

NIH News in Health

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Inside News: 3 Headaches ... 4 Diet Drinks and Body Weight... Looking at the Heart... COPD: Breathe Better

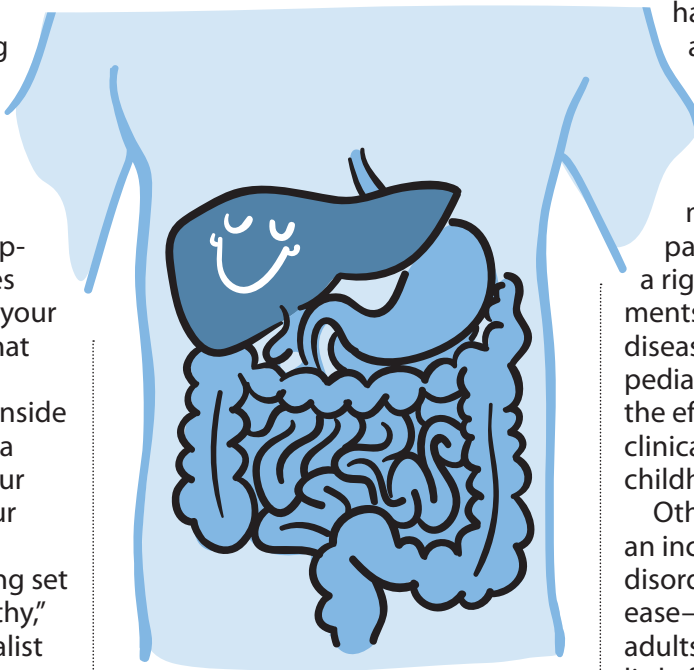
Your Liver Delivers Protect It From Harm

Your liver works hard to protect your health. It's a rugged, strong organ. But certain things—like alcohol, drugs, viruses, and excess weight—can damage it. You may not even realize when your liver is struggling, because liver disease usually has no symptoms until the problem becomes severe. Help your liver to guard your health by avoiding the things that might cause it harm.

The liver is the largest organ inside your body. It's about the size of a football, and rests just under your ribs against the right side of your stomach.

"The liver performs an amazing set of functions that keep you healthy," says Dr. Jake Liang, a liver specialist and researcher at NIH.

Your liver helps fight infections. It cleans your blood by getting rid of your body's natural waste products and other harmful substances, including alcohol and drugs. "The liver also transforms the foods you eat into energy and nutrients your body can use, and it regulates how nutrients flow to different parts of the body when needed," Liang says.



Your liver can keep working even if part of it is damaged or removed. But if it starts to shut down completely—a condition known as liver failure—you can survive for only a day or 2 unless you get emergency treatment.

Many things can affect liver function. Some liver problems are inherited from your parents, some are caused by viruses (certain kinds of **hepatitis**), and some are related to your behavior. Certain liver diseases go away on their own. Others can last a lifetime and cause serious illness.

Although liver disease often has no symptoms, warning signs can include a swollen abdomen, nausea, itching, or jaundice (having a yellow tint to the skin and the whites of the eyes).

NIH supports large research networks across the country to learn more about liver disease. For instance, teams of scientists nationwide

have joined forces to study rare and often-deadly liver disorders that strike newborns and older children.

"Research networks are important because no single medical center has enough patients with rare diseases to do a rigorous study or test new treatments," says Dr. Edward Doo, a liver disease expert at NIH. "With this large pediatric network, we can combine the efforts and expertise of many clinical centers that specialize in rare childhood liver diseases."

Other NIH studies are focusing on an increasingly common type of liver disorder—known as fatty liver disease—that affects both children and adults. A healthy liver contains just a little fat or none at all. But too much fat buildup in liver cells can cause swelling and damage. Over time, the excess fat can lead to **cirrhosis**, liver cancer, and even liver failure.

"Estimates vary, but 2 different studies in the past decade suggest that about 30% to 45% of Americans have excess fat in the liver," says Dr. Yaron Rotman, an NIH specialist in fatty liver disease. "It's also becoming a huge problem for children and teens."

Drinking too much alcohol can cause fatty liver. But a growing number of people who drink little or

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Definitions

Hepatitis

A general term for liver inflammation (damage caused by the body's protective response to injury or illness).

Cirrhosis

A condition in which scar tissue replaces healthy liver cells. Commonly caused by alcoholism, hepatitis C, and non-alcoholic fatty liver disease.

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no alcohol are also being diagnosed with fatty liver. "The rise seems to be tied to the nation's obesity epidemic," says Doo.

Studies suggest that fatty liver disease now also affects about 1 in 10 children nationwide. As with adults, most children with fatty liver disease are overweight and resistant to insulin, a critical hormone that regulates energy.

In its early stages, fatty liver disease usually has no symptoms. It's often first detected by blood tests for liver function. But these tests can't tell the difference between mild fatty buildup and more serious damage. And some people with fatty liver

disease can have normal blood tests. The only sure way to diagnose the severity of fatty liver disease is by getting a liver biopsy. For this test, a doctor inserts a thin needle through the skin and into the liver to remove a small piece of tissue for analysis.

NIH-funded scientists have been searching for simpler ways to measure the severity of fatty liver disease. They're also conducting clinical studies to assess possible treatments. There are currently no approved medications for fatty liver or its more severe form called NASH, or non-alcoholic steato-hepatitis.

"To treat fatty liver disease, we recommend lifestyle changes: Weight loss for people who are overweight, and exercise and a healthy diet to help reduce fat," Rotman says. "In many patients, just a 5-8% reduction in body weight will translate into a large improvement to liver damage." For people with alcohol-related fatty liver, stopping alcohol use can reverse or prevent further liver injury.

Another common type of liver disease—known as viral hepatitis—can be caused by at least 5 different viruses, named hepatitis A, B, C, D, and E. These infections can injure your liver and keep it from working properly.

"Collectively, about 20% of people worldwide may be affected by a hepatitis virus infection," Liang says. "It's a major public health problem." The most common types in the United States are hepatitis A, B, and C.

Each hepatitis virus causes a different form of liver disease. All the viruses can trigger acute, or short-



Web Links

For more about liver health and disease, click the "Links" tab at:

<http://newsinhealth.nih.gov/issue/Mar2014/Feature1>

term, hepatitis. Hepatitis B, C, and D can also cause chronic hepatitis, in which the infection lasts a long time, sometimes for your whole life.

People are often exposed to hepatitis A and E viruses through contaminated food or water. "The other hepatitis viruses often pass through some type of break in the skin barrier, sometimes by injections or by close contact with blood or other body fluids," Liang adds. Hepatitis B, C, and D can spread through sexual contact.

Because many infected people have few symptoms, they may not realize they have viral hepatitis. They can spread the infection to others without even knowing it.

Viral hepatitis is often treated with antiviral medications. Hepatitis A, B, and D infections can be prevented by vaccines. Practicing good hygiene—such as washing your hands and avoiding contact with infected blood—can also help block the spread of viral hepatitis.

Another potentially dangerous type of liver disease can be caused by taking certain drugs or supplements. "It's important to be aware that a lot of drugs can cause liver injury," Liang says. "This especially can be a problem for people who are taking several different medications."

Taking too much acetaminophen (Tylenol) is the most common cause of sudden liver failure. "It's particularly dangerous if you mix alcohol with acetaminophen or certain other drugs," Liang adds. Talk with your doctor or pharmacist about all the medications you take and how they might affect your liver.

Maintain a healthy weight, stay physically active, and limit your alcohol use. Keep your liver healthy, and it will protect you for a lifetime. ■



Wise Choices For a Healthy Liver

- Eat a balanced, healthy diet and exercise regularly.
- Maintain a healthy weight.
- Limit alcohol use. Talk with your doctor about how much alcohol is OK for you.
- Learn how the medicines you take might affect your liver. Take medications as directed.
- Talk to your doctor or pharmacist about all the medicines you're taking.
- Avoid direct contact with toxins from insecticides, cleaning products, and other chemicals.
- Don't smoke.

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<http://health.nih.gov>

Headache Pain

What To Do When Your Head Hurts

Most of us get headaches from time to time. Some are mild. Others cause throbbing pain. They can last for minutes or days. There are many different types of headaches. How you treat yours depends on which kind you have.

Headaches might arise because of another medical condition, such as swollen sinuses or head injury. In these cases, treating the underlying problem usually relieves headache pain as well. But most headaches—including tension headaches and migraines—aren't caused by a separate illness.

A headache may feel like a pain inside your brain, but it's not. Most headaches begin in the many nerves of the muscles and blood vessels that surround your head, neck, and face. These pain-sensing nerves can be set off by stress, muscle tension, enlarged blood vessels, and other triggers. Once activated, the nerves send messages to the brain, and it can feel like the pain is coming from deep within your head.

Tension headaches are the most common type of headache. They can cause a feeling of painful pressure on the head and neck. Tension headaches occur when the muscles in your head and neck tighten, often because of stress or anxiety. Intense

work, missed meals, jaw clenching, or too little sleep can bring on tension headaches.

Over-the-counter medicines such as aspirin, ibuprofen, or acetaminophen can help reduce the pain. "Lifestyle changes to relax and reduce stress might help, such as yoga, stretching, massage, and other tension relievers," says Dr. Linda Porter, an NIH expert on pain research.

Migraines are the second-most common type of headache. They affect more than 1 in 10 people. Migraines tend to run in families and most often affect women. The pain can be severe, with pulsing and throbbing, and can last for several days. Migraine symptoms can also include blurry vision and nausea.

"Migraines are complex and can be disabling," Porter says. Certain smells, noises, or bright flashing lights can bring on a migraine. Other triggers include lack of sleep, certain foods, skipped meals, smoking, stress, or even an approaching thunderstorm. Keeping a headache diary can help to identify the specific causes of your migraines. Avoiding those triggers or using prescription medications could help prevent or lessen the severity of future migraines.

Be careful not to overuse headache medications. Overuse can cause "rebound" headaches, making headaches more frequent and painful. People with repeating headaches, such as migraines or tension headaches, are especially at risk. Experts advise not taking certain pain-relief medicines for headaches more than 3 times a week.

A less common but more severe type of headache comes on suddenly in "clusters" at the same time of day or night for weeks. Cluster headaches may strike one side of the head, often



near one eye, with a sharp or burning pain. These headaches are more common in men and in smokers.

In rare cases, a headache may warn of a serious illness. Get medical help right away if you have a headache after a blow to your head, or if you have a headache along with fever, confusion, loss of consciousness, or pain in the eye or ear.

"Know what kind of headache you have and, if you can't manage it yourself, seek help," Porter says. "Remember there are preventive behavioral steps and medicines that can help manage headaches. But if the pain is severe or lasting, get medical care." ■



Web Links

For more about headaches, click the "Links" tab at:

<http://newsinhealth.nih.gov/issue/Mar2014/Feature2>



Wise Choices Prevent Headaches

- Ease stress.
- Get enough quality sleep.
- Eat regularly scheduled, healthy meals.
- Exercise regularly and maintain a healthy weight.
- Ask your doctor if medications might help prevent returning headaches.

Health Capsules

For links to more information, see these stories online:
<http://newsinhealth.nih.gov/issue/Mar2014/Capsule1>

Diet Drinks and Body Weight

Overweight and obese adults who drink diet beverages take in more calories from solid foods—especially snacks—than those who drink sugary beverages, according to a new study. The findings raise questions about using diet drinks for weight control in heavier adults.

Excess weight can raise your risk for many health problems, including type 2 diabetes, cancer, and heart disease. Many people use diet drinks to help control their weight. But studies of how these beverages affect weight control have had mixed results.

To examine the link between diet drinks and calories, NIH-funded scientists looked at data on nearly 24,000 adults. The researchers found that about 10% of healthy-

weight adults drank diet beverages, compared to about 20% of overweight and obese adults.

Healthy-weight adults who drank diet beverages ate less food and fewer total calories on a typical day than those who drank sugared beverages.

Among adults who were overweight or obese, total calorie intake was similar between those who drank diet or sugary beverages. Heavier adults who drank diet beverages tended to eat more calories in the form of solid foods.

Taking a look at solid-food intake, the scientists found that obese adults who consumed diet drinks ate significantly more calories per day in salty snacks and sweet snacks than those

who drank sugared beverages.

“The results suggest that overweight and obese adults looking to lose or maintain their weight—who have already made the switch from sugary to diet beverages—may need to look carefully at other components of their solid-food diet,” says study coauthor Dr. Sara N. Bleich at the Johns Hopkins Bloomberg School of Public Health.

Future studies might test whether diet drinks help healthy-weight adults maintain their weight. ■

Looking at the Heart

Heart disease is the leading cause of death nationwide, and it's a major cause of disability. Finding heart problems early can help prevent more serious troubles later and save lives. Doctors have many techniques for diagnosing heart disease. Among these are imaging tests that take “pictures” of your heart.

A new NIH Web page called “Picturing the Heart” (www.nibib.nih.gov/science-education/picturing-the-heart) gives a simple overview of 6 imaging tools that look at the heart and its arteries.

Some of these—such as cardiac MRI and echocardiography—can take moving pictures of a beating heart to see how well it's working. Others—such as cardiac CT and a

nuclear heart scan—take specialized snapshots to assess heart function and blood flow.

Two other techniques—coronary angiography and coronary calcium scan—look specifically for signs of clogged arteries in the heart. This type of blockage, called atherosclerosis, happens slowly over time and leads to coronary artery disease. It's the major reason people have heart attacks.

Heart imaging scans aren't right for everyone. Talk to your doctor about your risk for heart disease and recommended tests or screening. For more about heart health and disease, including different heart imaging techniques, see www.nhlbi.nih.gov/health/health-topics/by-category/. ■



Featured Website

**COPD: Learn More
Breathe Better**

<http://COPD.nhlbi.nih.gov>

COPD is a serious lung disease that makes it hard to breathe. It's a leading cause of death in the United States. Many people with COPD don't realize they have a disease. Learn more about how to spot and treat COPD. Get printable fact sheets, and find COPD-related events and networks that may be in your neighborhood or online.



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