

Natural vitamin E is often deficient in the modern equine diet

Vitamin E is an essential component to body-wide antioxidant defenses. Vitamin E requirements vary depending on an individual horse's age, diet, health, reproductive status, and workload. Modern horses are likely to face situations where the supply of natural vitamin E in the diet falls short of meeting the demand. Indications of vitamin E deficiencies include subtle signs such as anxiety, unwillingness to work, stiffness, muscle soreness, and poor immune response, as well as acute problems such as muscle disorders, FPT in broodmares, failure to thrive in foals, and low fertility in stallions. Studies reveal that there may be a link between some neurological diseases and vitamin E deficiency in horses.

Vitamin E deficiencies due to dietary limitations

Research studies show that vitamin E is often deficient in the diets of horses that do not have access to continual grazing on fresh green grass. Deficiencies are most often noted in diets consisting exclusively of dried forages and/or winter pasture. The vitamin E content of dried forages is severely diminished, with forages often losing 75% or more of their vitamin content upon harvesting and storing. The addition of a commercial concentrate rarely corrects the deficiency because many commercial feeds contain inadequate amounts of natural vitamin E or synthetic vitamin E, which is poorly absorbed and utilized by the horse. Therefore, supplementation with vitamin E is most crucial during the winter or when horses are fed diets composed almost exclusively of preserved forages.

Convalescent horses, easy keepers, laminitic, metabolically challenged or overweight horses are often at higher risk due to diet and housing restrictions. They simply cannot spend enough time grazing to meet even minimal requirements. It is estimated that a horse must graze 17 hours per day on good pasture to consume enough natural vitamin E to meet maintenance requirements.



Vitamin E deficiencies caused by excessive demand for antioxidants

Exercise-induced oxidative stress is common in horses. Natural vitamin E is one of the most powerful antioxidants in a horse's arsenal. The demands of intense training and/or competition increase the likelihood of insufficient vitamin E levels. As athletic effort increases, free radical production flourishes and natural stores of antioxidants have difficulty providing sufficient protection against the flood of free radicals. Horses that are training hard and competing frequently are at risk for developing health problems related to exercise-induced oxidative stress. The weekend warrior, a recreational horse that is asked to work harder than usual on an infrequent basis, is also at risk and often overlooked when vitamin E supplementation is recommended.

Horses face challenges to their immune systems during periods of injury, illness, shipping (short and long haul) or relocation. Stress levels can be increased due to physical and emotional challenges. During these periods the demand for antioxidants increases, and once the supply is exhausted horses are at risk for developing health issues.

Breeding and growing horses have higher demands for vitamin E than sedentary, mature horses. Vitamin E has been linked with increased libido and semen quality in stallions. One of the most important functions of vitamin E in stallions is cell membrane protection in the spermatozoa. Chilling, freezing, and shipping semen increase the demand for sufficient vitamin E reserves to reduce the risk of cell membrane damage.

Pregnancy increases a mare's requirement for natural vitamin E, especially in the final trimester. Mares supplemented with natural vitamin E have shown increased passive transfer of antibodies to foals, which ensures the strength of the neonatal immune system. In a study conducted at the University of Connecticut, researchers found that mares supplemented with vitamin E had higher antibody concentrations in blood and colostrum than the control mares. The concentrations of antibodies in foals reflected those of their dams, with foals from supplemented mares having increased levels of antibodies.

There is also increasing evidence that vitamin E supplementation may increase fertility in mares. Due to modern

management practices, including winter breeding dates, mares may not be receiving adequate vitamin E nutrition when demand is increasing. Supplementation will increase circulating levels of vitamin E and may positively affect fertility.

There is research and clinical evidence that megadoses of vitamin E are effective in the prevention and treatment of neurological diseases such as equine degenerative myeloencephalopathy (EDM), equine motor neuron disease (EMND), and equine protozoal myeloencephalitis (EPM). Vitamin E is often prescribed for horses with EPM, to be used concomitantly with antiprotozoal medications.

Prescribing the right form of natural vitamin E is critical

Elevate® W.S. is a fast acting form of natural vitamin E. It has the ability to raise tocopherol blood level within 72 hours. Studies at UC Davis revealed that Elevate W.S. will pass through the blood-brain barrier. Elevate W.S. is recommended anytime there is a need to increase vitamin E blood levels quickly. It is the product of choice for supporting horses and foals with acute muscle dysfunction, neurological diseases, and immune challenges. Once the required tocopherol blood levels are attained, follow-up supplementation is recommended with Elevate Concentrate.

Elevate® Concentrate powder provides 5,000 IU of natural vitamin E per serving, allowing you to easily support horses with high vitamin E requirements over long periods of time. Slower acting than its liquid counterpart, Elevate Concentrate takes up to 21 days to reach maximum levels. Elevate Concentrate is recommended for everyday, long-term, preventive support and as a follow-up to Elevate W.S. supplementation.

Dosage and administration

FEEDING RECOMMENDATIONS

Type of Horse	IU per day	Elevate® W.S. mL (cc) per day	Elevate® Conc. Scoops per day
Maintenance to moderate exercise	2,500	5cc	1/2
Stalled horses or horses maintained on poor pasture	2,500	5cc	1/2
Intense competition or training	2,500-5,000	5cc-10cc	1/2 - 1
Broodmares and stallions	2,500-5,000	5cc-10cc	1/2 - 1
To support healthy muscle function	5,000	10cc	1
To support healthy nerve function	5,000-10,000	10cc-20cc	1-2



For more information on Elevate, please
email WiserConcepts@KPPusa.com or call
800-772-1988.

Developed by:

