

Tacoma Equine Hospital

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YOUR HORSE'S ESSENTIAL NUTRIENTS

Nutrition is the foundation of your horse's health: It should not be overlooked. When establishing a feeding regimen for your horse there are seven important nutrition groups that should be in the feed.

1. Water
2. Carbohydrates
3. Fat
4. Protein
5. Fiber
6. Vitamins
7. Minerals

Beginning with the most essential component for your horse is **WATER**. Horses require at least 6-12 gallons of water per day, but there should always be an unlimited amount of water available. Another way of thinking about how much your horse requires is for every pound of hay consumed, 2 quarts of water is needed. So an average horse consumes about 6-8 pounds of forage or hay, which we will average to about 14 quarts or about 5 gallons of water. If your horse does become dehydrated some tips on getting them to consume water is adding salt to their food or water, electrolytes (paste or powder) or even a spoon full of apple cider vinegar into the water can help initiate drinking. By hydrating your horse properly you are helping to maintain healthy metabolic functions that are needed for your horse to live.

Carbohydrates are the most commonly used energy source from grains and forages. Glucose is the main building block for carbohydrates and is seen in the form as "soluble carbs", such as starch and sugar. These are easily absorbed and broken down to glucose, which is then absorbed into the small intestine to be used as energy. If you were to look at the ingredients of grain or pelleted rations, corn has the highest amount of carbohydrates then barley and oats. Forages normally have about 6-8%, but can have up to 30%. Ingestion of large amounts of carbohydrates (starch or sugar) can cause colic, laminitis, sweat loss, and exercise intolerance. The other part of carbohydrates is "insoluble carbs", such as fiber (cellulose). These carbs bypass enzymatic digestion and must be fermented by microbes in the large intestine to release their energy in the form known as "volatile fatty acids". So the main use of carbohydrates is fast energy, but if used in large portions they can cause harm to your horse.

Fat is the number one energy source. It is normally found in most premixed grains at about 2-6%. You can feed a higher amount like 10-12% in a ration. Fat is used more readily since it is already in a form the body can utilize quickly. Too much fat is hard for a horse to digest due to not having a gall bladder. It is safer to use a higher amount of fat than carbohydrates because carbs have other leading effects on blood sugar and starch levels. Many horses in training will be given higher levels of fat in their daily ration to increase their energy levels. Vegetable oil and rice bran are some examples of fat that can be added to a pelleted ration or grain.

Arnold Schwarzenegger didn't just wish for his muscles, he pumped a lot of iron and ate a lot of **protein**. Your horse develops muscle during growth, development and daily exercise from protein in their feed. Soybean and alfalfa are some good sources of

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protein that can be added to horse's diet. Most adult horses require about 8-10% protein. Higher levels are needed for working horses, foals, and lactating mares. Most grains and pelleted rations will have a higher content of protein to ensure your horse has an adequate amount for muscle production and performance. If there were not enough protein in your horse's diet some signs would be rough hair coat, reduced growth, reduced milk production, and lack of performance. An over abundance of protein can cause an increase in water intake, urination, which causes dehydration and an imbalance of electrolytes.

Fiber is a measure of bulk and the three primary components are cellulose, hemicellulose and lignin. The horse's digestive system has some limitation in its ability to digest these fiber components. Corn has about 2% fiber content and a bulk grain like oats has about 14%. Feeds that are low in fiber are usually more digestible because of higher starch content and thus have a higher energy value. An average amount of fiber differs depending on what you are feeding. So a premixed ration will usually have 8-12% fiber and hay or alfalfa will have about 26-31% fiber content. Those are just some averages, which can be changed depending on what energy levels you desire. Fiber is important to have in your horse's diet to maintain a healthy stool and to maintain energy levels.

Most **Vitamins** are found in green leafy forages and premixed grains. Vitamins would be good to feed if your horse is under stress, prolonged strenuous activity, not eating well or being fed low quality hay or grain. Some vitamins that are already produced by your horse are Vitamin D, which is obtained from sunlight. Horses that are stalled will need to be supplemented. Vitamin E is found in fresh green forages, but it decreases with plant maturity and from being stored for long periods. Horses under stress will benefit from vitamin E. Gut microbes produce Vitamin K and B complex, so unless being given antibiotics that will greatly reduce those microbes, your horse has a good source of those. Vitamin C is found in veggies and fruit and produced naturally by the liver. None of these are required in a horse's diet, unless under stress. There are many more vitamins that can be added to your horse's diet that could be helpful, but the list is very long. As long as you feed your horse a healthy well-balanced diet you should not have to add any vitamins.

Minerals are required for maintenance of body structure, fluid balance in cells (electrolytes), nerve conduction, and muscle contraction. Small amounts of macro-minerals, like calcium, phosphorus, sodium, potassium, chloride, magnesium, and sulfur, are needed daily. These minerals can be found in grain rations, vitamin mixes and forages. The percentage levels will vary depending on your horse's age and level of production.

I hope this overview of the seven essential nutrients your horse needs will help you decide what grain, pelleted ration, and hay your horse needs.