

## The ins and outs of sampling for vitamin E

### Quick review of the facts:

Concentrations of serum alpha-tocopherol are reflective of dietary intake.

Fasting is not necessary when collecting samples of serum alpha-tocopherol.

There is a wide variability in individual samples over a 72-hour period, with no relation to feeding time or time of day.

Deficient horses have larger fluctuations in serum alpha-tocopherol concentrations, with fluctuations between deficient and normal occurring within a 24-hour period.

Interindividual consistency in horses is maintained across multiple samples over time:

- Horses with normal alpha-tocopherol serum concentrations remain in the normal range.
- Deficient horses will consistently fluctuate between normal and deficient.

In a perfect world, multiple samples taken over a 24-hour period give a veterinarian the best picture of a horse's true vitamin E status, but in most cases this isn't practical. Therefore, it is recommended that if a sample is marginal (1.5 to 2



ug/mL), at least one additional sample should be taken at a different time and an average calculated.



### Reference range of alpha-tocopherol in serum:

Serum Concentration	Status
>2 ug/mL	Adequate
1.5 to 2 ug/mL	Marginal
<1.5 ug/mL	Deficient

### Impact of collection and handling on serum samples:

- Hemolysis results in a 33% mean decrease in serum alpha-tocopherol value. Hemolyzed samples should be discarded.
- Samples with blood left in contact with the stopper (stored horizontally) for 72 hours showed a 10% decrease in levels.
- Samples stored at room temperature for 72 hours showed a 5% decrease.
- Repeated freezing resulted in a 3% decrease.
- Light decreases the alpha tocopherol levels in a sample, so make sure to protect samples from exposure to sunlight.

### Handling recommendations:

Store upright in a refrigerator for up to 72 hours. If storing for longer than 72 hours, serum or plasma should be separated from blood.

For best results, follow protocol provided by a testing laboratory.

### When deficiencies are noted, the supplement of choice is Elevate® W.S., natural vitamin E liquid.

- [Elevate W.S.](#) is fast-acting and increases blood tocopherol levels within 72 hours.
- Research at UC Davis showed [Elevate W.S.](#) to be effective in passing through the blood-brain barrier.

### Suggested levels of supplementation:

Concentration of natural vitamin E in [Elevate W.S.](#): 500 IU/mL

Marginally deficient serum alpha-tocopherol levels (1.5 ug/ml to 2 ug/ml ):



(1.0 ug/mL to 2.0 ug/mL).

- Supplement with 2,000 IU to 5,000 IU per day.

Deficient serum alpha-tocopherol levels (< 1.5 ug/mL):

- Supplement with 5,000 IU to 10,000 IU per day.

To maintain healthy vitamin E levels once the deficiency has been corrected, horses can be switched over to [Elevate® Concentrate](#) powder. Take 3 to 4 weeks to make the transition from liquid to powder. Maintenance doses of [Elevate Concentrate](#) for a healthy horse range from 1,000 IU to 3,000 IU per day, depending on workload and access to fresh pasture grass.

[Elevate W.S.](#) and [Elevate Concentrate](#) are available through all major veterinary supply companies. Contact your rep for details.



*Sold only through veterinarians.*

Developed by:



KPPvet.com, 859-873-2974

If you have any questions, visit [KPPvet.com](http://KPPvet.com) or contact Delia Nash, Vice President of Sales. Call or text 859-361-2575 or email [dnash@KPPusa.com](mailto:dnash@KPPusa.com).

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