New England Equine Medical & Surgical Center
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Why all the talk about Omega Fatty Acids in horses diet? Unsure of how to supplement your horses diet appropriately? Read on for some insight into why horses are being supplemented to help you make the best educational choice for your individual horse!

**What are Omega Fatty Acids?**
Omega fatty acids are not produced directly by the horse's body, which means they are considered "essential fatty acids". This fact creates the need for a balanced diet to obtain the appropriate ratio. Without getting too scientific and to describe a complex pathway in the simplest of forms, Omega -6's are originally from Linoleic acid (LA) while Omega-3's stem from alpha-linoleic acid (ALA). This fact is important because horse's require a balanced ratio of Omega 6 (LA) and Omega-3 (ALA) fatty acids in their diet to maintain the proper amount of inflammatory modulators. Once ingested, ALA's (Omega 3's) can convert to eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), which are intermediates in the formation of eicosanoids. Eicosanoids are important because they have potential to reduce inflammatory responses, support immune function, and enhance fertility. The proper ratio of ALA (Omega 3) to LA (Omega 6) at this time is not yet perfected and further research is being performed to determine the appropriate ration.

**What are the sources of Omega 3 & 6?**
Omega 3's (ALA) are found predominantly in leafy plants, which obviously are the more traditional components of equine diets. Linseed oil (flaxseed), fish oil and canola oil are also a rich source of omega-3 fatty acids. EPA and DHA are a great source of omega 3's, however they are derived from fish, which we all realize is not the normal equine diet, therefore creating the drive for supplementing Omega 3's in the equine diet using plant material and or fish oil.
Omega-6 fatty acids originate from the oil of cereal grain and seeds. Examples of feedstuff containing higher omega 6's are corn oil, safflower oil, rice bran and sunflower oil. Studies have shown that horses are able to absorb fatty acids when they are supplemented in the diet regularly. High performance horses and horses that are hard keepers tend to need more grain/concentrate rations (higher in Omega 6) then forage sources (naturally higher in omega 3). This is important because horses need both sources of Omegas, however a diet with a higher Omega-3 to Omega 6 ratio appears to be more desirable.

**Why are Omega Fatty Acids important for the equine diet?**
Once ingested, fatty acids are metabolized (broken down) by the body to produce prostaglandins (inflammatory mediators). Prostaglandins are hormones that participate in strong physiologic effects throughout the body. They play a large roll

in promoting and inhibiting parts of the inflammatory cascade. Knowing this fact, researchers have evaluated horses that were supplemented with Omega 3/6 to determine if there is a change in the level of inflammation, which eventually leads to osteoarthritis. Research and supplementing has shown that Omega Fatty acids have appeared to improved coat and skin health, hoof quality, boosting immune systems, helps aid in reproduction, helping hard keepers maintain their weight along with protecting horses with EIPH (exercise induced pulmonary hemorrhage), lowering overall heart rates and protecting RBC (red blood cell) membrane fragility. A study performed by Kentucky Equine Research showed that 60 ml/day of fish oil supplementation increases serum and RBC EPA and DHA in horses. (Pagan, Lawrence, Lennox). (Remember that EPA and DHA, which are a source of Omega-3's help aid as anti-inflammatory modulators).

**What's the future of Omega Fatty Acids?**
Researchers are continuing to determine what the best ratio is for Omega 6 to Omega 3 supplementation for horses are. They are also continuing to do research on the best form of supplementation.

**What are some drawbacks to supplementing Omega Fatty Acids?**
Horses that are easy keepers may not do well on a fat supplement mostly due to obesity. Horse's that are overweight should be on a high forage diet with minimal concentrates (grain), which will help increase their Omega 3 amounts!