur foods (garlic and onions), cruciferous vegetables (Brussels sprouts, cabbage, cauliflower, and broccoli), and artichokes, turmeric, and beets.

Fortunately, NAFLD is a stage during which liver disease is

reversible. In addition to dietary changes, the following supplements have shown some promise in reversing the course of NAFLD and restoring liver health and function:

- Tocotrienols
- N-Acetyl Cysteine (NAC)
- Omega 3
- Milk thistle
- L-carnitine
- Choline
- Betaine
- Vitamin E (as RRR- α -tocopherol)

Other supplements/nutrients we may prescribe to restore liver health and function include vitamin B5 (pantetheine or pantothenic acid), taurine, magnesium, zinc with copper, vitamin B6, biotin, manganese, and lysine.

The takeaways here are that NAFLD is a silent liver disease and that it is reversible if addressed early enough in the right way. What that means for you is that it's important to have regular and thorough physical exams and lab tests, so you can identify and treat any liver problems (or health issues that may negatively impact liver health and function) before they become serious and cause irreversible liver damage. Your liver works hard 24/7 to keep you healthy and fit, so take care of the liver that takes care of you.

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