

## Dr. Mike Paul, DVM

Mike has more than 35 years of experience in companion animal veterinary practice and is a valued member of IDEXX's Pet Health Network team since 2013.

### What is the pancreas and what does it do?

The pancreas is an accessory digestive gland that functions as both an exocrine and an endocrine gland. Endocrine functions involve the release of hormones directly into the blood stream. The other function of the pancreas is the secretion of digestive enzymes by way of the pancreatic ducts directly into the intestinal tract where they aid in the digestion. The pancreas secretes enzymes that break down virtually all digestible molecules to a form that can be absorbed. There are three major groups of enzymes critical to efficient digestion:

- Proteases (breaks down proteins)
- Lipase (breaks down fats)
- Amylase (breaks down starches)

Additionally, bicarbonate is secreted from cells in the lining of the pancreatic ducts. Not surprisingly the secretion of these enzymes is regulated by other hormones—a truly amazing interrelationship. The mixture of these chemicals with the addition of water is necessary for digestion and absorption of nutrients. Without these enzymes, digestion of food is not complete and absorption of nutrients is hindered. The result is what appears to be starvation in the face of adequate food intake.

### What is the cause of Exocrine Pancreatic Insufficiency?

The general cause of Exocrine Pancreatic Insufficiency (EPI) is insufficient cells that are responsible for the production of these enzymes. This can be the result of destructive inflammation such as severe pancreatitis or can be an immune based condition. [German Shepherd dogs](#) may be predisposed but any breed can be affected.

Pancreatic inflammation that destroys the tissue of the gland may also destroy the insulin producing

cells—resulting in [diabetes](#), which must also be addressed.

Pancreatic cancer is a very uncommon, but possible, cause of EPI.

### Symptoms of Exocrine Pancreatic Insufficiency

The body has tremendous reserves of digestive capacity and clinical signs may not occur until 90% of the secretory cells have been destroyed. This means that some dogs can be subclinical or borderline in their involvement. Some dogs will progress to full blown EPI but some will not. The rate of progression is not known.

#### Symptoms include:

Chronic diarrhea  
Weight loss, despite adequate calorie intake  
Frequent or greater volume of stool and gas  
The presence of undigested fat in the feces that can result in a characteristically gray, oily appearance to the stools

### Diagnosis of Exocrine Pancreatic Insufficiency

Clinical signs and symptoms should lead to a high suspicion but confirmation is important. Historically, a number of digestive and absorptive tests were used to demonstrate the condition in dogs with suspected pancreatic insufficiency, but more direct tests are now available. The most effective diagnostic test is a blood test for trypsinogen (TLI). Affected dogs will have low blood levels of TLI.

### Treatment of Exocrine Pancreatic Insufficiency

Since EPI results from a deficiency of digestive enzymes, it stands to reason that supplementing the deficient enzyme would be the treatment of choice. Pancreatic extracts derived from the pancreas of pigs is preferred. These products are available commercially in powdered form. Alternatively, fresh or frozen pig and cow pancreas can be chopped and fed.

*[Editor's Note: All medications should be discussed with and come from your veterinarian.]*

The addition of H2 acid production blockers may

preserve the pancreatic enzymes from acid destruction in the stomach. This may allow for reduced doses of the extract mentioned above. (Powdered pancreatic products are expensive and frozen pancreas can be difficult to obtain so reducing the dose needed is a big advantage.)

Dietary intake of fat and fiber may affect the stools and it is somewhat a trial and error process to find a food that will provide sufficient calorie content without greatly increasing the need for enzyme supplements.

Once your dog is stabilized it is likely that he or she will stay that way. However, you should monitor the weight and the stools regularly and see your veterinarian often.

*If you have any questions or concerns, you should always visit or call your veterinarian -- they are your best resource to ensure the health and well-being of your pets.*