

## **Equine G.I.T**

### **Basic Anatomy**

The equine gastrointestinal tract can be divided into two main sections: the foregut and the hindgut . The foregut consists of the stomach and small intestine while the hindgut or large intestine is made up of the cecum and colon.

The equine stomach is only able to hold 2-3 gallons at a time, making it the smallest stomach in relation to body size of all our domestic animals. Depending on how big the meal is and what it contains (e.g. hay vs. grain vs. liquid) food may remain in the stomach as little as 15-30 minutes or as long as 12 hours, with 3-4 hours being average.

The next part of the tract is the small intestine. Approximately 70 feet in length, it is made up of three parts: the duodenum, jejunum, then ileum. Food moves through the entire small intestine in as little as 30-60 minutes but can take longer, up to 8 hours.

Continuing on to the large intestine, the first layover is the cecum. Basically a fermentation vat—similar to the rumen of a cow—this comma-shaped structure on the right side of the horse is approximately 4 feet long and holds 8 gallons. From the cecum the order is the large colon (10-12 feet long), then the small colon (also 10-12 feet long). Time for passage through the whole hindgut can range from less than 1 day to as many as 3 days.

### **The Equine Digestive Process**

Since the functions carried out in the front of the gastrointestinal tract versus those carried out in the back of the GI tract are very different, it makes sense to focus on each part separately.

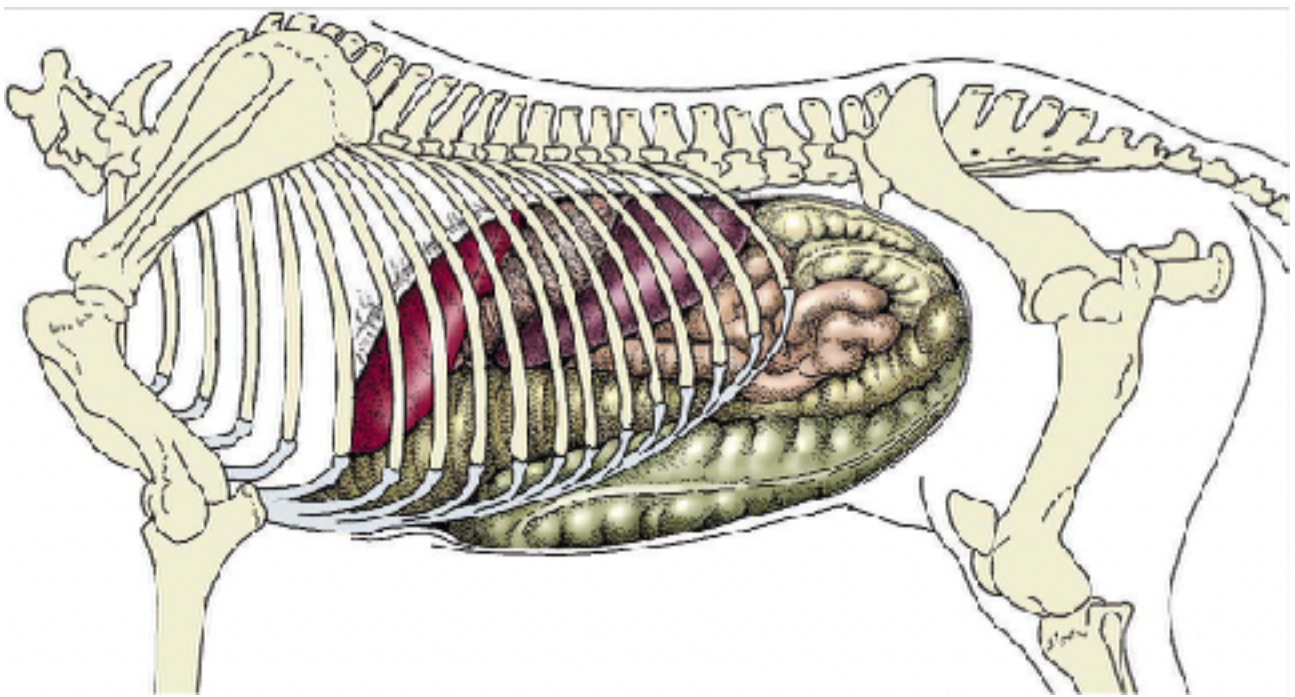
#### **Foregut digestion**

After food is gathered up, chewed, and swallowed, the stomach kicks into gear. The main functions of the stomach are to add gastric acid to help with the breakdown of food, to secrete the enzyme pepsinogen to begin protein digestion, and to regulate the passage of food into the small intestine. While food breakdown may begin in the stomach, it continues in the small intestine, where secretions help with the further digestion of protein, simple carbohydrates, and fat. The small intestine is also the main site of nutrient absorption once

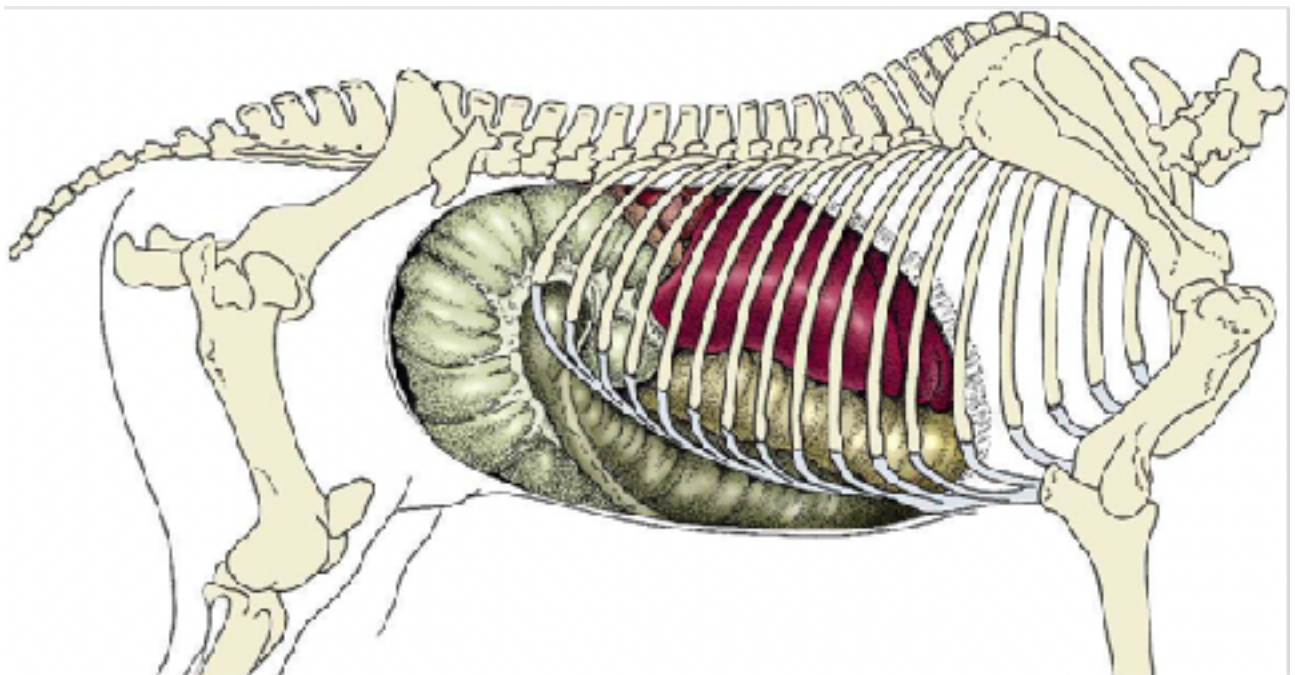
they are in small enough form. Amino acids, glucose, vitamins, minerals, and fatty acids are taken into the body as they move along the small intestine, so progress shouldn't be too fast or too slow.

## **Hindgut digestion**

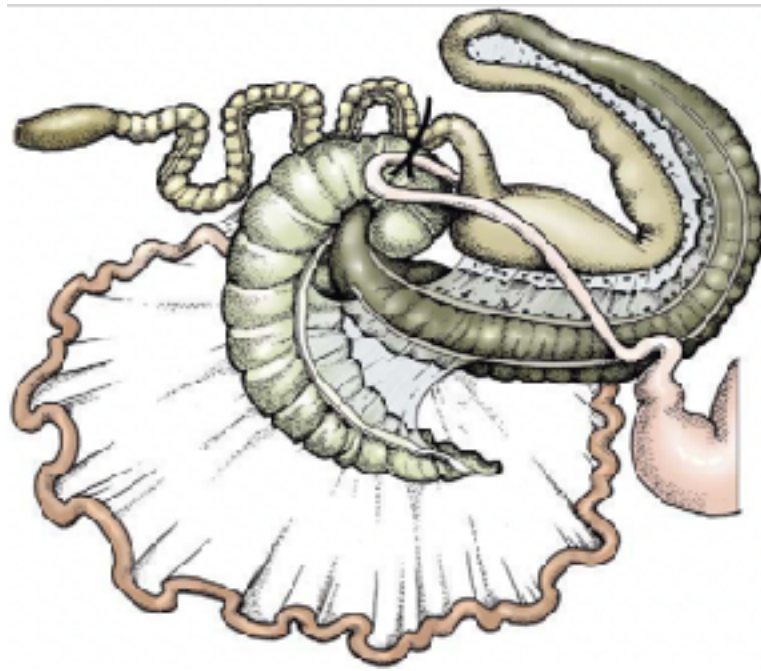
The processes that occur in the cecum and colon are less about breaking down food into smaller, absorbable particles with the aid of enzymes and more about fermenting complex carbohydrates (fiber) into useful end products with the assistance of the "good bacteria." In addition to generating fatty acids, which supply energy or calories, these helpful microorganisms also produce B-vitamins, Vitamin K, and some amino acids. The colon then serves not only to absorb these nutrients but also a portion of the water that accompanies food as it moves along the digestive tract.



Visceral projections on the left abdominal wall (including the diaphragm).



Visceral projections on the right abdominal wall (including the diaphragm).



The intestinal tract seen from the right. The caudal flexure of the duodenum and the cranial mesenteric artery have been displaced to the right of the animal to lie over the base of the cecum. Stomach, descending and ascending duodenum jejunum, ileum, cecum cecocolic fold, right ventral colon, ventral diaphragmatic flexure, left ventral colon, pelvic flexure, left dorsal colon, dorsal diaphragmatic flexure, right dorsal colon, ascending mesocolon transverse colon, descending (small) colon rectum cranial mesenteric artery.