

Liver Disease Testing in Children



This sheet describes common tests that may be done for liver problems. Your child's healthcare provider will tell you which of these tests your child needs.

Tests to check the liver

Several tests can check the health and function of the liver. They can also check the health and function of related organs and tissues, such as the gallbladder or bile ducts. They include:

- **Ultrasound.** This is also called a sonogram. It uses sound waves to show a picture of the liver. It can show areas of bile leaking out of the liver (bile lakes) and gallstones.
- **CT scan.** This shows a 3-D picture of the liver and gallbladder. This can show some gallstones, abscesses, abnormal blood vessels, or tumors.
- **Liver biopsy.** This is a procedure that looks for damage in liver tissue. The liver is looked at using a CT scan or ultrasound. A needle is used to remove a small amount of tissue from the liver. This is studied in the lab for signs of inflammation, scarring, or other problems.
- **ERCP (endoscopic retrograde cholangiopancreatography).** This is a procedure that can show blockage or narrowing in the bile ducts. A small, flexible tube (endoscope) is put into the mouth. It's moved through the esophagus and stomach to the top of the small intestine. This is where the bile ducts meet the intestine. Dye is put through the scope to make the bile ducts show up on an X-ray. The healthcare provider may take samples of tissue or fluid using instruments inserted into the scope. The samples are sent to the lab to be studied.
- **HIDA (hepatobiliary iminodiacetic acid) scan.** This checks the function of your child's gallbladder or liver. A radioactive fluid called a marker is put into the body. As this marker travels through the liver to the gallbladder and into the intestine, it can be seen on a scan. The marker can show if bile ducts are missing or blocked, and other problems.
- **MRCP (magnetic resonance cholangiopancreatography).** This is an imaging test that uses strong magnets to create pictures of the bile ducts, pancreas, and gallbladder. It can reveal abnormal bile ducts, narrowed bile ducts, or gallstones.

Blood tests to check the liver



A small amount of blood may be taken and tested to check one or more of the following:

- **Alpha fetoprotein (AFP).** This is normally high in newborns. But high levels in the blood of an older child can be a sign of liver cancer.
- **Albumin.** This is a protein made by the liver. It can be measured with a blood test. When a person has liver disease, the level of albumin in the blood (serum albumin) is often low.
- **Alkaline phosphatase (AP).** This is an enzyme made in the liver and bone. It's measured with a blood test. A high level may mean there's a problem with the bile ducts in the liver.
- **Alanine aminotransferase (ALT).** This is an enzyme made by the liver. When the liver is damaged, ALT leaks into the blood. If a blood test finds a high level of ALT, this can be a sign of liver problems, such as inflammation, scarring, or a tumor.
- **Ammonia.** This is a harmful substance left behind in the blood after digestion. Normally, the liver removes ammonia from the blood and turns it into urea. This leaves the body with urine. If a blood test shows that the ammonia level is too high, this process isn't happening as it should.
- **Aspartate aminotransferase (AST).** This is another enzyme made by the liver and also made by other organs. High levels suggest liver injury, especially if the ALT level is also high.
- **Bilirubin.** This is a yellow substance made when the body breaks down red blood cells. It's collected by the liver to be sent out of the body with stool. When something is wrong with the liver or bile ducts, bilirubin may build up in the body. This causes yellowing of the skin and the whites of the eyes (jaundice). Two measurements may be taken: total bilirubin and direct bilirubin. A high total bilirubin level means the liver isn't breaking down bilirubin. A high direct bilirubin level suggests a blockage in the bile ducts.
- **Complete blood count (CBC).** This is a test that measures all the parts of the blood: red blood cells, white blood cells, and platelets. Problems with these counts can mean infection or illness. They can also be a sign of a problem with the spleen. This is an organ close to the liver that can be affected by liver disease.
- **Essential fatty acids (EFAs).** These are important nutrients. EFA levels may be lower when the liver is diseased. This is because the liver can't absorb and transport EFAs as it should.
- **Gamma-glutamyl transpeptidase (GGT).** This is an enzyme that's often measured along with other enzymes to gauge liver problems. GGT is measured with a blood test. If AP and GGT are both high, this is a sign that the bile ducts in the liver may be diseased or blocked.
- **Glucose.** This is sugar in the blood. A healthy liver helps the body keep a normal glucose level. If a blood test reveals that glucose is low, this may mean the liver is not working correctly.

- **Coagulation studies (PT & INR)** These test the ability of the blood to clot. The liver makes a protein that helps with clotting. Problems with clotting can be a sign of liver disease.
- **Serum bile acid (SBA).** This is the amount of bile acids in the blood. A high level may mean that bile ducts are blocked.
- **Vitamins A, D, E, and K.** These are fat-soluble vitamins that are absorbed by the liver, with help from bile. If a blood test shows that levels of these vitamins are low, this could mean your child's liver is not absorbing them correctly.
- **Zinc.** This is a nutrient that is absorbed by the liver. If a blood test shows that your child's zinc level is low, this could mean the liver isn't absorbing zinc correctly.

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