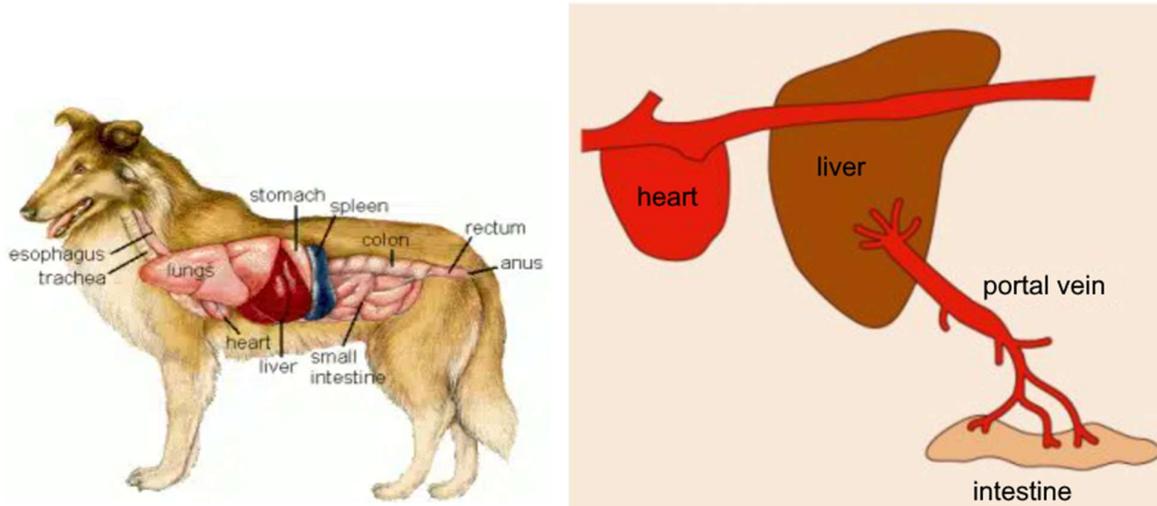


THE LIVER: AN EXTREMELY IMPORTANT ORGAN

The **liver** is one of the largest organs in the animal body, and takes up the majority of the anterior part of the abdominal cavity. It's directly connected to the blood circulation through the portal vein and the hepatic artery, and about a third of the blood pumped by the heart passes through the liver; it's also connected to the gallbladder (where bile is stored) and to the lymphatic circulation^{1,2}.



The liver is a vital organ for vertebrates, and has an enormous amount of functions, among which: production of bile, which is essential for fat digestion; detoxification of the body through removal of endogenous and exogenous toxins; protein synthesis; regulation and storage of glycogen; hormone production; decomposition of exhausted red blood cells; production of biochemical substances necessary for well-being; regulation of absorption and release of lipids; and many more. There are various estimates regarding the number of functions the liver has, but overall they are at least five hundred³.

HEPATIC PROBLEMS IN COMPANION ANIMALS

In companion animals, like in all other animals, the liver can be involved in many problems, both localised in the liver and systemic: this is due to the fact that, as already mentioned, the liver has many functions and is crossed by a high blood flow.

Among the problems which can affect the liver in companion animals we can find: hepatitis (liver inflammation), various types of cancer, presence of toxins, infection and sepsis, congenital hepatic problems, immunological diseases, and cirrhosis⁴.

¹Hermanson JW, de Lahunta A, *Miller and Evans' Anatomy of the Dog*, fifth edition, ISBN 978-0-323-54601-0.

²Reighard JE, Jennings HS, *Anatomy of the Cat*.

³Trefts E, Gannon M, Wasserman DH, *The Liver*, *Curr Biol* **2017**, 27(21): R1147-R1151.

⁴Ibid.



Liver problems in companion animals can have many origins, from bacterial or viral disease to diet imbalance, and even sudden stress.

SUBSTANCES FOR LIVER HEALTH

There are many substances which are known to have a beneficial effect for liver health, and which promote its protection and healing: they are mainly substances which decrease the workload the liver has to do and facilitate its normal functioning, and also substances which promote the regeneration of the hepatocytes (liver cells)⁵.

In companion animals, like all other animals, sometimes the administration of these substances can be limited to a brief timespan in case of temporary hepatic problems (so-called acute problems). In case of prolonged problems (chronic problems), however, companion animals have to take these substances for the rest of their life.

Eurofeed Technologies has developed a product for companion animal nutrition (cats and dogs) which can help in maintaining the health of the liver, and in its regeneration and healing when there are clear hepatic problems: this product is **LiverPet**.

LiverPet is a specific complex of ingredients for companion animal nutrition, to be included in complete or complementary pet food to be given to pets in case they suffer from liver problems, or to prevent such problems.

LiverPet contains vegetable extracts, minerals, nutritional additives, and aminoacids.

The vegetable extracts present in **LiverPet** are derived from boldo (*Peumus boldus*), artichoke (*Cynara scolimus*), and milk thistle (*Sylibum marianum*).

Boldo is a South-american tree which is widely used in traditional natural medicine to treat hepatic problems.

Artichoke is a perennial plant native to the Mediterranean basin which contains cynarine, a substance which is known to have a supportive effect on hepatic function.

Milk thistle contains silymarin, which has a protective and regenerative effect for hepatocytes.

LiverPet also contains:

⁵Mancak *et al.*, *Evidence-based herbal treatments in liver disease*, Hepatology Forum 2024, 5(1): 50-60.

- Magnesium sulfate, a source of magnesium, an essential element for body functioning and which is known to have positive effects on the liver;
- Choline chloride, methionine, and betaine, which are methyl group donors, the lack of which in the diet causes hepatic problems;
- Carnitine, which is normally biosynthesised from methionine and is essential for lipid metabolism, and which therefore helps in case of hepatic problems;
- Sorbitol, a sugar which is an energy source, to support the animal body during periods of stress;
- Glycine, aspartic acid, and glutamic acid, non-essential aminoacid which are synthesised in the liver and whose supplementation decreases the workload the liver itself must do;

LiverPet can be included in pet food starting from 1-2 kg per ton, up to 4-5 kg per ton for superpremium products.