

Benefits of Omega Oils

The main reason for adding oils to a concentrate is to increase the energy density of the horse's diet without increasing the grain and starch inclusion of the diet. Increased energy density is required for hard work or intensive training. Too much starch in the diet increases the risk of digestive disorders. Because oils provide about 2 ½ to 3 times more digestible energy than an equal weight of cereal grain, a high energy diet for peak performance can be obtained by using oils without sacrificing any fibrous material critical for digestive health and the prevention of digestive disturbances.

Other benefits of incorporating fats or oils in the diet may include:

- Lower lactic acid accumulation in muscles and blood by sparing glycogen use
- Reduced severity of tying-up
- Reduced muscle damage
- Calmer behaviour in horses on typically high grain diets

Added oils are well utilized by the horse and studies show that fats and oils added to the horse's diet are 76 - 94% digestible. Even without increasing the total energy of the diet, having oils or fat in the ration has been shown to increase the amount of dietary energy available for growth, lactation and physical activity (Kane et al., 1979; McCann et al., 1987; Scott et al., 1993). Adding oils to the diet decreases total body heat production, leaving more energy available for maintenance and productive use (Scott et al., 1993). Dietary fat is thus utilized by the horse for energy more efficiently than other sources of dietary energy.

Essential Oils (Fatty Acids)

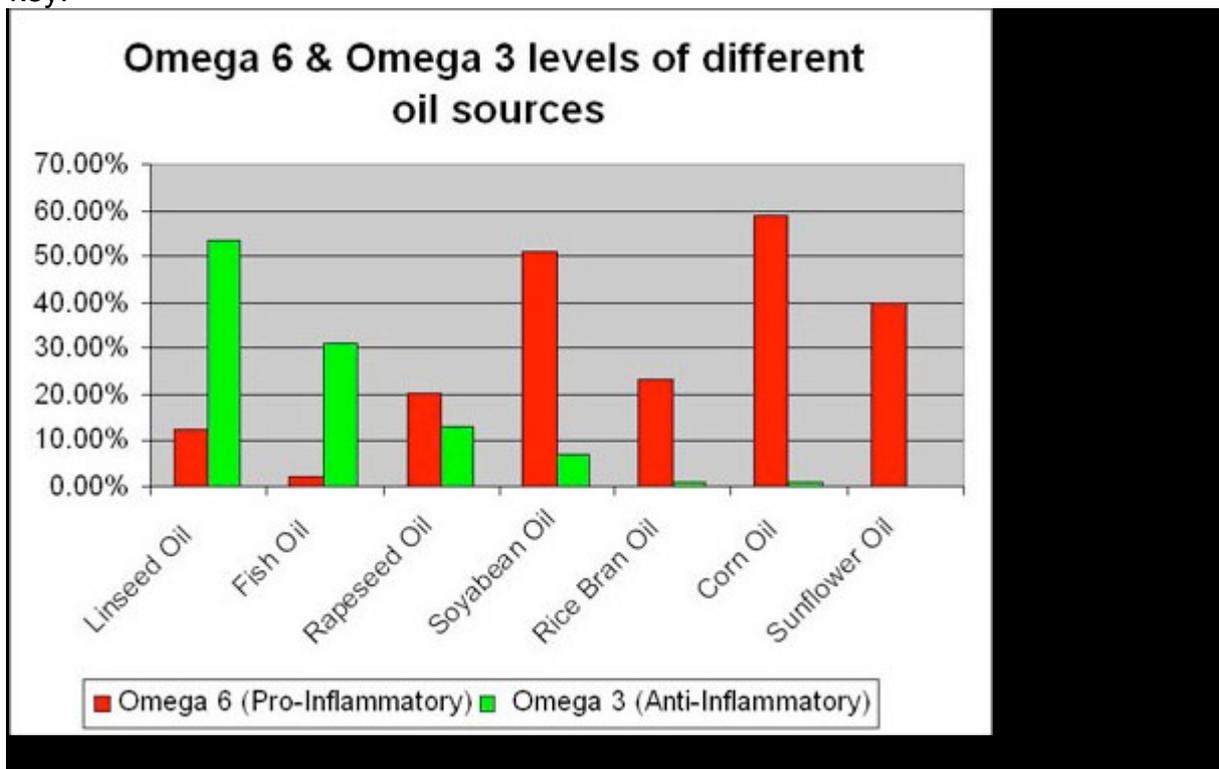
With regards to calories, all vegetable oils are created equal as they provide approximately 2½ to 3 times as many as the equivalent amount of cereal grain. However, different oils contain different amounts of "essential fatty acids" so they are not created equal from a nutritional point of view and the most recent research focus has been on the use of different kinds of oils. When oil is digested, free fatty acids are incorporated into cell membranes, but some fatty acids cannot be synthesized by the horse and so are called "essential" fatty acids. These must be available in the diet on a daily basis. Two of these essential fatty acids are Omega 6 and Omega 3 which have the greatest biological activity in the body.

Maintaining the Balance

Oils containing higher levels of Omega 3 are found in the natural diet of horses (forage) and can be digested easily with positive effects on the horse's system. Omega 6 should not be excluded from the diet as it is essential to support some inflammation required to fight infection and heal tissues as well as being involved in hormone production, brain function and regulating blood pressure. Research has shown that the correct ratio of Omega 3 to Omega 6 fatty acids is vital for the oils to work beneficially and therefore it is important that the correct combination is supplied in order to achieve the best results.

Cereal grains such as oats, barley, maize, wheat, rice etc., as well as the oils from sunflower, maize, 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 helps maintain the horse'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, Omega 3 fatty acids are potent, anti-inflammatory agents that help reduce pain and swelling and assist in returning the horse's system to normal function. So, as with all nutrients, balance is the key.



The table (above) shows the percentage and ratios of Omega - 6 and Omega - 3s contained in some of the different oil seeds and fish oil available. Omega- 6 is normally in abundance compared to Omega-3. Only certain oils containing relatively more Omega-3 is available to rectify the Omega 3 to 6 ratio balance of the total diet.

Oil as Fuel for Performance

High-fat diets have been shown to enhance both aerobic activity (endurance activity) and anaerobic activity (sprint-type activity) and help to delay fatigue. Horses fed a high-fat diet appear to have greater muscle glycogen utilization and no change in their blood glucose concentration during anaerobic activity (sprinting), whereas during aerobic activity (endurance) there was comparatively a smaller reduction in blood glucose concentration. Glycogen sparing within the muscles also occurred further aiding in the delay of fatigue. (Oldham et al., 1990).

Research suggests that by providing oil in the diet, which the horse can utilise when walking, trotting and even cantering (up to a heart rate of around 150 beats per minute), the stores of glycogen are spared so that when the horse starts to gallop he has a full tank of fuel to use for high intensity work resulting, in effect, in improved stamina. It also seems that, because the horse is starting with a full tank, he doesn't deplete energy stores completely, so recovers from an intense work period more quickly and can therefore perform more frequently.

Importance of Anti Oxidants

To ensure that the oil is used as efficiently as possible by the horse, a range of supporting nutrients are required when oils are added to the diet. These include, in particular, antioxidants such as the vitamins C and E and minerals like selenium and zinc. During aerobic respiration which breaks down oil, free radicals are produced which, if not countered with antioxidants, can damage cell membranes including those of the muscles. Whilst the body produces its own internal antioxidants these may be insufficient to deal with the additional free radicals produced by an increased inclusion of oil in the diet. All Equus concentrates ensure that this is taken care of by using high levels of these anti oxidants as required.

Claimed Health Benefits of Omega 3's

The Omega-3 fatty acids, alpha-linolenic acid (ALA), eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA), have now been linked to a wide-range of health benefits. Research has indicated that increased levels of EPA & DHA supplied in Omega-3 oils may help to maintain pain-free, supple and mobile joints in horses and ponies. Claimed benefits of Omega-3 oils include that they:

- Help horse's joints and connective tissues heal and recover from the stress of exercise and thus aid recovery after training and competition.
- Promote a healthy, shiny, glossy coat
- Promote stronger and faster growing feet useful for horses and ponies prone to laminitis and those with slow growing feet or those difficult to keep shod.
- Boost the immune system.
- Are good for the respiratory system.
- Can help calm the temperament of excitable horses.
- Keep horse's joints supple.
- Correct development of nervous system, brain muscles and skeleton.
- Maintain and repair cellular walls.
- Have anti-inflammatory properties.
- Aid in wound healing.
- Support a healthy heart and blood circulation.
- Have anti-allergic properties.
- Support a strong metabolism.

Equus and Omega 3's

High Omega-3 containing oils with all their claimed benefits are used in both Equus

Cool 'n Perform and Equus Safe 'n Lite.

Equus uses a blend of oils highly desirable for their favorable Omega-3 to 6 ratio, palatability and stability in mixtures.

In Cool 'n Perform the combined effects of Omega-3's and high levels of Vitamin B1 are used to assist in maintaining calmness.

In the Safe 'n Lite ration, the oils are used for all the beneficial properties, but also specifically to supply a reasonable energy density in a diet designed to be very low in NSC (non structural carbohydrates) to assist horses prone to laminitis and all related disorders.

It is important to note that complete metabolic adaptation to a high-fat diet has been shown to be achieved in 11 weeks, but not in 6 weeks (Custalow et al., 1993). Therefore keep in mind that it will take a while before you will notice all the positive benefits of using high Omega-3 containing oils.