

Bird Liver Basics

Learn about a bird's liver and how it functions

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The liver helps to protect a bird's body from toxins.

You learned about fatty liver disease in the January 2008 issue of BIRD TALK magazine. Let's take an even closer look at a bird's liver and what it does.

Let's start by learning the basics about the bird liver. Many of us have seen chicken livers, so hopefully most of us can envision what a normal bird's liver looks like. It is a large organ with a smooth surface, several lobes and a deep mahogany color. The liver is a very interesting and complex organ that is involved in more than 40 biochemical reactions in the body.

Helps with bile production, (used in digestion), albumin production, carbohydrate storage, ketone body formation, detoxification of many drugs and toxins, manufactures plasma proteins, inactivates polypeptide hormones, urea formation and many important functions in the metabolism of fat.

Manufactures the proteins concerned with blood clotting. Certain liver cells also produce globulins, a group of proteins involved with the immune system.

The liver occupies a key position in the metabolism of carbohydrates (simple sugars, and starches, such as rice, bread and potatoes, for example). The liver stores carbohydrates as glycogen. Glycogen can be formed from monosaccharides (simple sugars), from the glycerol of fat and from amino acids that have been chemically changed (neoglycogenesis). Stored glycogen is then converted to glucose (glycogenolysis) as required by the bird to maintain blood glucose concentrations within an acceptable level. If blood glucose drops too low, it can result in seizures and damage to vital organ systems, or even death in extreme cases.

The glycogen stored in the liver is the only readily available reserve of glucose for maintaining blood sugar within a normal level. This is important because the stored glycogen can be mobilized and utilized for energy if the animal undergoes a period of time when food is not available. During times when a bird cannot or will not eat, the liver, under hormonal control, starts releasing the stored glycogen in the changed form of usable glucose.

The liver is also involved in the breakdown of ingested foods and body proteins. Amino acids (the components in proteins) are released by digestion of proteins in the gastrointestinal tract, which are then absorbed by the small intestine into a special blood vessel where they travel to the liver before entering the bloodstream.

The liver also protects the bird's body against many types of toxins, both those produced in the body and those toxic substances that an animal may be exposed to. Liver disease or damage, including the problems associated with hepatic lipidosis, may make a bird unduly susceptible to agents normally dealt with by the liver, and certain drugs must be given with caution or at a reduced dosage due to the compromised liver.

****Did you enjoy this information on bird health issues? Learn more in the January 2008 special Diet & Fitness issue of BIRD TALK****