



## Feeding to Lessen Inflammation

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At the Purina Equine Veterinary Conference, held Oct. 17-19 in St. Louis, Mo., Karen Davison, PhD, manager of Equine Technical Services for the Horse Business Group of Purina Mills discussed managing inflammation and oxidative stress in horses through their diets. A horse that stands idle, breathing, eating, and digesting food, is affected by tissue changes caused by normal metabolism or simply being alive; exercise amplifies oxidative tissue changes. Oxidative stress is caused by the toxic byproducts (free radicals and peroxides) of metabolism, and occurs to some degree in every tissue.

Davison reminded the audience that inflammation is valuable in that it spurs normal immune and healing responses in the horse. At times certain inflammatory mediators "switch teams" to serve beneficial functions. Therefore, research studies that measure a single biological marker of inflammation might not truly reflect treatment effects on the inflammatory process. An owner should be aware of comprehensive data related to a supplement while also being wary of anecdotal recommendations.

She noted that in many cases product marketing often precedes research. This means that information about the effectiveness of nutritional supplements provided to horse owners might not be accurate.

A nutritional product reported to combat inflammation and oxidative stress is one of the group omega fatty acids: omega-3s are touted as having anti-inflammatory properties while omega-6s have been suggested to induce inflammation. Davison noted omega-6 fatty acids are important for skin, hair, and general health. Both omega-3 and omega-6 fatty acids use the same enzymes for their metabolism, so an imbalance of one over the other could create inflammation, immune deficiencies, or bleeding problems. The ideal ratio of omega-3s and omega-6s has not yet been defined in the horse, and she noted that extrapolation from digestive physiology of other species might be inappropriate. Enriched omega-3 fatty acid diets fed to horses demonstrate decreased inflammatory markers in blood; however, the physiologic significance or benefit of these findings is as yet unclear and awaits further research.

Pastured horses consume relatively high ratios (4:1) of omega-3 to omega-6 fatty acids. If fed only hay and grain, the ratio might be 2:1 or lower, depending on the omega-3 content of the hay. A horse with no access to green pasture might benefit from omega-3 supplementation. Davison cautions against the philosophy of "if a little bit is good, then more is better," urging that oversupplementation of omega-3 fatty acids might suppress immune function and proper blood clotting mechanisms. She pointed out that various studies have produced conflicting results, thereby adding to confusion. Different sources, (plant or marine) of dietary omega-3 supplementation can produce different results, as well.

Davison emphasized, however, that supplementation of any product labeled to reduce inflammation really makes no difference if your animal is suffering from the oxidative stress caused by overfeeding. "No amount of joint supplements, omega-3s, or anti-oxidants can overcome [chronic inflammation caused by obesity](#)," she said. Laboratory rats fed 60 % of what they'd eat free choice experience less oxidative tissue stress as they age, and they also live longer.

The take-home message: Researchers at Purina Mills nutritional labs recommend that a horse's total diet should be considered before supplementing antioxidant or anti-inflammatory products--strive for nutrient balance, avoid oversupplementation, and keep your horse from becoming too fat.

See a special report on the "[Latest on the Omegas.](#)"

**Readers are cautioned to seek the advice of a qualified veterinarian before proceeding with any diagnosis, treatment, or therapy.**



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