

Dietary food for the targeted tackling of
gastrointestinal and/or liver problems in dogs and cats



***My dog or cat has problems with the stomach,
intestines or liver... what do I do now?***



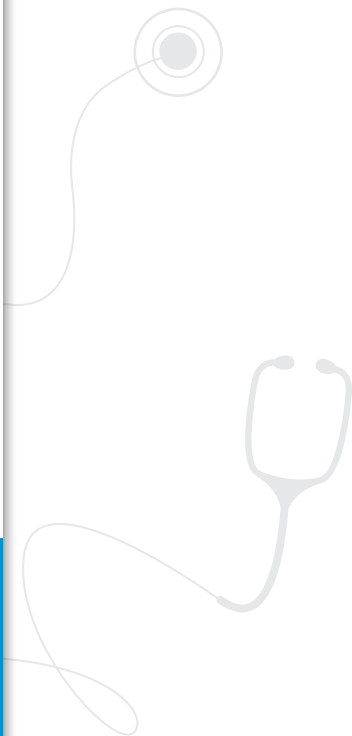
Veterinary exclusive



reliable and affordable dietary food



Veterinary exclusive



The veterinarian has determined that your dog or cat has problems with the stomach, intestines or liver. This brochure gives you more background on these topics. In the first part of this brochure treated gastrointestinal disorders are discussed. The second part describes liver problems. Next to this, information is given about the role TROVET nutrition can play in the treatment of these problems.

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Gastrointestinal problems are, after obesity and skin diseases, the most common reason to prescribe dietary foods. Liver problems are also common in dogs and cats. In recent years there has been great progress in finding out what the causes of the liver problems are and in improving the treatment.

The gastrointestinal tract

The gastrointestinal tract has two jobs: digesting food and absorbing the released nutrients in the blood. This whole process is also referred to as digestion. The main components which are released and are sugars (digestion of carbohydrates), fatty acids (digestion of fat), amino acids (digestion of protein), vitamins, trace elements and water. The process begins in the mouth, where the size of the food is reduced by chewing and the fat and carbohydrate digestion begins. The major part of the digestion takes place in the intestines, with the help of enzymes, which are secreted by the stomach, pancreas and gut wall. Bile from the liver also plays an important role. The released nutrients are absorbed through the intestinal wall.

Symptoms of gastrointestinal problems

The most common symptoms of gastrointestinal problems are loose stools and diarrhoea. The causes may vary from food allergy to food poisoning. Often, the additional phenomena give an indication of the cause of the problem. Food poisoning often has more severe symptoms than food intolerance and is accompanied by abdominal pain and cramps. Symptoms of food intolerance include loose stools, flatulence and listlessness.

How do you recognise gastrointestinal problems in dogs and cats?

- > Vomiting
- > Diarrhoea/increased amount of faeces
- > Flatulence and rumbling bowel sounds
- > Changing appetite
- > Abdominal pain (curved back, does not want to be touched)
- > Emaciation (sometimes in spite of good food)
- > Listlessness

Factors that could cause gastrointestinal problems

Regardless of the underlying cause, gastrointestinal problems usually lead to impaired absorption (malabsorption) and impaired digestion (maldigestion) of nutrients. The reduced digestion and absorption of nutrients can result in diarrhoea and vomiting.

There are several diseases that underlie this deviating digestion and nutrient absorption.

Most common gastrointestinal problems

Gastroenteritis

Gastritis is the medical term for an inflamed gastric mucosa. Vomiting and abdominal pain are the most common symptoms of gastritis. This is often observable by a rounded back posture. Some dogs and cats get in a 'praying' position when they have pain in the abdominal area. Gastritis is often accompanied by enteritis, or intestinal mucosa inflammation. This combination

of stomach and intestinal mucosa inflammation is called gastroenteritis. The underlying causes of these infections are varied, such as a bacterial or viral infection, parasites, eating spoiled food, food hypersensitivity and use of certain (analgesic) medication. When the gastrointestinal tract is inflamed, the digestion process is disrupted. When water and nutrients are not properly absorbed, diarrhoea may occur.



'Praying' position

Colitis

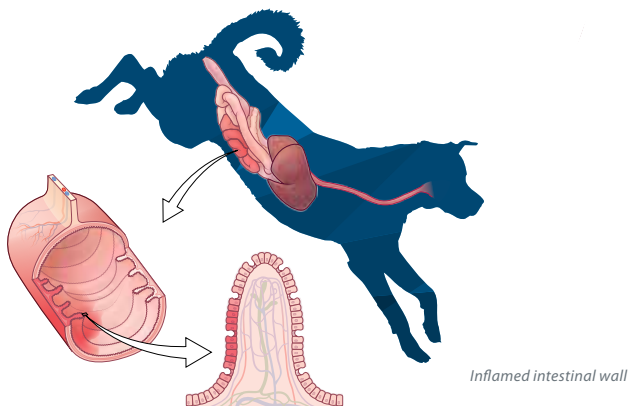
Mucosal inflammation of the large bowel (colon) is known as colitis. Animals with inflammation in the colon area usually have to press harder to relieve and produce frequent small amounts of stool. This is sometimes accompanied by fresh blood (coloured red) and/or mucus in the stools. As with gastroenteritis, the underlying causes of colitis can be diverse, including parasites, bacterial infections and food hypersensitivity. The symptoms may be different in each animal. Some animals may be seriously ill as a result of colon inflammation, whereas others barely show symptoms. Also colitis is a constantly recurring problem in a number of animals. In this case, food hypersensitivity may be the cause.

Constipation

When the large intestine of dogs and cats are not working properly, the stool may become too hard, making it more difficult to get rid of the stool. This is called constipation. The result is that your pet has to make more and more effort to relieve itself, which can lead to obstipation.

Chronic inflammation of the intestinal wall (Inflammatory Bowel Disease)

If the gastrointestinal effects are present for a longer period, the likelihood that these inflammations become chronic is great. Often there is an abnormal inflammatory response in the intestinal wall. By taking biopsies from the intestinal wall, a specialist can detect a possible inflammation. When this abnormal inflammatory response is demonstrated by biopsies, the animal suffers from Inflammatory Bowel Disease, also referred to as IBD. Animals with IBD often have a damaged intestinal wall, caused by the chronic inflammation, with the result that the digestion and absorption of nutrients is permanently reduced. This can lead to (sometimes severe) weight loss and a poor body condition. In some cases, the inflammation is associated with leakage of proteins in the intestines, which can lead to the development of ascites and severe malnutrition. Inflammatory Bowel Disease is often associated with food hypersensitivity.



Pancreas problems

The pancreas is a very important organ in digestion because it produces digestive juices which break down food and makes them absorbable for the intestinal wall. When the pancreas produces and excretes too little juices to digest food, diarrhoea and malnutrition occurs and we speak Exocrine Pancreatic Insufficiency (EPI). Cats and dogs that suffer from EPI, generally show a very good appetite, but are nevertheless often thin and have a bad coat condition. The stool can be alternately normal and liquid and sometimes light grey yellowish.

When the pancreas becomes inflamed, it is called pancreatitis. In dogs, acute pancreatitis may occur. They then become very ill all of the sudden. The symptoms are often high fever, severe abdominal pain and severe vomiting. In cats, pancreatitis has a more chronic course, whereby the animal vomits from time to time, have a varying appetite and are slightly less vivid.

Treatment of gastrointestinal problems

The severity of gastrointestinal problems in dogs and cats determines the treatment of the symptoms.

Infusion therapy

Vomiting and diarrhoea often occur and animals can become dehydrated from loss of fluids and minerals. In the case of dehydration, infusion therapy may sometimes be necessary. This will replenish moisture and minerals.

Medication

Nauseous animals may receive medications to inhibit the nausea. Often gastric acid-inhibiting medication and gastric mucosa protectors are prescribed, in order to reduce the stress on the stomach.

Dogs and cats with diarrhoea are sometimes given medication to bind harmful substances that develop in the intestines. Antibiotics are sometimes also included in the therapy, to treat any bacterial infections. In the case of worm infections, a deworming treatment may sometimes be necessary.

Finally, if the pet has already had prolonged severe gastrointestinal symptoms, the veterinarian may decide to prescribe anti-inflammatory medications, such as prednisone. When the pancreas of your pet is not working properly, an enzyme powder is also prescribed, which is required to be added to the food, to help break it down.

Nutrition

Dietary adjustments play an important role in the treatment of gastrointestinal disorders. First of all, it is important that the diet contains easily digestible ingredients, in order to aid the digestion process, for nutrients to be absorbed easily and quickly.

By providing a diet with high energy density, the meal volume can be limited, reducing the load on the gastrointestinal tract. By spreading the meals over small portions during the course of the day, the gastrointestinal tract only has to process small amounts of food at a time, which is favourable for the recovery of the intestinal wall.

Because in some animals food hypersensitivity is the cause of gastrointestinal problems, it is important that the diet minimally contributes to occurrence of allergy symptoms. This is also known as hypoallergenic food. Such diets usually consist of a single protein and carbohydrate source, so that the risk of an adverse reaction to food components is reduced.

Often specific ingredients are added to dietary food for gastrointestinal conditions, which support the beneficial bacteria in the intestines and contribute to reducing the stress on the gastrointestinal tract. Some examples of such ingredients are beet pulp and fructo-oligosaccharides (FOS) from inulin.

TROVET Intestinal | DPD, for dogs

Intestinal is a complete dietary food for dogs to support the gastrointestinal tract. The use of potato as a carbohydrate source makes this food highly digestible and the addition of both fermentable and non-fermentable fibres promote a healthy gastrointestinal tract.

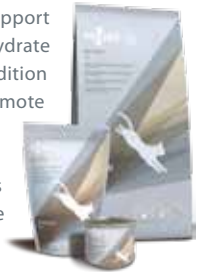
Furthermore, the number of ingredients used is as little as possible, in order to keep the stress on the digestive tract low and minimise the risk of an allergic reaction. Intestinal contains duck as the only protein source. Duck is known for being an animal protein source that rarely causes hypersensitivity reactions. This makes the diet suitable for dogs with food hypersensitivity.



TROVET Intestinal | FRD, for cats

Intestinal is a complete dietary food for cats to support the gastrointestinal tract. The use of rice as a carbohydrate source makes this food highly digestible and the addition of both fermentable and non-fermentable fibres promote a healthy gastrointestinal tract.

Furthermore, the number of ingredients used is as little as possible, in order to keep the stress on the digestive tract low and minimise the risk of an allergic reaction. Intestinal dry food contains fish protein hydrolysate as the only protein source. Next to the positive effect on digestion, the hydrolysed proteins also have a very low allergenicity. Intestinal wet food contains fish as the only animal protein source. This makes Intestinal suitable for cats with food hypersensitivity.



The liver

The liver plays a central role in the metabolism of carbohydrates, fats, proteins, a number of vitamins and minerals. An important task of the liver is the conversion of toxic substances to inert or less toxic substances, which can then be excreted from the body. In the breakdown of proteins, toxic ammonia is released, which the liver converts to urea, which can then be excreted by the body. In addition, the liver is an important part of the immune system and plays a primary role in the energy supply of the body, inter alia, by lipid metabolism and glucose production. The liver is also involved in the digestion of fat, functioning as a production place of bile, which is needed for an effective digestion and absorption of fat and oil.

Symptoms of liver problems

When the liver no longer functions properly, it is less able to convert ammonia into urea, which can lead to the onset of problems. In severe liver diseases, the ammonia concentration in the blood becomes too high. Via the blood, the excess ammonia may get into the brains. This can lead to problems with the nervous system and can manifest itself in the occurrence of seizures, tremors, excessive salivation and abnormal behaviour. This condition is called hepatic encephalopathy.

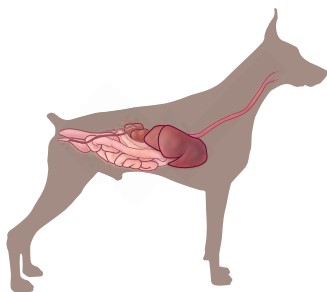
The liver also produces important blood proteins such as coagulation proteins and albumin. Severe liver failure can also cause problems with blood clotting. When the albumin production becomes too low, large quantities of liquid can accumulate in the abdominal cavity and ascites may occur.

The reduced detoxification can make liver patients feel sick. The animals can stop eating, causing them to lose weight and in some cases vomit. An abnormal bile production can reduce the digestion of fat in the intestine, which can lead to diarrhoea.

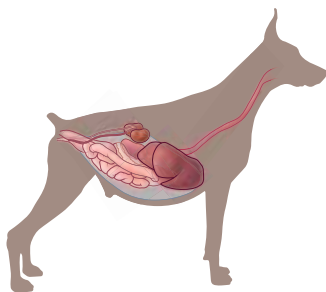
When bile ducts of the liver are clogged or inflamed, jaundice may occur. In patients with jaundice, the blood contains large volumes of bile substances (bilirubin), which are normally secreted via the intestines. When the bile ducts are clogged, these bile substances can not be excreted via the normal way and end up in the blood.

How do you recognise liver problems in dogs and cats?

- > Emaciation
- > No appetite
- > More drinking and urinating
- > Vomiting and nausea
- > Diarrhoea
- > Distention
- > Listlessness



Healthy



Distention

Treatment of liver problems

Liver problems, with the exception of severe liver diseases, can be solely supported with a special diet. The focus is mainly on reducing the stress on the liver, to allow liver recovery.

Nutrition

Specific dietary foods can reduce the burden on the liver and help support liver function. Half of the total amount of blood that is processed by the liver passes through the blood vessels coming from the intestinal tract. An adjustment of the diet can have a significant effect on the amount of harmful substances the liver cells are exposed to. Next to this, the fat metabolism may be supported by so-called nutraceuticals. The amount of protein and the minerals can be optimised in order to alleviate the liver.

TROVET Hepatic | HLD

Hepatic is a complete dietary food that can be used for digestive and liver problems. Digestive problems due to malfunctioning of the stomach, liver, pancreas or intestine often result in problems such as decreased appetite, vomiting, diarrhoea and emaciation.

Given the important role of the liver in the processing of fat and the regulation of lipid metabolism, it is important to provide substances that support the metabolism of the liver. Hepatic is enriched with these so-called lipotropic agents (e.g. L-carnitine, lecithin and choline). These reduce the risk of fat accumulation in the liver, alleviates the liver and supports regeneration of liver tissue.

Some dog breeds are known to carry a genetic abnormality, which allows copper to accumulate in the liver. When a large amount of copper enters the body via the diet, this may result in serious damage to the liver tissue. Hepatic for dogs has a reduced copper level, to prevent the accumulation hereof. Because no cat breed has this genetic abnormality, the copper level in Hepatic for cats is not lowered.



TROVET Treats

TROVET has an extensive range of responsible rewards, also known as treats. Most treats are suitable for both healthy dogs and cats, as well as dogs and cats with a special dietary requirement or prescription diet. The TROVET treats are cookies in different shapes and are an ideal reward that can be used during training, after a walk or just as a snack.

The special thing about TROVET treats is that, besides the taste, they are formulated in such a way that they fit well with various diets. Giving 'regular' treats to dogs or cats that get dietary food, can negatively affect the efficacy of these foods. Therefore, carefully choose a treat that fits the situation of your dog or cat. Always ask your veterinarian for more information and advice. TROVET treats are available exclusively via your veterinarian.

For pet owners, there is a more detailed treat brochure 'I want to give my dog or cat something extra besides dietary food... what do I do now?'. You can find these at your veterinary practice or at www.trovvet.com.



Treats suited for dogs or cats with gastrointestinal problems

In gastrointestinal problems it is important to choose for a treat with a protein source for which the dog or cat does not have a food hypersensitivity. If food hypersensitivity is not the cause of the gastrointestinal problems, all TROVET treats can be given.

Treats suited for dogs or cats with liver problems

For patients with liver problems, it is often advised not to give any treats, next to the dietary food, to minimise the burden on the liver.

Depending on the type of liver disease, a dog is allowed to get treats. When a dog has steatosis, a treat low in carbohydrates is the best choice. In dogs with hepatitis or hepatic encephalopathy a suited treat has to be low in protein.

Consult your veterinarian if and which treats can be given in the specific situation of your dog or cat.



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TROVET

De Vergert 4 - 6681 LE Bommel - The Netherlands

T: +31 (0)481-470240 | E: info@trovet.nl | W: trovet.com