

EquiSUMMIT™

Equine GI Tract 101

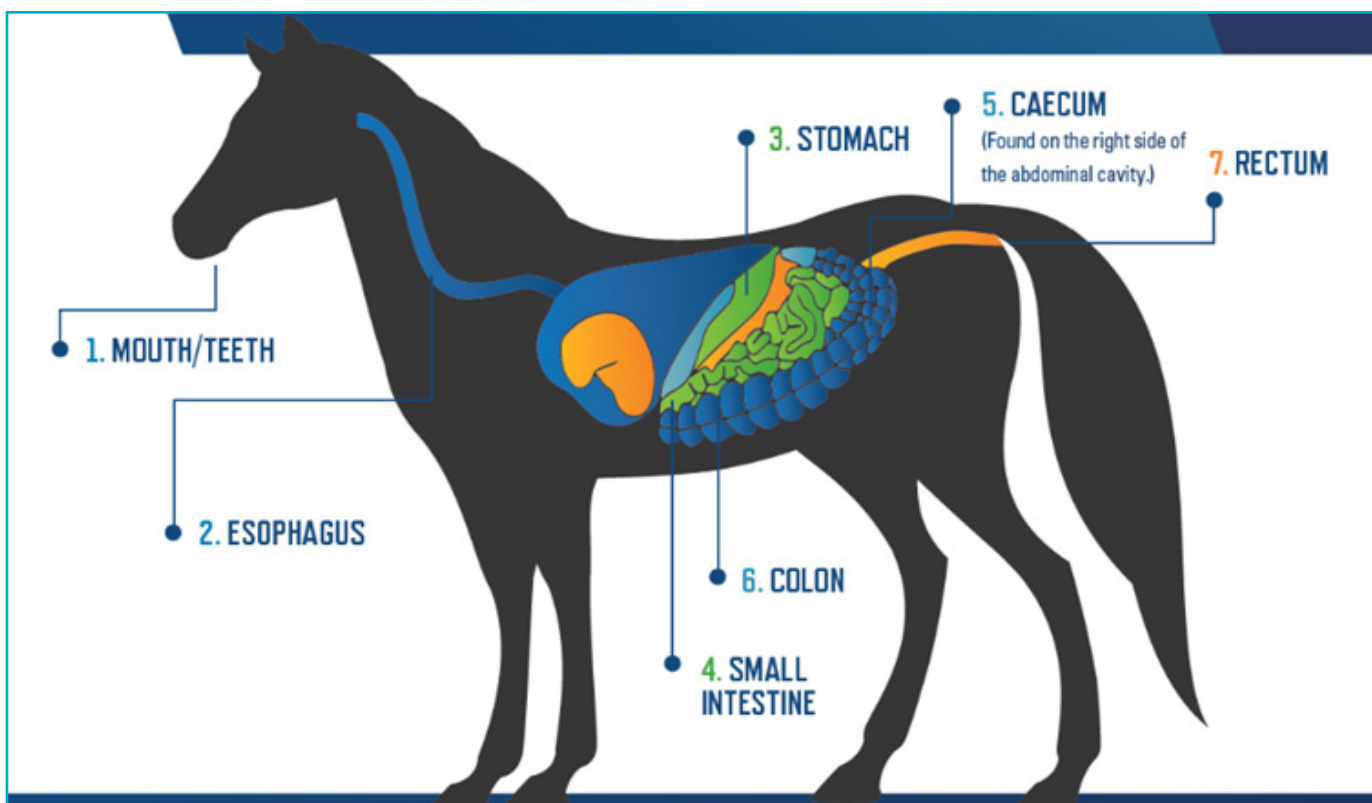
Anatomy and Function

The gastrointestinal tract (GIT) of the horse is a collection of individual organs all working together to fuel and protect the animal. The two main functions of the GIT are:

- To properly digest and absorb nutrients
- To function as a barrier to pathogens, and work as part of the immune system

A horse's GIT was developed to sustain the horse on frequent, relatively small meals. The demands placed on domesticated horses, however, do not often allow the GIT to function as it was originally designed. Fewer and larger meals, changes in activity frequency and duration, along with changes to the diet can lead to several maladies that impact GIT function and the overall health of your horse.

This learning module contains basic information about the digestive structure and function of the horse's GIT.



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The GIT of the horse is often divided into two sections – the foregut and the hindgut. The foregut includes the mouth, esophagus, stomach, and small intestine, while the hindgut is comprised of the caecum, colon (large and small) and the rectum.

Foregut

1. Mouth/Teeth: The digestive process begins in the mouth as food is chewed into smaller particles and mixed with saliva. Higher levels of forage require more chewing and an increased amount of saliva. The additional saliva helps ease swallowing and buffers the acid found in the stomach.

2. Esophagus: The esophagus is a long, muscular tube that connects the mouth and the stomach. Muscle contractions can only move the food one way – towards the stomach – so the horse cannot vomit. Food not chewed well or mixed well with saliva can get stuck, resulting in choke.

3. Stomach: Enzymes and hydrochloric acid continue the digestive process in the stomach. The stomach is small compared to the size of the horse, indicating that numerous, small meals are the best, and has two distinct regions – the non-glandular and the glandular. Unlike the non-glandular portion of the stomach, the glandular section is lined with mucus to protect it from the acidic environment. Saliva from the mouth helps to buffer the acid in the stomach, and a reduction in saliva due to extended times between meals may lead to increased risk of gastric ulcers.

4. Small Intestine: The small intestine is where most of the digestion happens. It is approximately 70 feet long in an adult horse and consists of three sections: the duodenum, the jejunum and the ileum. Here, enzymes continue to break down food particles as they move through the small intestine with most of the protein, simple carbohydrates (sugars and starches) and fats being absorbed in the ileum. A barrier or lining – which is only one cell thick, but very important – separates the contents of the small intestines from the circulatory system. Pathogens, toxins or even stress can damage this barrier, leading to Leaky Gut Syndrome and allowing pathogens to enter the bloodstream.

Hindgut

5. Caecum: The cecum is a large muscular sac located on the right side of the horse. Bacteria in the cecum digest or ferment complex carbohydrates, such as plant fiber, that was not broken down in the foregut and produce volatile fatty acids that can be absorbed and used as energy. Sudden changes to the diet can negatively impact the bacterial populations in the cecum. Increasing the amount of grain in the diet too quickly can reduce the pH in the cecum (acidosis), which may kill off the beneficial bacteria leading to an overgrowth of harmful microbes.

6. Colon (Large and Small): Bacteria continue to break down the remaining plant fiber in the large colon. In the small colon, remaining moisture is reabsorbed, and the contents begin to solidify into fecal balls,

7. Rectum: Here, the fecal balls are moved to the anus and excreted.