Omega-3 Fatty Acids to Treat Arthritis

by: Kentucky Equine Research Inc.
December 21 2010 Article # 17436

Researchers have found that omega-3 fatty acids have direct anti-inflammatory actions that might be useful for the treatment of osteoarthritis and lameness in horses.

Inflammation is characterized by pain, swelling, heat, redness, and loss of use. One of the most important mediators of inflammation (the substances responsible for initiating and regulating the inflammatory process) is prostaglandin, which is produced from fatty acids in cell membranes. The usual mediators of inflammation are produced from omega-6 fatty acids. Dietary supplementation of omega-3 fatty acids can offset the inflammatory response in several ways.

Increased concentrations of omega-3 fatty acids compete with omega-6 fatty acids to produce prostaglandins. The end products produced from omega-3 fatty acids have less inflammatory effects than those usually produced from omega-6 fatty acids. Omega-3 fatty acids must be supplemented for at least a 28-day loading period before they will have an effect on the inflammatory cycle.

A recent study involving 109 dogs with radiographically-confirmed osteoarthritis of the hip or stifle was conducted to investigate the effects of omega-3 fatty acid supplementation for 12 weeks on the dose of carprofen required to control the dogs' pain levels. Carprofen is a non-steroidal anti-inflammatory drug (NSAID) often prescribed by veterinarians as supportive treatment for relief of arthritic signs in dogs. Study results indicated that the required dose of carprofen to improve lameness decreased significantly and saw faster results in dogs supplemented with omega-3 fatty acids.

Another group of researchers conducted a study recently of 16 horses with confirmed arthritis of the knee, fetlock, stifle, or hock to investigate the effects of omega-3 fatty acid supplementation for 90 days. Arthritis was confirmed using radiography and force-plate analysis, which detects weight-bearing differences on each hoof. Omega-3 fatty acid supplementation significantly decreased plasma concentrations of prostaglandin and joint fluid white blood cell counts, indicating there was less inflammation present in the joints. Force-plate analysis revealed a trend for horses to bear more weight on their lame limb, but this was not statistically significant.

Osteoarthritis is a common and potentially career-ending ailment of horses. Treatment of osteoarthritis involves rest and anti-inflammatory drugs such as phenylbutazone (Bute), corticosteroids, hyaluronic acid, or polysulfated glycosaminoglycans.

Further research is needed to determine how omega-3 fatty acid supplements can benefit lame horses or to reduce the dose of non-steroidal anti-inflammatory drugs given to control lameness.

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