

# The Shocking Truth About Horse Nutrition



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**The truth about horse nutrition.**

Feeding your horse has never been easier than it is today ... *but it has also never been more difficult.* Thanks to commercial feed manufacturers and innovations in technology and transportation, feed is now available year-round.

Did you know improper feeding can kill your horse?

Did you know one of the 3 major causes of death in a horse is colic.

Did you know there is a direct correlation between improper feeding and colic.

**Here lies the dilemma ...** nutrition through proper feeding and conditioning is necessary for a healthy, happy horse. But if it is not done properly you can kill your horse.

How do you make sure your feeding your horse feed that has the proper nutritional content for their age, weight and activity level with out potentially killing your horse?

The problem is the myths and misconceptions that plague the horse industry; many people are unaware of, or have been misled about, how to achieve all the benefits of good healthy nutrition for their horse. However there is a new Horse Nutrition and Conditioning Program now available that will show you how you can improve your horses nutrition and make an amazing difference in the way your horses look, act, and feel. Before you consider this new program, it's important to learn if it's necessary for you.

**Is it really as easy as feeding the proper combination of essential nutrients in their feed regularly and making sure they don't over eat and potentially colic and die?**

The Horse Nutrition and Conditioning software package will show you how to do just that. There are inherent challenges though. How do you know the right ration or the right mix for the age, level of activity or current diet of your horse?

Feeding a well-balanced diet is easier when you have a clear understanding of each of the six nutrients that are so vital to your horses body. These nutrients all play different-- yet very important-- roles in equine nutrition.

Do you know the necessary nutrients that are absolutely essential?  
Do you know the proper amounts based on the your horses needs?  
Do you know what is actually in your horses diet right now and is it effective?

There are only 6 items to consider when discussing equine nutrition.

- 1) Carbohydrates
- 2) Proteins
- 3) Fats
- 4) Water
- 5) Vitamins
- 6) Minerals

Carbohydrates, proteins and fats are energy makers. These are the 3 things that your horse gets out of the feed that actually can give him energy. Energy is NOT generated by vitamins or minerals.

The other three vital nutrients are water, vitamins and minerals. Vitamins help the horse digest, absorb, and metabolize nutrients. (It's chemical processes occurring within a living cell or organism that are necessary for the maintenance of life. In metabolism some substances are broken down to yield energy for vital processes while other substances, necessary for life, are synthesized.) Minerals, which help the horse's body, metabolize proteins and vitamins to carry out their jobs. Although water, vitamins, and minerals do not provide energy, they have very specific and extremely vital roles in nutrition that cannot be substituted or compromised with out serious or even deadly effects.

In the Horse Nutrition and Conditioning program available from your vet, you'll learn about what your feed has in terms of Carbohydrates, Protein, Fat, Vitamins, Minerals and Digestible Energy.

- It's based on your horses weight, activity and age.
- It's measured against the NRC standards.
- It has the largest database of commercial feed templates ever assembled.
- It also has guaranteed analysis of all the commercial feed templates.

**You will learn:**

- Do you have enough vitamins and minerals in their diet in order to make sure your horse can properly digest and use the food your feeding? (If you don't have enough vitamins and minerals in their diet, regardless of how much you feed, your horse can't properly use them and they won't be effective.)
- Are you feeding enough calories for your horse's activity level?
- Are their specific supplements that my horse needs in order to lead a happier, healthier life?
- Am I over supplementing?

Horse Nutrition Wizard is available from your Vet and offers a personal, practical approach to the health and fitness of your horse.

In order to take the mystery out of it, I have included a brief description of what the nutrients do and what it means to you and your horse.

**Fat**

It is almost impossible for your horse to do without Fat. Most importantly, fat provides energy. A horse's body fat has an unlimited storage capacity, and fat supplies more than half of the body's ongoing energy needs during rest. Fat also serves other roles in the body. A layer of fat tissue beneath the skin insulates the body from extremely cold temperatures.

Horses can easily digest fat efficiently. Supplementing the horses diet with edible fat can be very useful. Animal fat in your horses diet is acceptable, however please note that it is not as easily digestible by the horse as is vegetable oils.

The more easily digestible the fat is, the easier your horse will have making full use of the material. It provides a safe energy source without

added carbohydrates. Carbs add a quick charge of energy, where fats are a more consistent level of energy. However it's easy to over feed and get an obese horse. That's why the body score chart that the horse and owner members receive helps understand and track your horses standing.

## **Protein**

Protein's primary role is to build and repair tissues, hormones, and enzymes. Almost everyone knows that protein is the material of muscle tissue. Protein is made up of chains called amino acids. There are twenty different kinds of amino acids that the horse needs. There are two kinds called essential and non-essential amino acids. The first kind is essential amino acids, which cannot be made by a horse. The second kind is nonessential amino acids, which a horse can make ten of these. Horses need good quality proteins in their diets in order to maintain the proper amount of Amino Acids. However even if they are getting enough they need a proper amount of vitamins and minerals in order to make sure the horse's body can utilize them properly.

What I mean to say is ... even if they are getting diets high in protein, if they don't have the proper vitamin and mineral mix, their body cant use them and its does no good at all. An analogy would be ... you're starving, but you have boxes full of highly nutritious cans of food but you don't have a can opener. The horse will eat the feed with the protein, but with out the proper nutrient mix, (the vitamins and minerals act as a can opener) the protein just can't be as effective.

## **Carbohydrates**

The primary role of carbohydrates in nutrition is to supply energy for the body. Carbohydrates are important not only for physical activities, but also for those who want to maintain high levels of energy. Carbohydrates are the best choice for fueling your horse's system. Carbohydrates provide energy needed for all cell processes and basic functions. It also provides energy for muscle contraction. Sugar and starch are forms of carbohydrate found in large quantities in the horse's grain. They provide an instant supply of energy when they are easily digested by the small intestine.

Cellulose is another carbohydrate that the horse gets from grass or hay. But as the hay grows and becomes more stemmy it becomes harder for the horse to digest and less nutritious for the horse

### **Fiber**

(I've added fiber based on its importance due to the unique digestion of a horse.)

Fiber plays a very important role in nutrition and is very beneficial to many aspects of health. Fiber gives you an edge on weight management by slowing down calorie absorption and keeping energy levels up. Fiber also helps move the feed through the horses body.

A high-fiber diet also helps with many areas of digestion such as constipation and diarrhea.

### **Water**

Water is a crucial part of all of the horses' body, yet we seldom think of its vital importance. Horses can only survive a few days without it. Body fluids, made up mostly of water, bring to each system all the required ingredients and carry away the body's waste. Water is also necessary for many chemical reactions in the body. It can act as a lubricant around joints and protect sensitive tissues and organs, including the spinal cord, eyes, and the amniotic sac in pregnancy from shock. Water also aids the body's temperature regulation and serves as a solvent for vitamins, minerals, and amino acids, glucose and many other small molecules.

### **Guidelines for Water and Exercise**

For optimal performance, water must be replaced before, during, and after exercise. However there are some very important water rules to follow. Please see the 7 rules of watering below.

Most people rely on thirst as an indicator for their level of hydration. However, thirst is not an accurate indicator of how hydrated your horse is. The way is to check the color of your horses urine. A dark color means you're horse is dehydrated. A pale yellow or no color means that you're horse has enough water.

**Water is by far the most abundant nutrient and a major part of almost every cell and tissue in the horses body.** Water makes up 65-75% of a mature horses body weight and 75-80% of a foals. It is used for digestion and for the movement of food through the stomach. It is also important for growth and milk production. It is needed to replace the losses through the lungs, skin, feces and urine. Keeping water from a horse will depress the appetite and reduce feed intake, resulting in loss of condition. The horses need for water depends on several variables including temperature, work, milk production and diet. Horses fed dry foods or high in salt will increase the horse's thirst. Mature horses are better at conserving body water than foals, so foals dehydrate more quickly.

A mature horse needs about 5 liters of water per 100 kg of body weight for maintenance this is about 25 liters (5gals) for a 16-hand horse. Horses at maintenance require a min. of 2 liters of water per kg. of dry food. Young growing horses need 3 liters per kg. of dry food. The lactating mare may be secreting 12-15 kg. of water daily in her milk and needs 4 liters of water per kg. of dry food. Exertion in hot weather can increase this need up to 12-15 liters per 100 kg. Body weight – 60-75 liters (12-15 gallons) for the 16-hand horse. If this is not met, fatal dehydration can occur. So make sure your horse had clean adequate water available at all times.

In an adult horse 70% of water is lost in the feces and urine, the rest being expelled through the lungs and skin. Foals are less effective at concentrating their urine and feces and dehydrate more rapidly and may die from diarrhea.

A horse should have access to fresh, clean water at all times. One of the exceptions is when a horse is denied water during hard, fast work. The horse should be cooled down before allowing it to drink large amounts of water. A hot horse drinking large amounts of cold water can cause colic or laminitis.

### **Seven Rules of Watering**

- 1) Keep a constant supply of fresh clean water available at all times.
- 2) If this is not possible, water the horse three times a day in the winter and six times a day in the summer. Water before feeding.
- 3) When watering a hot or fatigued horse, give it water, which has, had the chill taken off it.



- 4) If you leave a bucket of water with a horse all day, change it and rinse it at least twice a day and top it off when necessary. Standing water becomes unappealing to horses.
- 5) Horses that have been denied water should be given small amounts frequently until their thirst has been satisfied. You should not allow them to gorge themselves on water.
- 6) When working a horse for a period of time, water the horse as often as possible. At least every half hour.
- 7) If a horse has a constant supply of fresh, clean water at all times, there is no reason to deny the horse water before work.

### **Vitamins and Minerals**

The Recommended Allowances for most vitamins and minerals have been established by the National Research Council (NRC) as a point of reference for horse owners to help show how a specific feed compares and fits into a healthy diet for your horse based on age, weight, and activity. Horse Nutrition and Conditioning makes it easy because it compares your feed with the NRC with a click of a button.

It is important to understand that the Recommended Allowances listed are usually the minimum requirements given. The Recommended Allowances are not meant as a cure or treatment for disorders and do not cover special nutritional needs--each horse's requirements may differ. In humans, many vitamins and minerals, particularly antioxidants, have been shown to help fight infections and diseases. For this reason, many nutritional and health experts recommend doses several times greater than the Recommended Allowances. This is a trend that is rapidly being followed in the horse industry.

Antioxidants play a key role in fighting free radicals that can weaken cells and wear down natural defenses, eventually causing tissue and organ damage. This can deteriorate the natural defenses. Antioxidants have the ability to neutralize free radicals without becoming one themselves and thus assist in cell health while fighting cell damage, sickness, and disease.

### **Vitamins**

Vitamins are organic substances found in all living things. There is a common misconception that they give horses energy. That's not true.

Vitamins differ from the energy nutrients: carbohydrates, fats, and proteins. They don't provide energy for the body, but they do help enzymes with growth and healing. Vitamins are divided into water soluble and fatsoluble.

There are two groups: fat-soluble and water-soluble vitamins. Fatsoluble are stored in the horses body, liver. Most of these are pro-vitamins and are abundant in fresh green leafy plants. Horses are able to take in more than their needs in the summer and then store the vitamins for use in the winter. High quality leafy plants and sunshine give the horse many of the vitamins he requires. If you feed the horse poor quality forage or high quantities of un-supplemented refined feeds then vitamin deficiencies can occur.

Water-soluble vitamins are changed by the microorganisms found in the horses stomach. They are not stored in the horse's body. Water-soluble vitamins are involved with the metabolism or utilization of the fats, protein and carbohydrate that the horse eats. More specific details on watersoluble vitamins are below.

### **Water-Soluble Vitamins**

The water-soluble vitamins are carried in the bloodstream, excreted in the urine, needed in frequent, small doses, and unlikely to be toxic. The water soluble vitamins include C and the eight B vitamins, each having an important role in nutrition. It is true that without B vitamins you would lack energy, since it is instrumental in handling the assimilation of the energy nutrients.

**Thiamin (B1)** Thiamin or B1 occupies a special site on the nerve cell membrane and plays an essential role in the energy metabolism of cells. As a result, processes in nerves and in their responding muscles depend heavily on thiamin.

**Riboflavin (B2)** Riboflavin, like thiamin helps enzymes release energy from nutrients needed in every cell of the body.

**Niacin (B3)** Niacin participates in many metabolic activities that are fundamental to the work of B1 and B2.

**Pantothenic Acid (B5)** B5 is part of coenzyme 4, which is used in energy metabolism and seems to help with stress and alleviate symptoms of stress-related exhaustion.

**Pyridoxine (B6)** Vitamin B6 is essential for a healthy nervous system.

**Cobalamin (B12)** Vitamin B12 maintains the sheath that surrounds and protects nerve fibers and promotes their normal growth. Bone cell activity and metabolism seem to depend on its presence.

### **Fat-Soluble Vitamins**

**Vitamin A and Beta Carotene** Vitamin A is the most versatile vitamin because of the many roles it serves. It promotes growth of the body tissues and improves immunity to disease. Vitamin A helps to maintain the stability of cell membranes and helps to manufacture red blood cells. When vitamin A levels are low, mucous membranes are more vulnerable to infection.

Beta Carotene is another antioxidant that helps fight infections and disease. This vitamin forerunner helps convert to vitamin A in the body.

**Vitamin D** Vitamin D is different from all other nutrients in that the body can synthesize it with the help of sunlight. Given enough sun, it's possible that you don't need vitamin D at all in the foods you feed. Vitamin D promotes normal bone mineralization and is a member of large bonemaking and bone-maintenance team made up of nutrients including vitamins A and C and minerals including calcium and magnesium

**Vitamin E** Vitamin E is an antioxidant like vitamin C, but is fat-soluble. One of the most important places in the body in which vitamin E exerts its antioxidant effect is the lungs, where the exposure of cells to oxygen is the highest. Remember, antioxidants such as vitamin E help to combat free radicals that are trying to oxidize and damage healthy cells.

**Vitamin K** Vitamin K seems to act primarily in leading off blood clotting and working with vitamin D for healthy bones

## Minerals

Minerals are inorganic atoms or molecules, even smaller than vitamins. Minerals are in the fluids of the body, and help with many essential roles in nutrition, but they are not metabolized nor do they provide energy. Minerals are elements, whereas the other five nutrients are all compounds. This means the minerals cannot be rearranged or lose their identity when they are cooked, like vitamins can. Minerals, although small, play very important roles in nutrition that cannot be compromised. Minerals fall into two categories: major minerals and trace minerals. Listed below is an overview of the major and trace minerals.

**Major Minerals** The major minerals influence the body's fluid and acidbase balance, contribute to the structure of tissues and bones, and play a variety of other specific roles in the body.

**Sodium** Sodium is an electrolyte that maintains normal fluid and acid-base balance while assisting in nerve-impulse transmission.

**Chloride** Chloride is also an electrolyte that maintains normal fluid balance and proper acid-base balance.

**Potassium** Potassium is another electrolyte that maintains normal fluid and acid-base balance and facilitates many reactions, including the making of protein. Potassium supports cell integrity and assists in the transmission of nerve impulses and the contraction of muscles, including the heart.

**Calcium** Calcium is the primary mineral of bones and teeth and is also involved in normal muscle contraction. Calcium is also essential in proper nerve functioning, blood clotting, blood pressure, and immune defenses. Along with magnesium, calcium works to calm the nervous system, and relax muscles.

**Phosphorus** Phosphorus is a principal mineral in bones and teeth and is found in every cell. It is also important in energy transfer and serves as a buffer system that maintains the acid base balance.

**Magnesium** Magnesium is also involved in bone mineralization, the maintenance of teeth, and the building of proteins. Magnesium is involved

in normal muscle contraction, bone mineralization, the building of protein, and transmission of nerve impulses

**Sulfur** The body does not use sulfur by itself as a nutrient-- but assists with other nutrients such as thiamin and certain amino acids. Sulfur helps with the body's detoxification process..

**Trace Minerals** Our body requires trace minerals in very small quantities. Minerals function in very similar ways, assisting enzymes. Although they are small in quantity, they perform some vital roles which no other nutrients do. A deficiency in any of these can be fatal and an excess can be deadly.

**Iron** Iron is vital to cellular respiration, the process by which cells generate energy. Iron is a part of the protein hemoglobin, which carries oxygen in the body. It also makes oxygen available for muscle contraction and is essential for the utilization of energy

**Zinc** Zinc is active everywhere in the body, as a cofactor for more than 70 enzymes that perform specific tasks in the eyes, liver, kidneys, muscles, skin, bones, and male reproductive organs.

**Iodine** Iodine helps to regulate growth development and metabolic rate.

**Copper** Copper is necessary for the absorption and the use of iron in the formation of hemoglobin and helps to form the protective coverings of nerves.

**Maganese** Maganese cooperates with and assists many enzymes, helping to facilitate dozens of different metabolic processes

**Floride** Floride is an element involved in the formation of bones and teeth .

**Chromium** Studies have shown that chromium makes gaining or preserving muscle and losing fat easier because it helps regulate insulin production, which affects fat levels. It also helps to stabilize blood-sugar levels.

**Selenium** Selenium works with vitamin E to help fight the oxidation of cells, and is therefore considered an antioxidant.

**Molybdenum** Molybdenum is a facilitator with enzymes in many cell processes.

### **Take Action**

We hope you have found the information helpful. You now have the knowledge and tools ([Horse and Owner software and the body condition point chart](#)) to make your horses happy and healthy and give them the nutrition they deserve. You need to take action and make time for your horse and make good nutrition a priority.

Including proper nutrition into your horses schedule will be an adjustment. We understand that change is difficult for many people. I certainly know its difficult for horses to. However, if you work through the program, you will find an absolutely wonderfully happy and healthy horse in just a short time.

Action creates motivation! Get started taking sound nutritional care of your horse. They will thank you in look, temperament, and love. If you have any questions, please don't hesitate to drop me a note.

Sincerely,

A handwritten signature in cursive script that reads "Mary Sum". The signature is written in black ink and is positioned above the typed name of the sender.

CEO Equus Research Lab L.L.C.

P.S. Prior to the Horse and Owner software being available, the thought of developing the right ration or ration balance was a long and tedious number crunching exercise.

Since Horse and Owner, it's as easy as a push of a button. You instantly get a comparison of your feed with the NRC standards along with a report of what your horse may be lacking. There are no more excuses for not being able to track and implement the perfect diet for your horses needs. <http://www.equus-rx.com/>