

newsletter

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B L E N D I N G N A T U R E A N D T E C H N O L O G Y



in this month's issue

1. Powerful Protein



POWERFUL PROTEIN

Of everything to do with equine nutrition, protein is the most misunderstood.

Many often assume it provides energy, however, protein's main function is actually to provide amino acids (the building blocks of bones, muscles, and soft tissues) for growth and repair. It does not make your horse hot!

So what are amino acids actually for?

They are responsible for many processes in the horse's body.

Amino acids are involved in the synthesis and the release of hormones, the synthesis of neurotransmitters and enzymes, and the regulation of sleep, appetite, and blood pressure, to name just a few functions. Mainly though, amino acids are essential for the formation and repair of muscle tissue and other soft tissues throughout the body. Growing horses, which are 'building' new tissues as they mature, and horses used for breeding, have higher protein requirements than do mature horses being used for pleasure or performance.

How do I know which amino acids my horse needs?

Amino acids can be divided into two groups:

- Non-essential – these are amino acids that the horse can synthesize himself.
- Essential – these are the amino acids that must be obtained from the horse's feed.

A good quality protein source provides a sufficient amount of these essential amino acids, particularly the amino acids lysine and methionine. Lysine is often called the "first limiting" amino acid—meaning that if insufficient quantities of lysine are present, then the horse's body will have difficulty using any of the other amino acids available. Methionine is second in importance.

The amino acid profile of a feed is more important for a young, growing horse than for a mature one; adult horses are far less sensitive to differences in protein quality. It also makes no difference to the horse whether a particular amino acid comes from a natural source or whether it is chemically synthesized. Lysine and methionine are often deficient in horse feeds and, as they can be synthesized inexpensively, it is quite routine for feed companies to add these ingredients to improve the overall amino acid profile. When selecting feed, thus, it is more useful to compare the amino acid levels between feeds rather than simply their protein percentages. Quality horse feeds have been designed to meet the protein and amino acid requirements of horses as long as they are fed according to the directions and for the intended workload specified.

Which feeds provide the best protein?

Animal sources, such as milk and egg protein, and even fish and meat meal, offer the best amino acid profile and the highest levels of lysine although these are not commonly used. Among the plant sources, soybean and canola meal are the next best things—these are the only two plant protein products that contain adequate amounts of lysine and methionine. Grains themselves (such as oats, corn, and barley) can contain between 8% and 20% protein but this is of poor quality which is why most feed companies add a higher-quality protein supplement to their feeds. If amino acid levels are poor, more feed will be required to get the same results (particularly with young, growing horses). At Equus we ensure our products contain adequate levels of Lysine as well as other amino acids such as Methionine and Threonine.

Can my horse get too much or too little?

Horses that receive inadequate amounts of protein in their diets can suffer a number of ill effects, including decreased growth and development in youngsters and reduced appetite, body tissue weight loss, slow hoof growth, energy deficit, and a poor hair coat with reduced shedding in adults.

Pregnant mares with protein deficiencies may become more prone to abortions, and lactating mares suffer declines in milk production. Muscle deterioration, especially in the large muscle groups of the hindquarters, also might be evident, and some horses will begin eating manure.

Protein deficiencies usually occur only when a horse is on very poor pasture or hay with no other supplemental feed for a prolonged period of time. With a corrected diet, most of the signs of protein deficiency in adult horses can be turned around in as little as a week. The damage done to a young, growing horse, however, can be more serious.

More common, and equally damaging, is an excess of protein in the diet, especially in mature horses that have been fed by owners labouring under the misunderstanding that protein equals energy.

What happens is that protein not used immediately by the horse's system is broken down to release nitrogen atoms (the rest of the molecule being stored) and those nitrogen atoms become bound up as ammonia and urea molecules. The ammonia and urea are eventually excreted in the urine which leads to increased water intake, increased urination, and a noticeably strong ammonia smell in the stall. Before ammonia and urea can be excreted in the urine, they must be filtered out of the blood—a process that, over time, can tax the kidneys.

Decreased athletic performance is another possible outcome of a high-protein diet. There is some evidence that excess protein can interfere the absorption of both calcium and phosphorus in weanlings. Researchers differ, however, over how much damage a high-protein diet can cause, and how long a horse must be fed such a diet before the effects (if any) are noticeable. There is stronger evidence for the detrimental effect of excess protein in growing horses—in one study, weanlings and yearlings fed a diet 25% higher in protein than normal suffered slower rates of growth overall and higher incidences of developmental bone and joint problems.

Can protein serve as an energy source???

Yes, although metabolically this is an expensive and largely inefficient process, producing three to six times more heat than the breakdown of carbohydrates or fats, while yielding considerably less energy. The heating factor might be beneficial in a cold environment, but it also might contribute to excessive sweating and possible heat exhaustion during hard work, especially in a warmer climate. And, because protein is one of the more expensive ingredients in a feed, it is impractical to feed higher levels of protein in search of a performance advantage. It would be far more effective to increase the levels of fats, fibres and in some cases carbohydrates if more energy is required.

Why does my horse seem hot on higher protein feeds/hay?

In some cases, for example in Lucerne hay, the energy and protein levels are both higher than average hays. If you add extra Lucerne, you are adding extra protein but also extra energy you're your horse doesn't require the extra energy, he could become "fizzy" or "hot". It is thus the higher energy in Lucerne affecting the horse this way, not the protein itself.

It is important to note that looking at the protein percentage on a bag of feed as a means of assessing energy is not ideal, as the energy content and protein percentage are not always related. In some cases, for example, in a feed for hard working horses, the energy and protein might increase together as both are needed for this category of horse. However, the opposite can be true as is the case with many Balancer type feeds which are high in protein but low in energy.

Always look at the energy level, indicated on the individual bag label. This may be in the form of Mj of digestible energy (DE) or by workload level, i.e. light, medium, hard. If this is matched to the horse's workload, then he is less likely to receive inadequate or excessive energy levels.

How Much Is Enough?

So what is the correct amount of protein for a horse? Continued research changes that answer all the time, but there are some general guidelines. The amount of crude protein needed in the diet depends on the needs of the individual horse (the most pivotal question being whether the animal is still growing), the digestibility or "bioavailability" of the protein, and the amount of feed consumed. As a rule, a value of 1.26 g of crude protein per kilogram of body weight per day is appropriate for most adult horses for maintenance metabolism. For a 500kg horse this would be around 630g of crude protein per day.

How does this relate to how to feed your horse?

You might be surprised to hear that if you feed the correct levels of hay and provide enough grazing, this can often provide enough protein to cover the average horse's needs. This means that when selecting a concentrate, you don't need to select the highest level of protein, but rather the correct energy levels as mentioned above. Therefore a level of 9-10% is more than adequate for the average horse.

However, for horses which do not receive adequate hay/grazing or those that need additional concentrates for condition, a protein percentage of around 11-13% (100-130g per kg of feed) in the feed would be adequate.

Broodmares in their first trimester of pregnancy don't really need supplemental levels of protein, but from the fifth month on, when the fetus does 60% to 65% of its growing, their protein requirements increase. Lactation (nursing) also demands higher protein levels; the protein content

TESTIMONIALS

Dear Equus

Mace is a 21 year old TB which I brought to my yard on 19th August 2016. I immediately fed him **Equus Cool'n Perform 12%** and **Equus All Time Balancer**.

After 2 weeks there was a huge improvement in his coat, weight and droppings. After a month now, he looks like a different horse and his muscle atrophy is being reversed. I am so happy as he deserves Happy Twilight years.

Thank you

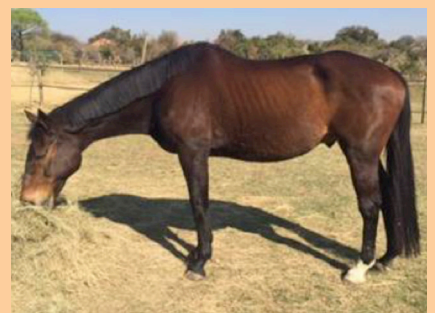
Regards

Jacki Kleynhans

On arrival:



2.5 weeks later:



4 weeks later:



of mare's milk is highest right after foaling and decreases gradually as the lactation period progresses. In feeding terms, these horses will need a protein percentage of around 13-16% (130g-160g per kg of feed) although it is important to note that some individuals may need more or less depending on individual circumstances. These levels should always be treated as a guideline, and you should ask a qualified nutritionist to review your individual horse and advise accordingly. Some researchers feel that during the breeding season, stallions could also benefit from a higher level of dietary protein. Hard exercise (such as racing, three-day eventing, or endurance racing) does increase the need for protein in the diet of adult horses, to support increased muscle development and mass, and to replace nitrogen lost in sweat.

Conclusion: Protein, while a crucial part of your horse's diet, has to be viewed in the proper perspective—as just one part of a working whole in the nutrition scheme. As with anything in life balance is the key.

Adapted from:

http://www.thehorse.com/articles/18955/understanding-protein-in-horses-diets?utm_source=Newsletter&utm_medium=nutrition&utm_campaign=06-09-2014



LOCATION, LOCATION, LOCATION

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For an absolutely free consultation with no further obligation contact our professional consultants to schedule a visit to your yard.

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