

QUESTION: Does an Oral Antioxidant Supplement Improve Owner-Reported Signs of Respiratory Disease?

Background

- Vitamins C and E are important antioxidants in lung fluid and lung tissue¹. Inflammation, caused by allergy (e.g. equine asthma) or infection, causes reduction in antioxidants allowing inflammation to persist^{2,3}.
- Supplementation with oral antioxidants has been shown to reduce equine airway inflammation and associated clinical signs^{4,5}.

Aim of Study

To investigate the effect of an oral antioxidant supplement (RespirAid, Science Supplements) on owner-reported signs of respiratory disease.

Study Design

- *Prospective clinical case series* = a group of horses selected for a particular reason (respiratory disease in this study) was followed over several months.

Study Outline

Horses were recruited with one or more of the following clinical signs of respiratory disease: cough, nasal discharge, increased respiratory rate, increased respiratory effort. Horses were fed an antioxidant, vitamin and trace element supplement (RespirAid, Science Supplements), at the recommended rate, for 10 days. Owners were asked to record the clinical score of several indicators of respiratory disease on a scale of 1-4 each day of the study (Table 1).

Cough		Nasal Discharge (Clear/Thin)		Nasal Discharge (Thick/Yellow)		Respiratory Rate		Respiratory Effort	
None	1	None	1	None	1	Normal	1	Normal	1
Occasional	2	Slight	2	Slight	2	Slight	2	Slight	2
Frequent	3	Moderate	3	Moderate	3	Moderate	3	Moderate	3
Constant	4	Severe	4	Severe	4	Elevated	4	Increased	4

Table 1: Scale for owner scoring of clinical signs of respiratory disease

Study Results

- Full data were obtained from 37/42 owners who agreed to participate (88% completion). There were no palatability issues.
- After 7 days of feeding RespirAid, median owner reported scores were significantly decreased from day 1 (Figure 1) for all indicators of respiratory disease.

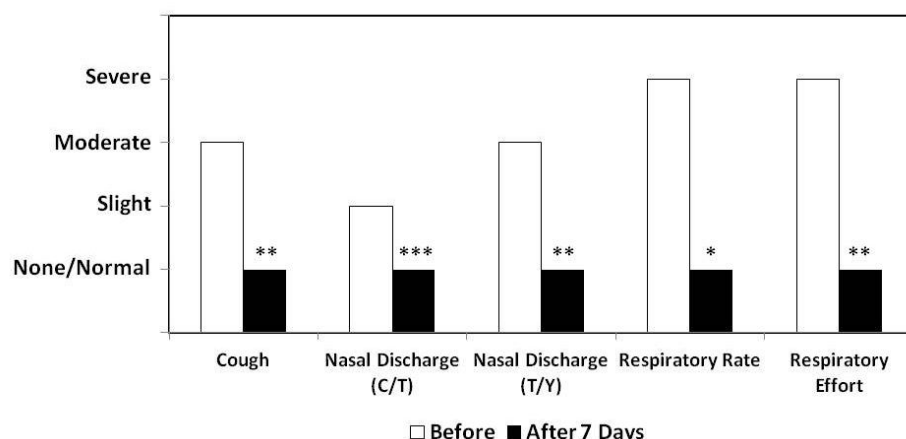


Figure 1: Respiratory clinical scores before and following 7 days of RespirAid supplementation. * P<0.05; ** P<0.001; *** P<0.0001. C/T = clear/thin; T/Y = thick/yellow.

Take Home Message

- An oral antioxidant supplement (RespirAid) significantly reduced owner-reported respiratory signs within 7 days.

References

1. Deaton et al. (2003) Pulmonary bioavailability of ascorbic acid in an ascorbate-synthesising species, the horse. *Free Radic Res* 37, 461-467
2. Deaton et al. (2004) Pulmonary epithelial lining fluid and plasma ascorbic acid concentrations in horses affected by recurrent airway obstruction. *Am J Vet Res* 65, 80-87.
3. Deaton et al. (2005) Effect of acute airway inflammation on the pulmonary antioxidant status. *Exp Lung Res* 31, 653-670.
4. Deaton et al. (2002) Antioxidant supplementation and pulmonary function at rest and exercise. *Equine Vet J Suppl*, 58-65.
5. Deaton et al. (2004) Antioxidant supplementation in horses affected by recurrent airway obstruction. *J Nutr* 134, 2065S-2067S.