

Liver Foods - Top 15 products for her health and recovery

Anna Shelestun, nutritionist, nutritionist

Eliseeva Tatyana, editor-in-chief of the EdaPlus.info project

E-mail: shelestun.n@edaplus.info, eliseeva.t@edaplus.info,

**Abstract.** The article discusses the main functions of the liver for normal human life and its relationship with the body. A systematic review of modern specialized literature and relevant scientific data was carried out. A list of foods useful for the liver is indicated. Potentially unfavorable products for the activity of the liver are analyzed separately, general recommendations for maintaining its health are indicated.

Keywords: liver, health, healthy foods, dangerous foods, recommendations

The liver is an organ located under the rib cage on the right side of the abdomen. It detoxifies, synthesizes proteins, regulates blood clotting, maintains healthy sugar levels, and performs 500 other functions. Her health is critical to the condition of the body as a whole, which is why it is so important to keep her working. Although it is impossible to control all risk factors, the consumption of certain foods and drinks still has a huge impact on the gastrointestinal tract.

# Interesting facts about the liver

The largest glandular organ of the human body and the second largest after the skin works no less than the heart. It has an amazing ability to self-heal, which makes it possible to transplant it - when people donate half, the remaining part restores the removed site.

Normally, the liver is 10% fat. With an increase in its amount, the risk of developing type 2 diabetes increases. It is difficult to find out about the problem, since the organ does not have pain receptors and cannot get sick - discomfort in the right hypochondrium and pain symptoms are given by its shell or neighboring organs. Although the largest gland can withstand a lot of abuse, it is like an elastic band - able to stretch until it breaks.

# What does the liver do: functions and role in the body

Hundreds of processes have been identified with it, but the most important are:

- produces bile, which is subsequently stored in the gallbladder and removes waste, toxins, breaks down fats in the small intestine during digestion;
- creates blood circulating through the body and regulates the concentration of amino acids in it;
- produces proteins for blood plasma and transport of fats throughout the body;
- converts excess glucose into glycogen for storage and reverse conversion for energy;
- accumulates vitamins and nutrients from food to use when deficient;
- converts toxic ammonia into urea the end product of protein metabolism, which is excreted in the urine;
- cleanses the blood of drugs and toxic substances;
- counteracts infections:
- removes toxic bilirubin (a product of the breakdown of hemoglobin), with the accumulation of which the skin and eyes turn yellow.

The body also performs many other functions. Isn't there enough reason to take care of his health? The best way to keep it functioning properly is to lead a healthy, active lifestyle.

# **Top 15 Liver Health Foods**

#### 1. Coffee

Studies have shown that the drink increases levels of the antioxidant glutathione, reducing the risk of cancer, cirrhosis and permanent organ damage in chronic diseases. This is due to the ability of the drink to prevent the accumulation of fat and collagen - two main markers of its diseases. [12]

#### 2. Cruciferous

Brussels sprouts and broccoli sprout extract enhance detoxification , protect the liver from damage, tumors. Substances in Brussels sprouts retain properties even after cooking. [3]

#### 3. Beet juice

antioxidants betalaines reduce oxidative damage and inflammation and enhance the elimination of toxins. Studies have been done on humans and animals with beetroot juice, but it can be assumed that drinking beetroot would bring a similar effect. <sup>[4, 5]</sup>

# 4 Grapefruit

Naringenin and naringin are the two main antioxidants found in citrus. Both reduce inflammation and prevent the development of fibrosis. Naringenin reduces the amount of fat in the liver and starts the process of burning it, and naringin counteracts some of the negative effects of alcohol. <sup>[6, 7]</sup>

#### 5. Berries

Blueberries, blueberries and cranberries contain anthocyanins, pigments with antioxidant properties. Their regular use protects the body from damage, increases the response of immune cells, slows down the development of fibrosis and the growth of cancer cells. [8, 9, 10]

# 6. Grapes

Red and purple varieties contain a particularly valuable compound resveratrol . The substance reduces inflammation, prevents damage, increases the level of antioxidants. And grape seed extract has super potential and can improve liver function.  $^{[11,\,12]}$ 

#### 7. Tea

Black tea extract reverses many of the negative effects associated with malnutrition and also improves blood counts that indicate organ health. People who drink green tea are less likely to develop cancer and non-alcoholic fatty liver disease (NAFLD). [13, 14, 15]

#### 8. Nuts

Fats, antioxidants and other beneficial plant compounds in almonds , walnuts protect against pathological changes in tissues. Studies have shown that men who eat them regularly have a low risk of developing NAFLD. [16]

# 9. Oily fish

Mackerel, cod, halibut, sardines are rich in omega-3 fatty acids that reduce liver fat, triglycerides in people with NAFLD and non-alcoholic steatohepatitis. [17]

# 10. Olive oil

The use of 1 tsp. olive oil per day increases the production of enzymes and protein necessary for normal metabolism. As a result, fat accumulation is reduced, blood circulation in the organ and insulin sensitivity are improved. [eighteen]

# 11. Leafy greens

Spinach and other leafy greens help fight NAFLD. In 2021, scientists discovered that the effect is provided by the polyphenols contained in it. Raw spinach showed the best results, while cooked spinach turned out to be ineffective - heat treatment reduces the activity of polyphenols and antioxidants. [19]

# 12. Legumes

Beans, soybeans, lentils, chickpeas, peas contain resistant starches that improve gut health. The use of legumes lowers the risk of many diseases of the gastrointestinal tract, blood glucose and triglycerides in obesity. And the consumption of soy ( miso soup, soy products) protects the liver from diseases due to the high content of the protein  $\beta$ -conglycinin . [twenty]

#### 13. Oatmeal

Whole grains improve the functioning of the body due to the high percentage of fiber. They saturate for a long time, normalize digestion, help get rid of extra pounds and belly fat, which is a good way to prevent many diseases. [21]

#### 14. Turmeric

High doses of curcumin, the active compound in turmeric, have been shown to reduce markers of liver damage. Studies have shown that its use as a supplement normalizes ALT and AST levels (enzymes are elevated in people with NAFLD).

#### 15. Garlic

In 2019, scientists found that frequent consumption of fresh garlic by men, but not women, reduces the risk of developing NAFLD. And in 2020, it was found that taking garlic powder in the form of a dietary supplement - 800 mg / day for 15 weeks - reduces the concentration of lipids and increases the production of enzymes. [22, 23]

# Other Ways to Help the Liver: Unhealthy Foods and Beneficial Activities

Doctors advise not only to consume more omega-3s, but also to reduce the consumption of omega-6s. To improve health, you need to replace sources of saturated fats (butter, sausages, fatty and dried meat), sources of unsaturated lipids - avocados, olive and nut oils, fatty fish. It is equally important to eliminate sugar from the diet.

# In addition to diet, there are a few other lifestyle changes you can make:

- engage in aerobics for at least 30 minutes a day, remain active throughout the day and not try to compensate for its lack with more intense workouts;
- control blood sugar levels diabetes and fatty liver disease often occur at the same time;
- drink enough clean water 6-8 glasses daily;
- eliminate occasional binge drinking and reduce its consumption in general;
- add polyphenol-rich oregano, sage, rosemary and other spices to dishes;
- replace chips and pastries with healthy snacks;
- be careful with medicines:
- get vaccinated against hepatitis.

#### **Expert comment**

# Tatyana Eliseeva, nutritionist, nutritionist

Your liver does a tremendous job every day and deserves at least a healthy diet. She can recover quickly as long as she remains healthy, and all hepatologists strongly advise keeping her in this condition. In most cases, the organ can be protected through lifestyle and dietary measures. A diet rich in fiber, protein, and healthy fats is the best way to keep her healthy.

### Literature

- 1. Coffee and liver health, https://pubmed.ncbi.nlm.nih.gov/25291138/
- 2. Coffee and Liver Disease, https://pubmed.ncbi.nlm.nih.gov/27194895/
- 3. Heat treatment of Brussels sprouts retains their ability to induce detoxification enzyme expression in vitro and in vivo, https://pubmed.ncbi.nlm.nih.gov/21535814/
- 4. Evaluation of the effect of beetroot juice on DMBA-induced damage in liver and mammary gland of female Sprague-Dawley rats, https://pubmed.ncbi.nlm.nih.gov/23450834/
- 5. Protective effect of red beetroot against carbon tetrachloride- and N -nitrosodiethylamine-induced oxidative stress in rats, https://pubmed.ncbi.nlm.nih.gov/19292473/
- 6. Review of natural products with hepatoprotective effects, https://pubmed.ncbi.nlm.nih.gov/25356040/
- 7. Role of naringin supplement in regulation of lipid and ethanol metabolism in rats, https://pubmed.ncbi.nlm.nih.gov/12798418/
- 8. Comparison of phytochemical profiles, antioxidant and cellular antioxidant activities of different varieties of blueberry (Vaccinium spp.), https://pubmed.ncbi.nlm.nih.gov/27664697/

- 9. Effect of blueberry on hepatic and immunological functions in mice, https://pubmed.ncbi.nlm.nih.gov/20382588/
- Rat liver mitochondrial damage under acute or chronic carbon tetrachloride-induced intoxication: protection by melatonin and cranberry flavonoids, https://pubmed.ncbi.nlm.nih.gov/22521486/
- 11. Antimutagenic and antigenotoxic potential of grape juice concentrate in blood and liver of rats exposed to cadmium, https://pubmed.ncbi.nlm.nih.gov/24996944/
- 12. Grape seed extract to improve liver function in patients with nonalcoholic fatty liver change, https://pubmed.ncbi.nlm.nih.gov/20616415/
- 13. Black tea prevents high fat diet-induced non-alcoholic steatohepatitis , https://pubmed.ncbi.nlm.nih.gov/21452373/
- 14. Green tea with high-density catechins improves liver function and fat infiltration in non-alcoholic fatty liver disease (NAFLD) patients: a double-blind placebo-controlled study, https://pubmed.ncbi.nlm.nih.gov/24065295/
- 15. Green Tea Consumption and the Risk of Liver Cancer: A Meta-Analysis, https://pubmed.ncbi.nlm.nih.gov/28095030/
- 16. Association between nut intake and non-alcoholic fatty liver disease risk: a retrospective case-control study in a sample of Chinese Han adults, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6731785/
- 17. Effects of Omega-3 Fatty Acid in Nonalcoholic Fatty Liver Disease: A Meta-Analysis, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5019889/
- 18. Effects of a 1-year dietary intervention with n-3 polyunsaturated fatty acid-enriched olive oil on non-alcoholic fatty liver disease patients: a preliminary study, https://pubmed.ncbi.nlm.nih.gov/20465434/
- 19. Spinach consumption and nonalcoholic fatty liver disease among adults: a case—control study, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8088717/#CR13
- 20. Legume intake and risk of nonalcoholic fatty liver disease, https://link.springer.com/article/10.1007/s12664-019-00937-8
- 21. Increasing Whole Grain Intake as Part of Prevention and Treatment of Nonalcoholic Fatty Liver Disease, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3670556/
- 22. Association between dietary raw garlic intake and newly diagnosed nonalcoholic fatty liver disease: a population-based study, https://pubmed.ncbi.nlm.nih.gov/31557727/
- 23. Effect of garlic powder consumption on body composition in patients with nonalcoholic fatty liver disease: A randomized, double-blind, placebo-controlled trial, https://pubmed.ncbi.nlm.nih.gov/26955623/

An extended HTML version of this article is available on the edaplus.info website.

# Food for the liver - 15 best foods for liver health and recovery

Shelestun Anna, nutritionist

Eliseeva Tatyana, editor-in-chief of the project EdaPlus.info

E-mail: shelestun.a@edaplus.info, eliseeva.t@edaplus.info

Received 25.10.2021

**Abstract.** The article discusses the main functions of the liver for normal human life and its relationship with the body. A systematic review of modern specialized literature and relevant scientific data was carried out. A list of foods useful for the liver is indicated. Potentially unfavorable products for the activity of the liver are analyzed separately, general recommendations for maintaining its health are indicated.