

Lost in Hay: The Need to Replace Vitamin E and EFAs

By Claire C. Cox-Wilson RN, BA

Bridle & Bit, Oct 18, 2011.



Why do horses on pasture have a certain gloss & shine about them? Blame it on the Essential Fatty Acids (EFAs) & Vitamin E in fresh grass. Fresh grass is 3% to 5% fat, most of it in the form of omega essential fatty acids. Unfortunately, once grass is cut & baled the EFAs & Vitamin E are lost.

EFAs are fatty acids required for biological processes, not just those that act as fuel. Humans and other animals need to get their EFAs from their diet because the body cannot synthesize them. The two EFAs we are mainly concerned with are alpha linolenic acid and linoleic acid. These basic fats are used to build the specialized fats called omega-3 and omega-6 fatty acids.

Omega-3 and omega-6 fatty acids are important in the normal functioning of all tissues in the body. The benefits of omega-3 fatty acids for horses include: a shiny coat, healthy hooves, decreased inflammation in various tissues, increased immune response, maintenance of healthy membranes, increase in sperm production, etc.

The omega-6 fats are most important for maintaining healthy immune responses for resistance to skin infections, while the omega-3s guard against allergies and exaggerated inflammatory reactions.

Studies in animals and humans have shown omega-3 fatty acids reduce inflammatory processes and high concentrations of omega-6 fatty acids increase inflammatory

processes. It is interesting to note that the horse's natural source of omegas, fresh grass, has an omega-3 to omega-6 ratio of 4:1.

As mentioned before once grass is cut and baled, these fragile fats are destroyed. The only common feed ingredient that matches the 4:1 omega ratio found in fresh grass is freshly ground flaxseed or ground, stabilized flax.

As a comparison, the table below lists the omega-3 to omega-6 ratios in some common horse supplements:

Flaxseed	3.8:1
Chia seed	3:1
Rice bran	0.04:1
Hemp	0.3:1
Black sunflower seeds with hulls	0.002:1
Black sunflower seeds without hulls	0.002:1

As you can see, Chia seed also comes close to the 4:1 ratio in grass but it is quite expensive, ranging anywhere from \$5.50/lb to \$12.30/lb. Most feed stores carry or can order whole flax seed for you, an average price is \$36.50 for 50lbs, which works out to 73 cents per pound.

The disadvantage to using whole flax seed is that you need to grind the seed before you feed it. Why do you need to grind the flaxseed you ask? Horses fed whole seeds tend to pass whole seeds. An inexpensive coffee grinder works well. You can grind 2-3 days worth of flax & keep it in the refrigerator for 2-3 days.

Stabilized ground flax, although more expensive, is another option. Two of my favorite sources for stabilized ground flax are:

<http://horsetech.com/nutra-flax.htm>

and

<http://www.omegafields.com/equine-products/omega-horseshiner.html>

Fresh ground flax seed or stabilized ground flax assures your horse gets the full benefits of the nutrients in the flax.

Feeding 4 to 6 ounces by weight per day of flax will give your horse the same essential fatty acid benefits as if he were grazing on fresh grass all day.

Vitamin E

Vitamin E is actually a group of eight antioxidants. The one most prevalent in the body and usually considered the most nutritionally important is alpha-tocopherol. Vitamin E helps to protect cells from the damage caused by free radicals.

A mild deficiency of Vitamin E will diminish the effectiveness of the horse's immune system, making a horse more vulnerable to illness. Severe deficiencies are associated with muscular and neurological disorders. Horses with neurological/muscular disorders, such as Equine Protozoal Myelitis, Equine Motor Neuron Disease, Equine Recurrent Rhabdomyolysis & Equine Polysaccharide Storage Myopathy all benefit from higher doses of Vitamin E

Vitamin E is rapidly lost, once grass is cut & baled. Emulating the intake of Vitamin E of a horse on pasture, 2 IU per Kg of body weight is the minimum requirement set by the National Research Council.

Taking into consideration the high oxidative stress of any horse dealing with illness or injury, doubling that amount is reasonable. Horses in training or in heavy exercise also benefit from higher doses of Vitamin E.

A reasonable dosage for an 1100 pound horse would be 2000 IU.

However, the important thing to remember about Vitamin E is that it is a fat soluble vitamin--which means it requires fat for absorption.

Be aware of powdered or pelleted supplements that contain Vitamin E. In this form this vitamin will NOT be effectively absorbed. Putting it bluntly, you are wasting your money.

It is not enough just to add fat/oil to their feed; the oil has to literally be mixed in with the powdered Vitamin E before feeding it. So, if you happen to have powdered Vitamin E, mix the amount you need to feed with a teaspoon or so of oil (olive or coconut oil would be my preference) before adding it to your horse's feed bucket.

Uckele's Liquid E-50 is also an alternative:

<http://www.uckeleequine.com/buy/liquidept/>

Personally I prefer the human softgels with the Vit E already suspended in oil.

You can get these at your local drugstore or Walmart or order on line at:

<https://www.swansonvitamins.com/SW145/ItemDetail>

or

<http://www.puritan.com/e-vitamins-103/100-percent-natural-e-1000-iu-070923?NewPage=1>

Just drop the softgels in your horse's feed bucket. Moistening your horse's ration, will quickly dissolve the softgels.

The bottom line is if your horse does not have access to fresh grass on a daily basis you should be supplementing EFAs & Vitamin E.

References

http://horsecity.com/stories/121206/hea_omega3_PR.shtml

<http://www.balancedequine.com.au/nutrition/linseed.html>

Dr Eleanor Kellon VMD-online courses

<http://drkellon.com/>

<http://ezinearticles.com/?Should-You-Be-Feeding-Your-Horse-Vitamin-E-Supplements?&id=815994>

About the author

Claire C. Cox-Wilson is a moderator & longtime member of the on-line Equine Cushing's & IR Group and several of its sister groups. Claire, a retired RN with fifty years of experience as a horseowner & a graduate of all of Dr. Kellon's equine courses assists horseowners all over the US with equine nutrition & diet balancing.

Contact her through her website:

<http://www.shotgunranch.me/>