

*“Pearls”
of
Veterinary Medicine*



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Endocrinology

Algorithms for suspected canine Cushing's syndrome or Addison's disease

Idexx offers these [algorithms](#) for adrenal function testing, including ACTH stimulation, low-dose and high-dose dexamethasone suppression testing, as well as treatment monitoring protocols for both mitotane and trilostane.

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Gastroenterology – Integrative Medicine

Understanding and supporting digestion

“All disease begins in the (leaky) gut” – *Alessio Fasano*. [\[ref\]](#), [\[ref\]](#) The GI tract is the cornerstone of health, responsible for digestion, nutrient absorption, and immunity. Digestion primarily begins in the stomach with the parietal cells producing hydrochloric acid (HCl). HCl is crucial for separating vitamin B12 from protein. Furthermore, the gastric chief cells produce pepsinogen

which is activated to pepsin only in the presence of a very low gastric pH of 1-2. Pepsin breaks proteins into peptides. Thus, inadequate stomach acid (**hypochlorhydria**) results in protein maldigestion. Inadequate stomach acid also leads to dysbiosis/bacterial overgrowth (commonly *E. coli* and *Helicobacter*) and inadequate solubilization of minerals, esp. iron [\[ref\]](#), calcium [\[ref\]](#) and zinc [\[ref\]](#). Improper digestion causes symptoms of **reflux due to irritating volatile organic acids rather than excessive acidity** [\[ref\]](#) [\[ref\]](#). Patients may experience excessive **burping**, **lip licking**, gas, bloating, abdominal pain/prayer pose, excessive **panting at night**, excessive **grass eating**, diarrhea and undigested food in stools.

The pancreas produces enzymes to digest starches, fats, and proteins, while the liver and gallbladder provide bile to emulsify fats and support detoxification. The author links pancreatitis to high-carbohydrate, processed foods, as dogs and cats have limited amylase production for starch digestion, and high-heat processing generates inflammatory advanced glycation end-products (AGEs).

The gut serves three key functions: nutrient absorption, immune support, and acting as a barrier. About 70-80% of the immune system resides in the gut via IgA and Gut-Associated Lymphoid Tissue (GALT) [\[ref\]](#) [\[ref\]](#). Intestinal permeability, known as “leaky gut,” results from inflammation caused by processed foods [\[ref\]](#), preservatives [\[ref\]](#), medications (e.g., NSAIDs [\[ref\]](#), antacids [\[ref\]](#), corticosteroids [\[ref\]](#), antibiotics [\[ref\]](#) and others [\[ref\]](#)), GI infections (e.g., *Giardia*), toxins (e.g., glyphosate [\[ref\]](#)), and stress [\[ref\]](#). This permeability allows toxins and undigested food into the bloodstream, triggering systemic inflammation that can affect the immune system (e.g., allergies), skin (e.g., dermatitis), and nervous system [\[ref\]](#) [\[ref\]](#). Notably, human studies link proton pump inhibitor use to higher risks of cardiovascular disease, chronic kidney disease, and upper GI cancer [\[ref\]](#).

Diagnostics can offer insights into gut health with specific markers: **zonulin** is



SCAN ME