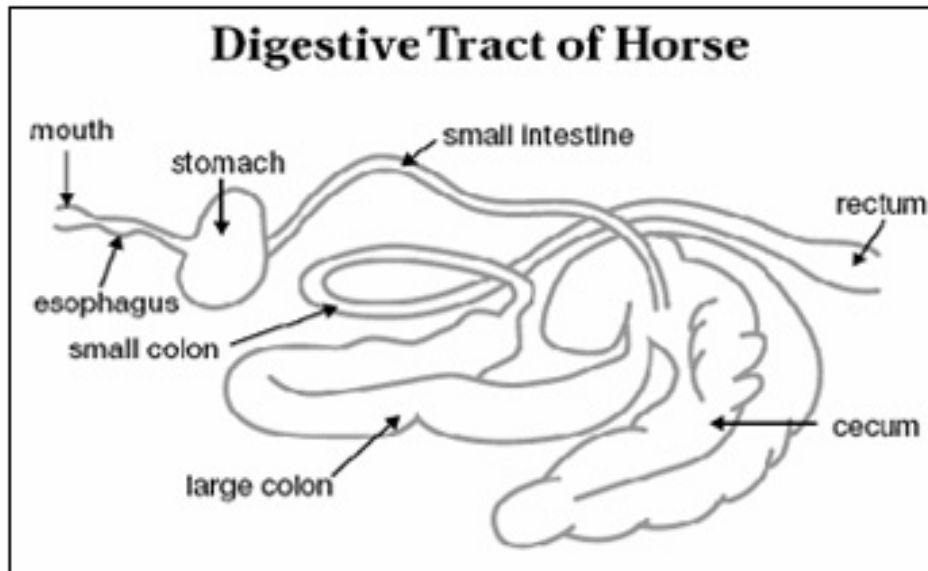


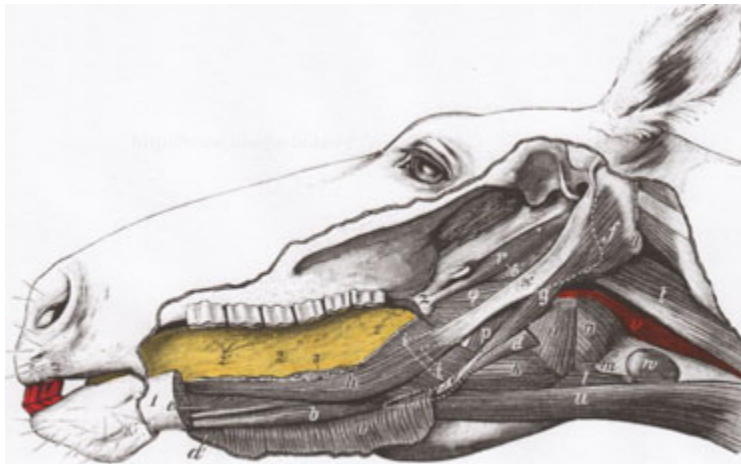
Equine Digestive System



http://www.biovance.com/bio_i/digestive_tract.jpg

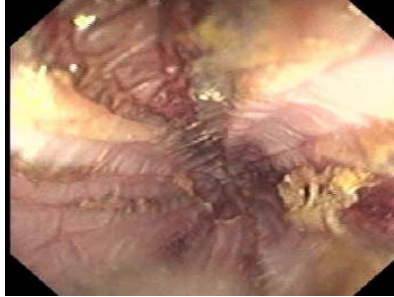
The digestive system is important because it breaks down food into small, usable nutrients. These nutrients are then absorbed and used by the body for energy, growth, and maintenance of the animal. Horses have very sensitive digestive systems, so it is important to understand the anatomy of the digestive system and the individual organ's functions.

Mouth- The mouth is the first part of the digestive tract. This is where the food enters and is chewed by the horse's teeth, also known as mastication. This mechanical digestion increases the surface area of food and decreases particle size. At the same time, the food is wetted with saliva. This makes the feed easier to swallow, increasing surface area. At this time, the enzymes in saliva begin breaking down the carbohydrates found in the horse's feed.

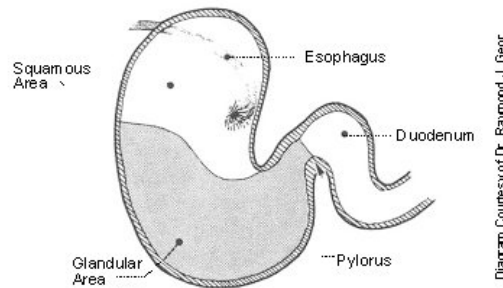


Figs. 445, p. 379, W. Ellenberger & H. Baum, 1915.
Vergleichenden Anatomie der Haustiere

Esophagus- The esophagus is used to carry water and chewed food, known as a bolus, down towards the stomach for further digestion. It is a long tube-like structure located on the left side of the horse's neck. The esophagus helps move food down the neck with wave-like smooth muscle contractions known as “peristalsis.” Food enters the stomach through a one way valve. This valve is so muscular and functions so well in horses that it actually prevents horses from throwing up.



Stomach- The stomach of a horse is very small compared to its size. It is made up of glandular and non-glandular regions but little digestive activity actually occurs here. There is some enzymatic digestion and very little fermentative digestion. The very limited capacity of this organ makes it important for horse owners to feed in small quantities to avoid serious stomach problems such as colic and rupturing (in severe cases). Food only remains in the stomach for about 15 minutes.

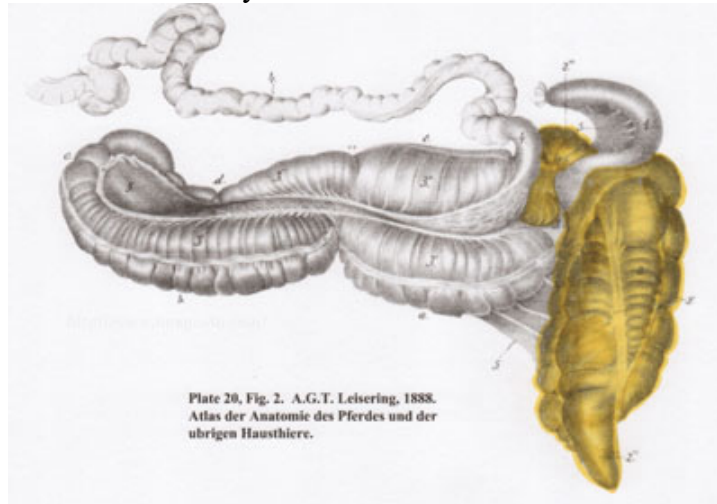


Small Intestine- The small intestine of the horse is 70 feet in length. It is divided into three different parts: the duodenum (the first part), followed by the jejunum, and then the ileum. The small intestine is a major site for nutrient absorption. Fat soluble vitamins, phosphorus, and calcium are all absorbed here along with carbohydrates and fat. Food passes through the small intestine in 30 to 90 minutes.



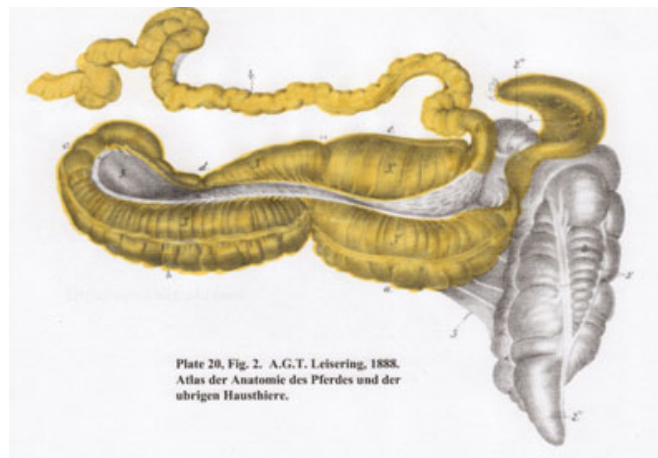
Large Intestine- The large intestine of the horse is divided into 4 very important parts:

1. **Cecum-** The cecum is the first part of the large intestine. The cecum houses a variety of bacteria and protozoa and serves as the location of bacterial fermentation, just like the rumen of a cow. It is located on the right side of the horse's abdomen. The bacteria located here help break down the fibers or roughage that a horse consumes into volatile fatty acids. These fatty acids are a very important energy source for horses. Humans cannot digest starch because they don't have an organ dedicated to housing digestive bacteria. Food can ferment in the cecum for days.



Cecum

2. **Large Colon-** The large colon is where some water is absorbed and fecal matter begins to form into ball-shaped manure.
3. **Small Colon-** Most of the water absorption from fecal matter occurs here.
4. **Rectum-** The last portion of the large intestine and colon where feces sits until it leaves the body through contraction. The process of passing manure is a spinal reflex.



(Rectum, Large and Small Colon)

Anus- The anus is the absolute end of the digestive tract. The anus is a sphincter that closes of the digestive tract to the outside until feces is emptied. The horse produces between 35-50 pounds of manure a day.

