

# The Natural Diet – Feeding for Health

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**The goal of any equine nutrition program is to design a diet that will optimize the health of the horse. The first step in creating an equine ration is to use nature to show us what horses would consume without human intervention.**

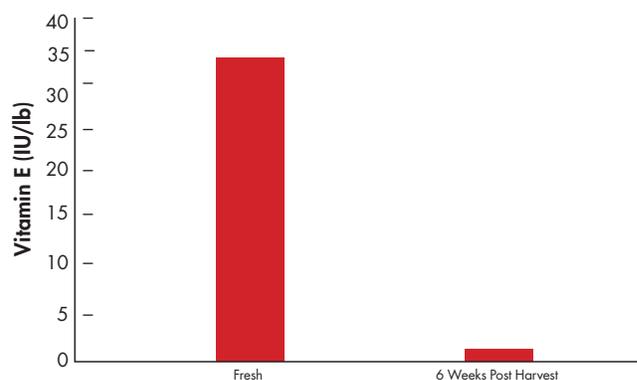
Before the horse was domesticated, herds roamed grassland areas and consumed a natural diet. Historians postulate that wild horses consumed a diet of grass, browse and other vegetation, resulting in ingestion of a balanced diet. Fresh grass is rich in fat-soluble vitamins and omega-3 fatty acids, nutrients that are lost during the processing and storage of forage. It has been estimated that the natural diet of the grazing horse contained up to 5 times more omega-3 fatty acids than omega-6 fatty acids.<sup>1</sup> The higher concentrations of dietary omega-3 fatty acids result in the production of less potent inflammatory mediators compared to diets high in omega-6 fatty acids.

Modern feeding practices have removed horses from a complete grazing environment. Although some horses still have access to pasture grass, many more are fed either a combination of hay and grain or a grain-based supplemental commercial feed. This increase in grain-based feeds has resulted in an increase in the dietary concentration of omega-6 fatty acids and a decrease in the concentration of omega-3 fatty acids. In fact, it has been estimated that the modern horse diet provides up to 18 times more omega-6 than omega-3 fatty acids.

The healthy horse at a physiologic state of maintenance can thrive without the calories, sugar and starch present in grain. Feeding too much grain can lead to problems such as colic, enteritis, colitis, OCD and laminitis. Furthermore, muscle diseases, including equine polysaccharide storage myopathy and recurrent exertional rhabdomyolysis, are worsened when high grain diets are fed. Foals

that receive too many calories from grain can suffer complications associated with developmental orthopedic disease. In recent years, obesity and equine metabolic syndrome have become widespread in the equine population and are largely the result of horses being overfed.

Figure 1. **Concentration of Vitamin E in Alfalfa Hay Before and After Harvest**

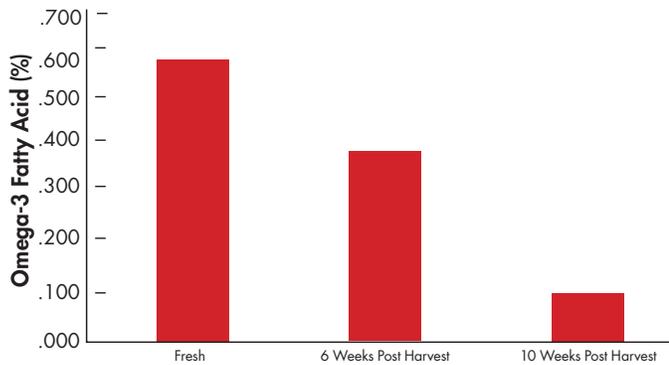


## Feeding a Natural Diet Will Improve Health and Longevity in the Modern Horse

Fresh grass and hay are essential to the horse's diet, as they are excellent sources of essential nutrients, including energy, protein, fatty acids, minerals and vitamins.

The nutrient quality of forage depends on the type and stage of growth of the forage, the location where the forage is grown, the growing season, and the harvesting conditions. Once grass is cut, dried and processed to make hay, the concentrations of omega-3 fatty acids and fat soluble vitamins (A, E) decrease (Figure 1, 2). Prolonged storage of hay

Figure 2. **Concentration of Omega-3 Fatty Acids in Alfalfa Hay Before and After Harvest**



and exposure to sun and moisture, further reduces the concentration of fat soluble vitamins in hay.

Forage may either be deficient in or may contain an excess of trace minerals, such as copper and selenium. It is important to feed a balanced ration, designed to meet nutrient requirements based on the horse's level of activity or life stage. The best way to determine the nutrient content of either pasture grass or hay is to have the forage analyzed.

## Feeding the Modern Horse

### Feed to Maintain an Ideal Body Condition Score and Body Weight

The body weight and body condition score (BCS) of a horse should be measured on a regular basis to ensure the horse maintains an appropriate weight. Body weight can be estimated using a weight tape.

The BCS system can be used to easily estimate the energy requirements of a horse before adjustments are made to the ration. The energy and protein content of a ration is adequate if a horse can maintain an ideal body condition score of 4-6.

Once the BCS drops below 4, the ration should be revised to provide additional energy and protein. Calories can be added to those obtained from forage (pasture or hay), by feeding soaked beet pulp, oils — ideally an omega-3 rich oil — or commercial supplemental feeds. Protein can be added using a protein-supplemented commercial feed or a powdered protein product. Adding grain to increase the calories in a ration should be approached with caution.

Horses with a BCS exceeding 6 require a restricted calorie diet to promote weight loss. If the horse is overweight, calories from grain, commercial feeds and oil should be removed from the ration. Omega-3 fatty acids are still important to include in weight loss rations. Veterinarians serve as an excellent resource in designing a balanced ration.

### Back to Nature: Feeding Pasture and Hay

At least 70% of the horse's ration should be forage, and many adult horses will thrive just consuming forage. All horses will benefit from supplementation with a balanced vitamin, mineral, antioxidant, and essential fatty acid product to help ensure that all nutrient requirements are met. It is helpful to weigh all ration ingredients to enable a calculation of the horse's energy and protein intake. An ideal equine feeding program allows a horse to graze, or to eat small meals throughout the day. This style of feeding improves gastrointestinal health and may also improve glucose and insulin regulation. Despite the benefit of pasture grazing, some horses must be restricted from pasture to prevent the development of laminitis, or excessive weight gain. If hay is only offered twice daily, owners can use a slow feeder device like a NibbleNet® to reduce the speed that a horse eats their hay. Overgrazing horses in a pasture should be avoided to prevent ingestion of sand or dirt, which can cause colic. Because horses fed hay often throw their hay out of a feeder, on to the ground, it is a good idea to place a rubber mat under the feeder to decrease the amount of dirt or sand ingested.

### Limit Grain Intake

Epidemiologic studies indicate that horses that eat more than 5.5 pounds of grain daily have an increased risk of colic compared to horses that eat less grain.<sup>2-3</sup> The risk of colic increases even more as horses consume more than 11 pounds of grain each day.<sup>2</sup> Adult horses in a physiologic state of maintenance do not require grain in their diet. In fact, intake of excessive calories from grain or grain supplements often leads to obesity. Horses that are exercising at a moderate to intense level, mares that are pregnant or lactating, and growing foals may need additional calories from grain or from supplemental fat.

Even equine athletes and reproductively active mares should be fed a limited amount of grain, not to exceed 20-30% of the total weight of the ration. A 1000-pound adult horse that eats 2% of its body weight (20 pounds) in feed per day should be fed less than 6 pounds of grain or grain supplement in a day. Feeding a growing foal requires even more care, and grain intake should be limited to ensure that the growth of the foal is carefully regulated to prevent complications from developmental orthopedic disease.

### **Water: The Most Essential Nutrient**

A 1000-pound horse drinks between 7 to 9 gallons of water each day, and water needs increase when the weather is hot and humid, when the horse is exercising, and during lactation. Plenty of fresh clean water must always be available. Buckets can be placed in stalls that have automatic waterers to ensure that the horse always has a supply of water. In the winter, warmed or supplemental water sources should be provided.

### **Salt Blocks**

A plain salt block offers a source of sodium and chloride. Trace mineral blocks are consumed at variable rates by horses and are not recommended when a balanced vitamin and mineral supplement is fed.

### **Make All Ration Changes Slowly**

Rapid changes in the ration should always be avoided, because horses are more likely to develop colic after abrupt changes in diet.<sup>2-6</sup> Horses should be transitioned to new feeds over 7 to 14 days. This includes changing the horse between shipments of the same type of hay. Introduction to grass pasture should also be done slowly, increasing the time in pasture by 1-2 hours every 3-4 days.

### **Putting it into Practice**

- Adult horses thrive on a ration of forage and a balanced vitamin, mineral, antioxidant and omega-3 fatty acid supplement.
- Grain and grain-based supplements should be limited in a horse's ration to decrease health complications and to prevent obesity.
- To help prevent colic, all dietary changes should be made slowly, over 7-14 days.

- Veterinarians should be consulted before any changes are made in the horse's ration.

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