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Elevated liver values: What now?

Deutsche Leberhilfe e.V.

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Die Patientenorganisation

Introduction

Millions of people in Germany have liver disease without even knowing about it. As the liver doesn't have the ability to feel pain, many people don't notice anything until it is too late. There is a significant need for information about this among the general population, but also among many doctors.

Liver disease can have many causes: hepatitis infections, excess weight and alcohol, but also injury brought about by medication, and metabolic and autoimmune disorders.

Having elevated liver values, such as GGT, AST and ALT, is not a trivial matter, and it can be an initial sign of a disease. If these values are elevated, it is important to rule out the role of alcohol, but also viral diseases such as hepatitis B and C. Fatty liver as the result of excess weight, diabetes, iron overload, immune system disorders, medications and exposure to toxins in the workplace should also be investigated.

Symptoms of liver disease are very non-specific: constant tiredness, sensation of pressure in the upper abdomen, dark urine, or clay-coloured stools are possible accompanying signs, but they are not always evidence of liver disease. However, noticing such signs – just like elevated liver values – should be a reason to seek medical advice. The medical field specialising in liver diseases is called "hepatology". This belongs to the larger field of gastroenterology, which covers the whole region of the stomach and intestinal tract. Every hepatologist is also a gastroenterologist. If you think you may have a liver disease, you should seek specialist medical advice as soon as possible.

What do elevated liver values mean?

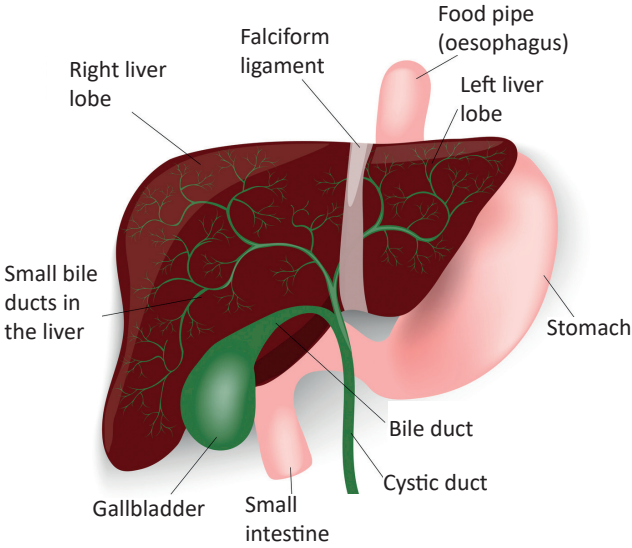
The three classic liver values are GGT, AST and ALT.* Liver values reflect processes in the liver rather than the status of the liver itself. Therefore, it is not possible to use liver values alone to tell whether and to what extent the liver is already damaged. Instead, it is a general rule that the higher the liver values, the greater the suspicion that negative or harmful processes are currently taking place in the liver. This should be a reason for the doctor to investigate possible causes in a targeted manner.

People with elevated liver values often call us and ask: “What can I take/eat to make my values go back to normal?” But this is not the first question that you should be asking. A better question is: “*Why* are my liver values elevated?” In figurative terms, elevated liver values are like an alarm system. When the alarm goes off in the middle of the night, the first question isn’t how to turn it off again, but instead what set off the alarm. Perhaps it was just a bird flying into the window, but perhaps there is an intruder in the house.

* Other values of interest in connection with the liver are bilirubin, alkaline phosphatase (ALP), cholinesterase (CHE), electrophoresis, GLDH, LDL and albumin. If you have abnormal results for any of these values, please ask a doctor to investigate them.

What does the liver do?

The liver is the largest internal organ in the body. No other organ has as many functions: not only does the liver remove toxins from the blood, but it also plays an important role in the metabolism and in digestion. The immune system and blood clotting are also controlled in part by the liver. For example: when you cut your finger and don't bleed out, your liver is playing a role in this.



Acute versus chronic: What does this mean for the liver?

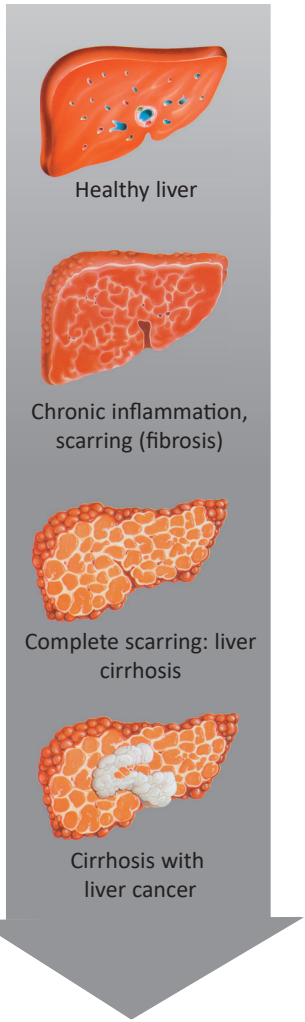
When you hear the term "acute" disease, most people think of a sudden disease with intense symptoms. This is often not the case with liver disease. In this context, "acute" can simply mean that the disease has only been present for a short time (less than six months), regardless of whether it can be felt or not.

Unfortunately with liver disease, "acute" also doesn't necessarily mean that the disease will resolve by itself. If an acute liver disease persists for longer than six months, it becomes chronic (long-term).

Whatever the cause of chronic liver disease, the risks are very similar: over the years, increasing numbers of liver cells are destroyed. Although liver cells also occasionally die in a healthy organ and are replaced by new cells, in chronic disease, this cell death can become too much for the liver over the long term. If chronic inflammation lasts for many years, the liver can become scarred, and ultimately cirrhosis (scarred liver) can develop.
Cirrhosis is dangerous for many reasons:

a) Many functions that are vital for life can be severely impaired, such as metabolism, digestion, blood clotting, immune system, and removal of toxins. Toxins can reach the brain and lead to coma.
b) Blood can no longer flow through the liver easily if it is scarred, and this can lead to congestion. This can result in complications, such as water accumulation in the abdomen, or internal bleeding.
c) In cirrhosis, liver cells can degrade and liver cancer can develop, which is often fatal.

But if liver disease is detected and treated early, these long-term consequences can often be prevented.



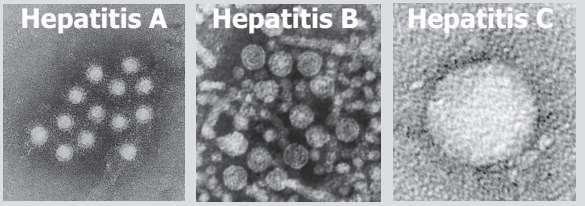
What liver diseases are there?

Unlike what many people think, alcohol is by far not the only cause of liver disease. The various liver diseases can fall into the categories below:

1. Viral liver inflammation (viral hepatitis)

The main virus-induced types of inflammation are hepatitis A, B, C, D and E. These viruses are completely different and cannot change from one into another. However, it is possible to be infected with various hepatitis viruses at the same time, or one after the other.

Hepatitis viruses are transmitted via different routes, they have different treatment methods, and the options for protection are also different. Like other liver diseases,



Hepatitis viruses under an electron microscope: the characteristics of these viruses are as varied as their appearance.

hepatitis infections cannot usually be seen from the outside: only some patients develop yellow skin or eyes. Hepatitis A is transmitted via food and drink contaminated with faeces, via contact with contaminated surfaces, and via water.

Hepatitis A resolves by itself and never becomes chronic. Severe disease is possible in the elderly and in those with other liver disease. It is possible to vaccinate against hepatitis A.

Hepatitis B is transmitted via almost all bodily fluids, in particular blood, but also vaginal secretions, sperm, and saliva and tears.

Hepatitis B can resolve by itself, but it can also become chronic. Modern medications can bring chronic hepatitis B under control, but in most cases it cannot be eliminated. There is a vaccine against hepatitis B; this also

provides indirect protection against the hepatitis D virus (see below).
As far as we know today, **hepatitis C** can only be transmitted via blood that enters the blood stream or comes into contact with the mucous tissue of a health person. A new infection only heals by itself in a minority of cases, and it normally becomes chronic. There is no vaccine against hepatitis C, but the infection can almost always be *cured* with modern medicines.
Hepatitis D (Delta) is an incomplete virus and can only exist together with hepatitis B, but if this is the case it makes the course of the disease worse. Transmission is similar to that of hepatitis B, with blood being the most common route. Hepatitis D can be treated with drugs. The hepatitis B vaccine also provides indirect protection against the hepatitis D virus.
Hepatitis E is mainly transmitted through the uncooked meat of pigs (e.g. minced pork) or game. Other transmission pathways are similar to those of hepatitis A. Hepatitis E almost always resolves by itself. Chronic cases are only seen in people with a weakened immune system, such as transplant recipients, but are then still often curable. Serious disease is possible in people with other liver diseases. Two variants of hepatitis E that are mainly found in Asia and Africa (genotype 1 and 2) are also dangerous for pregnant women. A vaccine is only available in China, and this is based on genotype 1. It is very doubtful whether this vaccine could even protect against “our” European hepatitis E virus (genotype 3).

2. Fatty liver disease

Increasing numbers of people in industrialised nations are becoming overweight. Causes of this include insulin resistance, poor diet, and lack of exercise. Very often, this also leads to a build up of fat in the liver cells. New scientific terms for fatty liver disease were introduced in the summer of 2023. The generic term is now “steatotic liver disease (SLD)”. If fatty liver is caused as a result of the metabolism, this is called MASLD. This stands for *metabolic dysfunction-associated steatotic*

liver disease, i.e., fatty liver disease that is caused by a dysfunction of the metabolism. Simple fatty liver (without inflammation) can result in a sensation of pressure and tiredness, and it increases the risk of heart disease and diabetes mellitus. Damage or scarring of the liver is rare with simple fatty liver, or only develops very slowly. In some people, however, the fatty liver can also become inflamed. Since 2023, this has also been called MASH. The acronym stands for *metabolic dysfunction-associated steatohepatitis*, meaning fatty liver inflammation caused by a dysfunction in the metabolism. An inflamed fatty liver is more dangerous than simple fatty liver, and it can lead to cirrhosis and/or liver cancer. In addition, the risk of heart disease and diabetes mellitus is even higher with this form of the disease. Medicines against inflammatory fatty liver disease are being researched in studies, but weight loss and physical exercise are still the most effective treatments against metabolism-related fatty liver disease.

3. Toxic liver disease

These include diseases caused by alcohol, mushroom poisoning, environmental toxins, and medicines. Even some over-the-counter medicines, such as pain relief medication and herbal products, can harm the liver in some cases.

Alcohol is a very common cause of chronic liver disease. This starts with the development of alcoholic fatty liver. If alcohol consumption continues, the liver can become inflamed, resulting in alcoholic hepatitis. Alcoholic hepatitis can lead to liver failure as a serious acute disease, but it can also damage the liver gradually as a chronic

disease, leading to cirrhosis after years or decades. Many patients are angered when a doctor asks them about their alcohol consumption, but this question must be asked by any doctor in the event of elevated liver values. If is often not apparent how much alcohol they are consuming, and people who drink a lot react to the question with just as much annoyance as those who are completely abstinent. There are no laboratory values that can be used to show without doubt that somebody does *not* drink. It is important to have an

open dialogue with your doctor: “I drink X much per day/week; could this be the cause of my elevated liver values?” As a matter of principle, it is advisable to give up alcohol completely in the event of elevated liver values, at least to start with. Even if alcohol is not the cause, it can add fuel to the fire in other liver diseases. Even in cases of excessive alcohol consumption, another liver disease, e.g. viral hepatitis, can also exist at the same time. Therefore, investigation of other causes is always worthwhile.

The diagnosis of toxic liver damage caused by medicines, natural therapies or environmental toxins is not always simple, even for specialists: in most cases, there is no single laboratory value and no single test that can clearly indicate liver damage of this type. For this reason, diagnosing toxic liver damage also includes ruling out other causes of liver disease. It is very important to have

an overview of all findings and to ask the patient questions, such as how long they have been taking a suspect medicine or natural therapy, how long contact with an environmental toxin lasted, and when the symptoms or elevated liver values occurred for the first time.

4. Autoimmune disorders

In autoimmune disorders, the body's own immune system attacks the liver for unexplained reasons. These diseases are like an "allergy" against your own liver, and they are never contagious. They are also not caused by alcohol. **Autoimmune hepatitis** starts with inflammation of the liver cells. **Primary biliary cholangitis (PBC)** and **primary sclerosing cholangitis (PSC)** start by affecting the bile ducts in the liver. All three diseases can lead to cirrhosis in the end stage. PSC also increases the risk for bile duct cancer. Autoimmune hepatitis and PBC cannot be cured, but they can be treated with medication. Management of PSC currently involves monitoring of the course of the disease and treatment of complications; drug treatments are being researched in studies.

5. Metabolic and hereditary diseases

Human genes case also cause liver diseases, of which we will only name a few here. These liver diseases can include **iron storage disease (haemochromatosis)**, **copper storage disease (Wilson's disease), alpha-1 antitrypsin deficiency** and **porphyria,** which are each caused by a gene defect. Some liver diseases can start in newborns and young children. These include **Alagille syndrome**, **progressive familial intrahepatic cholestasis (PFIC)** or **lysosomal acid lipase deficiency (LAL-D)**. These serious diseases cannot currently be cured, but better drugs for their treatment have been developed over recent years.

What to do if you have liver disease?

Seek specialist advice in a medical practice or hospital specialising in gastroenterology or hepatology. There is not a miracle cure for all liver disease. If you are found to have a disease, treatment will be completely different depending on the cause.

Hepatitis infections are often treated with antiviral medication. In autoimmune hepatitis where the body's own immune system is attacking the liver, treatment consists of weakening the immune system using immunosuppressants. In overweight people with fatty liver disease, dietary changes and gentle weight reduction are the first-line treatments. In iron storage disease, the level of iron overload in the body is reduced using blood-letting.

In some hereditary diseases such as LAL-D, where the body is missing an enzyme that is important to the liver, enzyme replacement therapies are now available. In case of damage caused by alcohol, proper abstention is of course the only thing that helps.

Regardless of the cause of the liver disease, it is important to avoid substances that put extra strain on the liver. This mainly includes alcohol. Smoking can in some circumstances also make liver disease worse.

Any medicines that are not strictly required should also be avoided. It is difficult if you need to take medicines for other serious diseases and these medicines harm the liver. Talk to your doctor to see if there are any drugs that are kinder to the liver. Under no circumstances should you stop taking important medicines (e.g. high blood pressure medication or anti-epileptics) without talking to your doctor, just because your liver values are elevated.

We hope that this information leaflet has been of help to you. Of course, it is not intended to replace medical advice from a specialist.
Not everyone with elevated liver values has liver disease, but everyone with elevated liver values should have this investigated.
Please visit the website www.lebertest.de to take a free online test to find out if you have risk factors for liver disease.
If you have any further questions about liver disease, if you need written information that you can understand, or if you are looking for a doctor, please feel free to contact us. We offer an obligation-free initial consultation even for non-members. We speak German and English.

Do you have liver disease? Become a member!

Knowledge is power! “Leberhilfe” is your trusted partner and can supplement the information you have been given by your doctor to help manage your disease in the best possible way. Our members benefit from regular information (in German), such as our patient newsletter “Lebenszeichen” [Signs of Life]: www.leberhilfe.org/mitglied-werden/

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