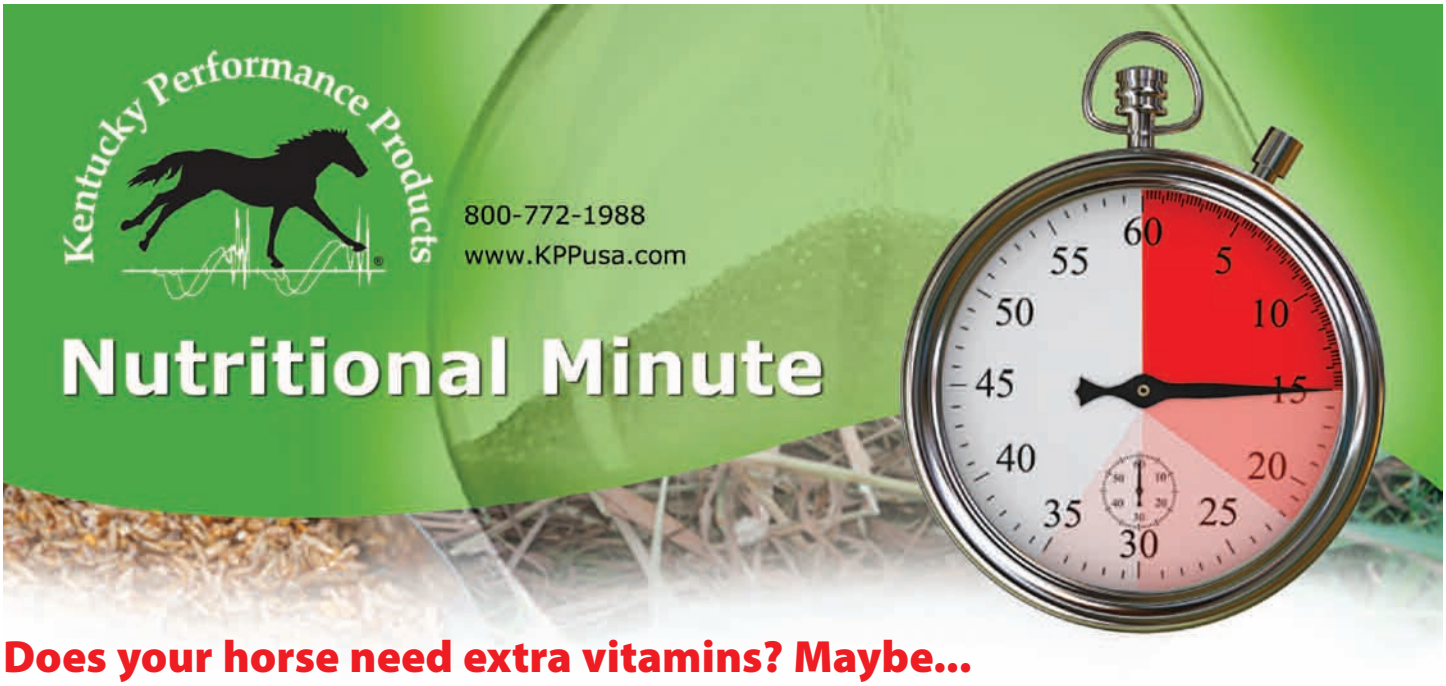

Does your horse need extra vitamins? Maybe...

Vitamins are organic compounds, which, when provided in the proper amounts, play a major role in the well-being of your horse. They are vital to the promotion and regulation of virtually all of the body's normal functions.

Vitamins are available to your horse through a variety of sources, ranging from forages, such as grass and hay, to concentrates and supplements. Some vitamins, such as vitamin K and the B vitamins, are actually manufactured by the bugs (microflora) in your horse's digestive tract.

Just a few facts

Vitamins are separated into two groups: fat-soluble and water-soluble.

The fat-soluble vitamins

- A, D, E and K are known as the fat-soluble vitamins.
- These vitamins are stored in the body, in either the liver or in fatty tissue.
- Horses require a certain amount of fat in their diets in order for these vitamins to be properly absorbed in the small intestine.
- Green grass is an excellent natural source of vitamin E. Grass also contains beta carotene, which is metabolized into vitamin A. Grass is the best source of these vitamins. The vitamins found in fresh, green forages lose their potency when the forages are processed into in hay, cubes or pellets.
- Horses, with the help of sunlight, can synthesize vitamin D.
- The good bugs in the hindgut can synthesize vitamin K.

The water-soluble vitamins

- The B-complex vitamins and vitamin C are considered water-soluble vitamins; they are not stored in the horse's body.
- The B-complex vitamins are thiamin (B1), riboflavin (B2), niacin (B3), pantothenic acid (B5), pyridoxine (B6), biotin (B7), folic acid (B9) and cobalamin (B12).
- All B-complex vitamins are available in fresh plant material, such as pasture, but as with fat-soluble vitamins, potency diminishes over time when fresh forage is stored as hay.
- The horse, with help from the good bugs in the hindgut, can synthesize B vitamins; these vitamins are also very efficiently recycled so they are generally not needed in large quantities in the diet.
- Adequate levels of vitamin B1, B2, B3, B6 and B12 can be synthesized by the good bugs (microflora) in the horse's hindgut.
- Biotin is synthesized in the hindgut as well, but there is some debate as to whether the amount is adequate enough to meet a horse's daily requirements.

• Pantothenic acid is widely available in vegetable matter; folic acid is found in green forages.
• In a healthy, unstressed horse, adequate amounts of vitamin C can be synthesized from glucose in a horse's liver.

Which horses will benefit from additional vitamins and why?

1. Horses that are training and competing vigorously
Why? Because hard-working horses require higher levels of many vitamins, especially those vitamins that serve as antioxidants (E, C, and beta carotene, a source of vitamin A). Antioxidants counter the effects of oxidative stress caused by heavy work. For many of these horses, pasture time is limited due to heavy competition schedules and other management concerns, decreasing access to natural vitamins.

2. Horses with limited access to fresh green grass and/or those eating poor-quality hay
Why? Because vitamins quickly lose potency once grass is cut and cured for hay and they tend to continue to degrade over time when stored. For example, there is a 9.5% loss of vitamin A activity in hay every month. The level of vitamin E in hay drops 70% within the first week of being cut. Horses maintained on hay or processed fiber sources are prime targets for deficiencies.

3. Horses in high-stress situations, such as frequent travel and relocation
Why? Because additional vitamins are needed to support a vigorous immune system and counter the effects of digestive tract stress that accompanies traveling. New environmental conditions, changes in diet, and off-schedule feedings often disturb the delicate balance in the hindgut and inhibit the synthesis of necessary vitamins.

4. Young, growing horses
Why? Because vitamins play an important role in the rapid bone and muscular growth seen in young horses. They also support the immune system and play an integral role in the proper energy metabolism that fuels growth. Young, growing horses may require higher levels than mature horses.

5. Last trimester pregnant or lactating mares, breeding stallions
Why? Mares in late pregnancy and lactation are literally eating for two. Nature will deplete a mare's resources to meet the needs of her fetus or foal so adequate supplementation is necessary to protect both the mare and her foal. Stallions on a demanding breeding schedule will need additional vitamins to support adequate energy and fertility levels.

6. Horses recovering from an illness, surgery or traumatic injury
Why? Because additional vitamins are needed to support healing of tissue and bones, possible digestive tract disruptions can reduce the amount of vitamins synthesized by good bugs (microbial population) in the hindgut.

7. Horses receiving long-term antibiotic therapy
Why? Because antibiotics can disrupt the population of good bugs in the hindgut, which synthesize vitamin K and the B vitamins. These vitamins may need to be replaced until the microbial population can recover.

When deciding if vitamin supplementation is right for your horse, take the time to carefully review his or her diet and lifestyle. Modern management practices often lead to the need for supplementation.

Discuss your horse's situation with your veterinarian or equine nutritionist to avoid unnecessary supplementation.

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