



# Probiotic TRUTH

*The basics of probiotics and when you should consider them for your horse.*

**By Tom Moates**

YOU TOSS A FLAKE OF HAY OVER THE FENCE. YOUR HORSE DIGS in, and the nutrition process begins as he chews. In his gut, bacteria breaks down fibrous material.

Can adding supplemental bacteria – known as probiotics – to your horse’s diet improve his digestion even more?

Maybe. And that’s where a dizzying array of probiotic products in the equine marketplace comes in. Each supplement sports a desirable-sounding name and is presented as just what a horse needs to be healthy. So how can you know if the health claims are true or if a particular probiotic product is right for your horse? We asked some horse health experts for their advice.

## The Good Guys

JUST WHAT ARE PROBIOTICS ANYWAY?

“Probiotics are dietary supplements containing potentially beneficial bacteria or yeasts,” explained Judy Reynolds, Ph.D., P.A.S.

Reynolds is the equine product and technical manager for ADM Alliance Nutrition, Quincy, Illinois. She holds Master’s and doctoral degrees in animal science and nutrition, respectively, from Texas A&M University and conducted her graduate research on bone

strength in racing American Quarter Horses and feed considerations for horses with HYPP.

“The current (Food and Agriculture Organization of the United Nations/World Health Organization) definition is: ‘Live microorganisms, which when administered in adequate amounts confer a health benefit on the host,’” she said.

The organisms that fall under the heading of probiotics occur naturally in the environment and are typically found in the gastrointestinal tract of host animals that consume plant material. In this situation, Reynolds explained, a symbiotic relationship is established between the host animal and the microscopic hitchhikers. Essentially, as rent for a cozy room in an animal’s digestive system, they break down fibrous plant material into digestible compounds that otherwise could not be utilized by the host. This situation occurs in many animals, including humans.

In the horse, hundreds of beneficial organisms typically take up residence, mainly in the cecum and large colon. These enlarged areas of the gut provide a space for fermentation to take place. Fermentation is the process where cellulose and hemi-cellulose fibers (which



CHRISTINE HAMILTON



Probiotics supplement the naturally occurring beneficial bacteria in a horse's gut that help to break down the fibrous matter in the horse's diet.

comprise a large percentage of hay, especially stems and stalks) are broken down by these organisms into a form that the horse can use. Only the most beneficial of these organisms are found in probiotic supplements.

The process of breaking down food begins when the horse chews it. This both mashes the material and mixes it with a considerable amount of digestive juices called saliva. Next, it is swallowed down into the stomach, and there mixed with more digestive compounds and worked around to continue the breakdown process. The digesta then passes into the small intestine. Many fats, proteins, vitamins, minerals and soluble carbohydrates are readily absorbed through the lining of the gut in that area into the bloodstream to be sent for various uses in other parts of the horse's body. The horse is naturally equipped with the enzymes needed to break down much of the food without the help of other organisms.

The fibrous roughage diet of horses, however, also contains matter that is not digested by the horse's own natural abilities, and it passes as undigested food residue out of the small intestine and into the cecum. The resident beneficial bacteria in the cecum manufacture enzymes that can break down this otherwise unused material – mostly fibrous – through the fermentation process. The result is that these organisms benefit by feeding on the fibers and the horse is then able to absorb and use a great deal more of the remaining fermentation products than otherwise would pass through the digestive system as waste.

Reynolds also explained that the lining of the gut where these organisms are found is covered with finger-like surfaces called villi that increase the gut's absorption potential. Bacteria attach to these villi to live and grow. Reynolds said it is important to try to encourage beneficial bacteria to occupy these spaces that facilitate digestion, and displace less helpful bacteria.

Probiotic-containing products available for horses in the marketplace today are designed to provide some of these beneficial organisms to the horse to ensure it is not lacking.

The brewers dried yeast that frequently is included in probiotic supplements has a somewhat different job to perform than the beneficial bacteria. This yeast is considered a healthy medium for beneficial bacteria to live in, but does not perform the duties of other microorganisms during fermentation. It is included to provide the service of promoting the health of the beneficial bacteria in the hindgut.

Probiotics are found packaged in a variety of ways. There are single-dose syringes like those that paste dewormer comes in, giving the product the feel of a medication. Bagged mineral or feed supplements can contain probiotics. Also, powdered, liquid or granulated variations of probiotics exist that can be applied to feed.

## When to Supplement Probiotics

"THERE HASN'T BEEN A TREMENDOUS AMOUNT OF RESEARCH ON the horse with probiotics," said Tim Potter, Ph.D., P.A.S., the area specialized agent-equine with the North Carolina Cooperative Extension and North Carolina State University. He is also a longtime AQHA member.

Much of the scientific material on probiotics used to formulate equine products was conducted on other animals with similar digestive systems, like chickens. Ridiculous though that might sound to the horse owner, a basic understanding of what goes on in the gut in horses in relation to probiotics is widely accepted now from such research.

Potter pointed out that there is sound reasoning behind using probiotic supplements in certain circumstances in horses, with some evidence that probiotics can produce a positive effect.

As an example, Potter explained that when antibiotics are administered to a horse to treat an infection, bacteria are killed indiscriminately – both detrimental and beneficial bacteria are reduced in number. Providing a probiotic supplement at this time may help reintroduce beneficial bacteria to the horse's digestive system more quickly than would occur naturally, and thereby help to jump start more efficient digestion. He added, though, that some beneficial bacteria will remain in the gut, and will repopulate anyway. It is a question of accelerated recuperation times.

Horses under stress for any reason seem to be at greater risk for some or many of the existing beneficial organisms regularly occurring in their digestive systems to die off. It is thought



Probiotic supplements can help normalize a horse's gut and control pathogenic bacteria in potentially stressful situations.

LAUREN SCHAR

increased acidity in the gut occurs during stress and kills the beneficial bacteria. In these horses, the scenario is similar to the above example, and the re-introduction of probiotics may hasten the re-colonizing of the digestive tract.

Therefore, horses at higher risk for stress – such as those in competition, during and after weaning, hauling, during breeding, etc. – are good candidates to receive probiotic supplements.

However, the stress itself must still be addressed. If conditions that are deadly to the beneficial bacteria persist, any new living bacteria consumed by the horse likely will be killed as well, rendering probiotic supplements ineffective at that time. Also, ingesting probiotics does not cure the high acidity in the gut caused by stress.

On another note, research indicates that well conditioned, happy horses living on pasture with a regular diet are unlikely to need any assistance keeping helpful resident bugs in the gut. Potter said that feeding a probiotic supplement at a recommended dosage should in no way harm a horse already with adequate bacterial populations; it simply would cause no noticeable benefit. Horses ultimately do not need the microbial extra helpers for survival, but they are necessary for maximizing the efficient use of forage.

Reynolds said there are reasons to add probiotics as a regular, daily supplement for horses in general. One is to constantly introduce beneficial bacteria into the digestive system to provide the maximum opportunity for them to acquire and hold the surface areas on the villi in the small intestine. Another is to provide yeast to the diet regularly, which is always a good medium for beneficial microorganisms in the hind gut.

Veterinarians tend to be in agreement with the nutrition experts on the subject of probiotics. Tracy A. Turner, D.V.M., of Anoka Equine Veterinary Services, in Elk River, Minnesota, seems to sum it up perfectly: “I tend to use (probiotic supplements) after a horse is super stressed, colicked, had diarrhea and their normal flora has been changed. It is one of those things we do in addition to other supportive care.”

*Tom Moates is a special contributor to The American Quarter Horse Journal. To comment, write to aqhajrnl@aqha.org.*

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JOURNAL FILE PHOTO

# FOALS, SPECIFICALLY

Jill Cook, D.V.M., co-owns and operates Royal Vista Equine Inc., an equine reproduction and embryo transfer facility in Fort Collins, Colorado. Cook regularly oversees the care of hundreds of foals during breeding season, and probiotic supplements are an important part of that care.

“Foals are born without bacteria in their intestine,” Cook pointed out. “As they grow, they have the natural ability to pick up and eat their dams’ fresh manure, and that colonizes their gut with bacteria.”

Administering probiotics to a foal is important if that normal process is disrupted, for example, if the foal can’t eat its dam’s manure, as in the case of an orphan or a foal that has been ill and down a lot, or if the digestive system is out of balance due to diarrhea or a round of antibiotics.

“Some people routinely give probiotics; I tend to give them more when a foal has been stressed in some way,” Cook added. “I will give them at the end of a course of antibiotics, for several days, or during a stressful event, such as if you have to transport it long distances. In the event of anything that might upset a foal’s system, I go ahead and give it probiotics.”

However, she doesn’t recommend giving them to very young foals. “During the first 24 to 36 hours, the foal’s gut is very porous and can readily absorb large molecules, so I avoid it during that time,” Cook said. “I certainly would let a foal ingest colostrum before I would go to probiotics.”

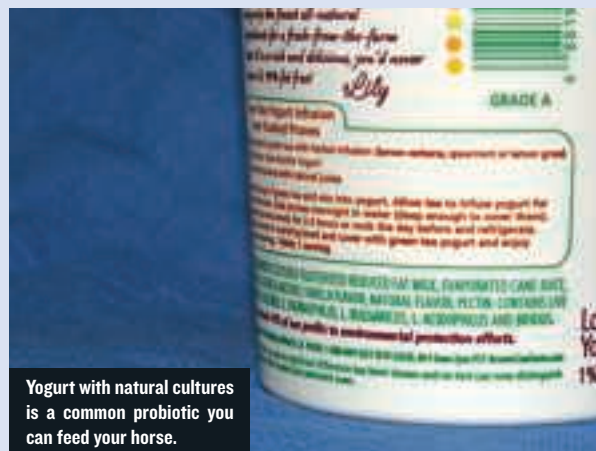
Cook said that there are several commercial probiotic products available including powders you can use to top-dress grain and pre-filled syringes you squirt into the mouth. You can even use grocery-store yogurt with natural cultures.

She also recommends probiotics for foals shown at halter. “Again, that’s a stressful situation; that’s an abnormal environment,” Cook said. “Probiotics help to normalize that gut and control pathogenic bacteria. It’s kind of a good, inexpensive insurance agent.

“You’re not hurting (foals) at all if they are just on it. And it’ll probably help their digestion. A lot of the higher-cost feeds contain probiotics. So you should look at your feed label – lactobacillus is a common one.”

For specific recommendations regarding probiotics and your horse or foal, consult your local American Association of Equine Practitioners veterinarian.

— By Christine Hamilton



Yogurt with natural cultures is a common probiotic you can feed your horse.

CHRISTINE HAMILTON