



Seminole Wellness[®]

Equine Gut Health

A Horse Owner's Factsheet

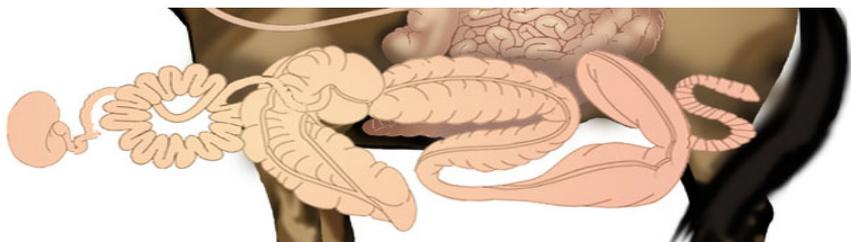
The overall health of the horse relies on correct function of the digestive tract, so it's no surprise that feed companies are creating products to promote equine gut health. But what products are out there that can help the horse's gut, and do any of them really work? Many feed companies are beginning to use additives in their feeds marketed to aid in keeping a horse's gut healthy and balanced, but these additives and their marketing claims aren't always backed by clear research. This fact sheet will give a clear picture of what is fact in equine gut health, and what is fiction.

FACT: Horses are hindgut fermenters

Horse's digestive systems are unique in the fact that most feed digestion occurs in the hindgut through the process of fermentation. A horse's hindgut is filled with billions of naturally occurring beneficial bacteria and protozoa. These microbes help break down and digest the fiber in a horse's daily diet, and this digestion produces many nutrients that fuel the horse's daily activity. However, the hindgut is also home to harmful bacteria. The healthy balance between beneficial and harmful bacteria can easily be disrupted by:

- hours spent with no hay or grass intake
- a sudden change of diet
- undigested starch entering the hindgut
- stress

Disruption of the microbial population in the hindgut can result in gas, acidosis, colic, and other health problems.



FACT: Prebiotics and probiotics are not the same thing

Prebiotics and probiotics are the two most common ingredients included in digestive health products, and many people think they are two different forms of the same ingredient. Prebiotics and probiotics, however, are completely different and have different actions in the horse. Prebiotics are the food that powers the good microbes in a horse's gut. These ingredients are usually special types of fiber that travel to the hindgut and support the horse's natural bacterial environment. Probiotics, on the other hand, are live bacteria. Probiotics are used to populate the horse's hindgut with good bacteria and keep bad, infectious bacteria from colonizing and causing illness. In order for a probiotic to be successful, it must reach the horse's hindgut in a live, viable state. If a probiotic dies before it reaches the hindgut, it has no biological benefit.

Prebiotic \neq Probiotic

FACT: One single probiotic will not bring the same benefit to every horse

There are many commercial horse feeds on the market today that contain their own "recipe" of probiotics. However, in order for a probiotic to benefit the horse, the individual bacteria in the probiotic must match the individual bacteria in the horse's gut. Over time, scientists have been able to identify some of the most common microbes that exist in a horse's hindgut, but each horse is still unique and has its own special population and balance. This population is specific to what the individual horse eats on a daily basis, as well as that horse's distinctive biological chemistry. The numbers and types of bacteria in a horse's hindgut are established in the first few days of life and will stay specific to that horse for the rest of its life. Because of this individuality, there is no one single probiotic that will benefit all horses. Because we can't know which specific good bacteria each of our horses has, there is no way to know if a "one size fits all" probiotic could provide any benefit.

FACT: There is no clear cut evidence showing probiotic benefit in horses

While probiotics are generally considered safe for horses, most of the research looking at their biological benefit has been performed in humans. In fact, most of the benefits that are attributed to probiotic supplementation are extrapolated from research performed in species other than horses.

There has been a very small, limited number of studies performed on probiotic use in horses and those studies have mixed results. To make matters even more complicated, most probiotic studies have focused on testing only one or two types of bacteria at a time. Many of these studies have actually shown negative implications of feeding probiotics. In fact, one study showed that supplementing foals with a certain probiotic actually increased the incidence and severity of diarrhea. Another study showed that supplementing adult horses admitted into equine hospitals with a mix of probiotics had no beneficial effects on colic symptoms or occurrence.

FACT: We don't know if probiotics can survive to reach the horse's hindgut

Earlier we mentioned that a probiotic must reach the horse's hindgut in a live, viable state in order to provide any benefit. If a probiotic expires before it reaches the horse's hindgut, it is of absolutely no use. In order to reach the hindgut, the probiotics in horse feeds must survive manufacturing, storage, and feeding. Once fed, it must make the trip through the mouth, stomach, and small intestine before it reaches its place of activity in the hindgut. Considering that probiotics are very fragile by nature and easily killed, this is quite a long journey! Research has shown that a probiotic's ability to survive this journey is questionable at best. A recent investigation of commercial probiotic products showed that only 2 of 13 tested products met label claims of live bacteria. In addition, another study showed that several other probiotic products were found to be sterile upon testing. The bacteria in these probiotic supplements simply could not survive the normal course from manufacturing to feeding. Even if we could get a probiotic from the feed store to the horse in a viable state, there is doubt that the form of probiotics we see most in the equine world would survive digestion. Probiotics in horse feeds are either in a liquid form sprayed on the feed, or a powder mixed in with the feed. There is a lack of evidence that these forms of probiotics could survive the acid and enzymes found in the stomach and small intestine during digestion.

FACT: Prebiotics have shown proven benefits to the horse's hindgut

As a reminder, prebiotics are not live bacteria, but ingredients that help the microbial population in the horse's hindgut remain stable and healthy. They are usually non-digestible fibers. The prebiotic that has shown

the most beneficial to horse hindgut health, and has the most extensive research backing, is mannanoligosaccharide (MOS). MOS is part of the yeast cell wall and helps clear the horse's hindgut of pathogens and aids in immune system health. MOS binds to harmful pathogens like E.coli and salmonella, preventing these from binding to the horse's intestine and causing infection. When the MOS is flushed from the horse's body in manure, it takes the infective agents with it. MOS also stimulates the horse's immune system by evoking an antibody response against the invading pathogen, building the horse's natural defenses.

FACT: Yeast culture aids in nutrient digestion and hindgut function

Yeast culture, by definition, is a dried product composed of yeast and the media the yeast was grown on. Yeast culture is very different than dry yeast though, and the two should not be confused. Yeast culture is dried in a way to preserve the fermenting capability of the yeast, which is one of the aspects that separates it from dry yeast. The benefits of yeast culture stem from the metabolites that were produced during the fermentation process. These metabolites have been shown to stimulate the bacteria in the hindgut, therefore increasing the digestion efficiency of those bacteria. Adding true yeast culture to a horse's diet has been shown to increase fiber digestion and make more nutrients available to the horse. Research has shown that the improved nutrient digestion and feed efficiency caused by supplementing with yeast culture brings an array of benefits to horses at all stages of life, but particularly to breeding, growing, and performance horses. In addition, yeast culture has also been shown to increase the palatability of feeds, which is helpful with horses who may be picky eaters.

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