



Where do Omega 6 & Omega 3's Come from and What are the "Pros and Cons" of Adding Them into Horse Diets Today

Several studies have been presented, since 1986, showing beneficial affects of improved stamina and endurance in performance horses by adding fat into their diets. But the most recent "buzz" and research focus, has been on the addition of specific "Oils". From a calorie stand-point, vegetable oils are created equal. They provide approximately 2 1/2 times as many calories as the equivalent amount of cereal grain. However, oils contain different amounts of "essential fatty acids", so they are **not** created equal from a "nutritional point of view". When oil is digested free fatty acids are incorporated into cell membranes. Some fatty acids, however, cannot be synthesized by the horse or in sufficient quantities to meet their nutritional needs. These are called "essential" fatty acids and must be added into the horses' diets on a daily basis. Two of these essential fatty acids are called Omega 6 and Omega 3.

Horses evolved as continuous grazers of forage, consuming large quantities of "fresh" grass pasture every day. Results of a two-year study conducted by Lori K. Warren, PhD, assistant professor of equine nutrition, University of Florida, stated, "Oil's in fresh grass will depend on its maturity, will be in-between 3% to 5%, and their oil will contain 40% to 55% Omega-3's". Today, horse owners have replaced much of the fresh pasture diet with dry hay. Dr. Warren continued with, "The oil content in hay will depend on its maturity also, is in-between 1% and 3%, and will contain 18% to 35% Omega-3's. While cereal grains contain oils in-between 3% to 4%, and 50% of this oil is Omega-6 and contains very little Omega-3". "There has been considerable work in other animal species and in humans to show that Omega-3 supplementation affects the ratio of Omega 6:3 in blood and in tissues, with alterations in the fatty acid composition of plasma (cell) membranes," says Ray Geor, BVSc, MVSc, PhD, professor at Virginia Polytechnic and State University. Oil's containing higher levels of Omega-3 are found in the natural diet of horses (forage) and can be digested easily with positive affects in the horses system. The Omega 6:3's must be kept in balance when additional oils are added into their diet.

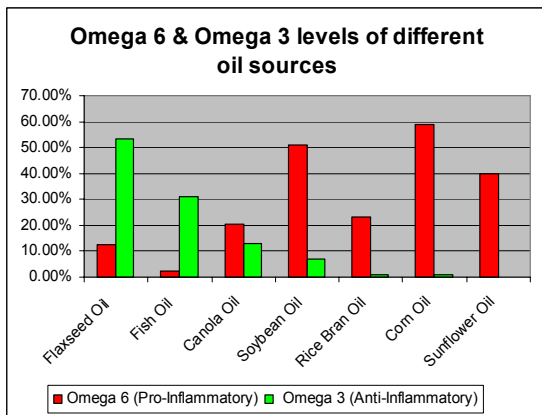
Cereal grains (Oat, Barley, Corn, Wheat, Rice, etc.), as well as the oils from Sunflower, Corn, Rice Bran and Cottonseed, all contain high percentages of Omega 6 in relationship to their Omega 3 levels. All Omega 6 fatty acids are **pro-inflammatory** which help maintain the animal's immune system and is beneficial during infection and sickness.

However, if too many Omega 6 fatty acids are fed, an imbalance can occur, leading to an altered physiological state and potentially harmful inflammation. On the other hand, the Omega 3 fatty acids are potent, **anti-inflammatory** agents that help reduce pain and swelling and help return the horses system to normal function.

As with all nutrients, balance is the key. Table 1, below, shows the percent and ratios of Omega 6 and Omega 3's contained in the different oil seeds and fish oil available today. Table 2, shows which oils are best for the horse, in descending order of their **Total Omega 3's**, from top to bottom. **The top four oil sources** are the best to increase the Omega 3's and **the bottom three sources** are the ones we recommend **not** adding into your horses diet, because they could provide too many Omega 6's, without adequate Omega 3's. Fortunately, we are now beginning to recognize the detrimental affects that these imbalances can cause in the horse and stay away from these "unbalanced" sources of oil.

Table 1: The Percentage of Omega 6's and Omega 3's in the Different Oil Seeds and Fish Oil Today

Table 2: The Percentage of: a) Oil, b) Omega 3's in the oil, and c) the 6:3 Ratio's found in These Oil Sources Today



Oil Sources	a) Percent Oil in Seed	b) Percent Omega 3's in the Oil* (C18:3, C20's)	c) Omega 6:3 Ratio's (rounded to nearest whole number)
Flaxseed	36.0%	53.3%	1:4
Menhaden Oil	100% fish oil	31.0%**	1:15
Canola	28.0%	12.9%**	2:1
Soybean	18.0%	7.0%**	7:1
Rice Bran	20.0%	0.8%	29:1
Corn	3.6%	0.7%	84:1
Sunflower	19.0%	0.2%	199:1

* Fatty Acid composition as listed in NRC's.

** Refers to the ingredients TOTAL Omega 3's that contain C20's (EPA & DHA).

Other oils listed do not contain EPA or DHA.

Therefore, adding oils into the horses' diet, that contains higher levels of Omega 3, have proven to be beneficial to all horses that are not eating fresh grass pasture at least 18 hours/day. **Short-term benefits** include: improved skin & hair coat, fewer skin allergies and anti-inflammation characteristics. **Long-term benefits** include: improved hoof quality, increased bone density, improved joint health, reduced muscle soreness, mares' milk containing higher Omega 3 levels resulting in healthier foals by improving their immunity and resistance to infection, improved stallion fertility by helping maintain cell viability and thereby improving conception rates, and increased tissue elasticity reducing the incidence of EIPH (bleeders) in performance horses, to name just a few.

Since 2003, Progressive Nutrition has been balancing the "essential" Omega 6:3 fatty acids into all our feed formulas and our clients horses have been reaping the benefits ever since. (11/06)