

# Symptoms and Diagnosis of Liver Disorders in Cats

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## Symptoms

Pets with [liver](#) disorders can show a variety of physical symptoms. Very few of the symptoms are specific for liver disease, but can be signs of multiple diseases and conditions. A few symptoms such as jaundice do point toward the liver. The following table lists examples of symptoms that may indicate a liver disorder.

Symptoms of Liver Disorders	
● Seizures	● Increase in drinking and urination
● Behavior changes	● Gray-white and soft feces
● Vomiting	● Abdominal distention due to ascites or liver enlargement
● Diarrhea	● Reduced appetite
● Jaundice	● Weight loss
● Anesthesia intolerance	

## Findings on physical exam

During the physical examination, the veterinarian may also find the following signs: pale mucous membranes from an increased breakdown of red blood cells resulting in anemia, hepatomegaly (liver enlargement) due to the disease process, splenomegaly (spleen enlargement), and ascites especially if the liver disease is causing an increase in the blood pressure of the vessels in and around the liver.

## Chemistry panel

Different types of tests are performed to help diagnose the disease process. Multiple tests can be performed on one [blood sample](#). Tests that are often included in a chemistry panel include:

Alanine aminotransferase (ALT) is an enzyme important in liver function. It leaks from cells that are damaged. The magnitude of elevation is roughly proportional to the number of injured liver cells. The magnitude, however, does NOT correlate with the seriousness of the liver disease or the prognosis. It takes about 3 weeks for the blood levels to return to normal after a single episode of damage to the liver. It was previously called serum glutamic pyruvic transaminase (SGPT).

Aspartate aminotransferase (AST) is also an enzyme found in the liver, red blood cells (RBCs) and in muscle tissue; damage to any of these can result in increased levels of AST in the blood. An elevation in AST signifies more severe damage to the cells than an elevation in ALT. AST was previously called serum glutamic oxaloacetic transaminase (SGOT).

Serum alkaline phosphatase (SAP), also known as alkaline phosphatase (ALP), is an enzyme that is higher than normal in certain forms of cancer and some muscle and liver diseases. It is higher in pediatric patients and in those patients on certain medications. An elevation of SAP in cats is always significant. Moderate elevations in dogs are often NOT significant.

Gamma-glutamyl transpeptidase (GGT) is an enzyme which is elevated in diseases associated with blockage of bile ducts. It is often helpful to test for both SAP and GGT.

Albumin is a protein made exclusively in the liver. A low level of albumin in the blood may be due to loss of albumin (e.g., in urine of animals with kidney disease) or from a lack of production by the liver.

Bilirubin is a yellow pigment that is a by-product of the breakdown of hemoglobin. Hemoglobin is found in red blood cells and is responsible for carrying oxygen to the tissues. The liver converts the hemoglobin to bilirubin which is then secreted in the bile. If excessive numbers of red blood cells break down, the system in the liver is overwhelmed and bilirubin accumulates in the blood. If the bile duct is blocked, the bilirubin cannot be released into the intestine, and again, blood levels will elevate. An animal with certain types of injuries to the cells in the liver will also have an elevated level of bilirubin. An animal with an elevated bilirubin level may appear icteric (jaundiced). The level of bilirubin does not indicate where the problem may be, nor is it very useful in determining the prognosis.

## Coagulation tests

The liver also produces factors that help with coagulation of the blood. In some liver diseases we can see bleeding problems because of a decrease in the production of these factors.

## Bile acid test

Bile acids are made exclusively in the liver from cholesterol. To test for bile acids, a blood sample is taken after a fast of

about 12 hours, the animal is then fed a high-fat meal, and a second blood sample is taken 2 hours later. The results of the tests on the two blood samples are then compared.

#### Complete blood count

A [complete blood count \(CBC\)](#) is useful to check for anemia and indications of infection.

#### Urinalysis

Multiple tests are performed on a [urine](#) sample. These tests may detect bilirubin and other products that are being eliminated from the body in the urine. The tests also help to evaluate the health of the kidney which can affect or be affected by the health of the liver.

#### Imaging Techniques

Radiography: [X-rays](#) are taken to determine the size of the liver. Sometimes changes in the opacity of the liver and the [gallbladder](#) can indicate certain conditions such as cancers or gallstones.

Ultrasonography: [Ultrasonography](#) looks for changes in the density of the liver. The gallbladder is also visualized and checked to see if stones are present.

#### Biopsy

A liver biopsy may be needed to obtain a definitive diagnosis. A biopsy is commonly done in conjunction with an ultrasound to determine which part of the liver should be biopsied. In some instances, a biopsy may be taken during [exploratory surgery](#). Before a biopsy is performed, the veterinarian should be sure the animal has normal levels of coagulation factors, since the liver biopsies often result in some bleeding from the liver. All animals should be monitored for signs of hemorrhage for several hours after a liver biopsy.

#### Summary

By using the various types of diagnostic tools available, the veterinarian is better able to correctly diagnose a liver disorder. Liver disease may be due to viral or bacterial infection, parasites, cancer, inflammation, [obstructive bile duct disease](#), [fatty liver disease](#), toxic reactions, or as a result of certain medications. This is not a complete list but shows what the veterinarian is trying to rule in or out as cause of the symptoms. By performing various tests, the list can be narrowed hopefully to one disease process. Only then, can a treatment plan and prognosis be given to the owner.