



## USING OILS IN EQUINE DIETS

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Many horse owners frequently reach for some oil to add to their horses' diet but with shelf upon shelf of different oils, which is the best choice and why should it be used?

There are multiple reasons for using oil but generally oils are fed to increase the energy in a horse's diet to aid with weight gain or to provide added energy without fizz, or simply to help with coat condition.

Another added benefit of using Oils is that they supply extra energy without increasing the NSC – Non Structural Carbohydrate (which includes sugars and starch, examples would include molasses and cereal grains) – portion of the diet. Too much NSC in the diet increases the risk of digestive disorders and may be unsuitable for horses with veterinary issues or those that become hot. Because oils provide on average 2 ½ times more digestible energy than an equal weight of cereal grain, a high energy diet can therefore be obtained by using oils without significantly changing the amount fed. This can help to keep meal sizes smaller aiding with digestive health and the prevention of digestive disturbances.

#### Benefits of including oil:

Horses utilise added oils well and studies show that oils added to the horse's diet are around 76 – 94% digestible. Even without changing 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 also helps to decrease total body heat production (beneficial for those working in hot climates), leaving more energy available for maintenance and production (Scott et al., 1993).

High-fat diets have been shown to enhance both aerobic activity (endurance activity) and anaerobic activity (sprint-type activity) and help to delay fatigue.

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

# TESTIMONIAL

Dear Equus

I bought my 4year old mare Saratoga Desdemona in October 2018, she was just backed. I contacted Helen to advise me on how to feed her as I want her to be level headed and be in a good condition while growing.

We decided on **Equus Cool and Perform 12%** and a small amount of **Equus All Time Balancer** with added Speedibeet and ad lib good quality hay.

Well she is looking fantastic! She has enough energy and is growing well.

I am very happy with Equus, and find for the results I am getting it is an affordable price. What more can a horse owner ask for.

**Best regards**

**Connie Lourens & Saratoga Desdemona.**



*For an absolutely free consultation with no further obligation contact our professional consultants to schedule a visit to your yard.*

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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.

Oils are generally suitable for any horse however those with veterinary conditions such as Laminitis, Cushings, Insulin Resistance, Tying up, Gastric Ulcers and even frequent colics, can benefit hugely from using oils within the diet. This is due to the fact that oils provide energy "safely" which allows for a reduction in ingredients such as cereal grains and sugars, both of which can have harmful effects on horses with these conditions.

### **So which oil is best?**

In terms of supplying energy, there is no real difference in the number of calories/energy different oils provide and therefore you could choose whichever is preferable. However, there are large variations in the amount of omega-3 and omega-6 essential fatty acids that exist within oils used for horses.

These essential fatty acids (EFA) are needed for various metabolic processes. The horse's body does not produce EFAs, and thus these must be provided in the diet. Omega 6 and Omega 3 have the greatest biological activity in the body, which is why more focus is placed on these two.

Fatty acids are of particular interest to researchers because of their effect on inflammation and immunity. Increased levels of fatty acids supplied from omega 3 may help to maintain pain-free, supple and mobile joints in horses and ponies.

### **Benefits claimed of Omega-3 oils also include:**

- Helping horses' joints and connective tissues heal and recover from the stress of exercise and thus aid recovery after training and competition.
- Promoting a healthy, shiny, glossy coat
- Promoting 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.
- Boosting the immune system.
- Being good for the respiratory system.

- Helping to calm the temperament of excitable horses. .
- Ensuring correct development of the nervous system, brain muscles and skeleton.
- Maintaining and reparation of cellular walls.
- Anti-inflammatory properties.
- Aiding wound healing.
- Supporting a healthy heart and blood circulation.
- Anti-allergic properties.
- Supporting a strong metabolism.

Studies have shown that higher levels of Omega 6 can cause some horses to be more unmanageable, increase anxiety, increase cribbing, contribute to some joint health problems and fertility concerns (weak or insufficient sperm, a reliance on hormones for mares) among others.

Despite this, Omega 6 should not be avoided as it is essential in supporting some inflammation required to fight infection and heal tissues as well as being involved in hormone production, brain function and regulating blood pressure.

Oils containing higher levels of Omega 3 are found in the natural diet of horses (forage) and can be digested easily. Omega 6 oils, however, are generally found in larger amounts in cereal grains. Horses fed large grain meals, thus, may have more Omega 6 oils in their diet than Omega 3 oils while horses fed no grains may have more Omega 3 than Omega 6 oils so, as with all nutrients, balance is the key.

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. Currently, no exact ratio has not been established in horses, but given that Omega 3 oils are more prevalent in the horse's 'natural diet', it stands to reason that Omega 6 oils should be provided at least 1:1 or some suggest rather 1:2 (Omega 6, 1 : 2 Omega 3).

With this in mind the figures below indicate the type of oils that are recommended for providing more Omega 3 than 6.



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The percentage of: a) Oil, b) Omega 3s in the oil, and c) the 6:3 ratio found in these oil sources today

OIL SOURCES	% OF OIL IN THE SEED	% OF OMEGA 3s IN THE OIL* (C18:3, C20:5)	OMEGA 3:6 RATIOS <sup>1</sup>
<b>Recommended</b>			
Linseed (Flaxseed oil)	36%	53.3%	4:1
Menhaden (fish oil)	100%	31%**	15:1
Rapeseed (Canola oil)	28%	12.9%	1:2
<b>Carefully fed</b>			
Soyabean	18%	7%	7:1
<b>NOT Recommended</b>			
Rice bran	20%	0.8%	29:1
Maize (Corn oil)	3.6%	0.7%	84:1
Sunflower	19%	0.2%	199:1

<sup>1</sup> Rounded to nearest whole number  
 \* Fatty Acid composition as listed in the NRC's Nutrient Requirements of Horses  
 \*\* Refers to the ingredient's TOTAL Omega 3s that contain C20s (EPA & DHA)  
 Other oils listed do not contain EPA or DHA

(Tables from <http://www.baileyshorsefeeds.co.uk/feedingexplained/browsearticles:376.htm>)

One oil that has gained popularity especially within human nutrition, is Coconut oil. Unlike the majority of the oils recommended Coconut oil is a saturated fat rather than a polyunsaturated and at this time there are no studies indicating the effect of saturated fats on horses on a long term basis. It is palatable to horses and can therefore be used. Some studies have shown that one benefit to using coconut oil in the daily diet is that the medium chain fatty acids contained in coconut oil work synergistically with the essential fatty acids, improving the way the body uses these fats. However this isn't proven in equine diets. The one downside to using Coconut oil is that the Omega profiles are not ideal, with Coconut oil having just 2% Omega 6 and almost no Omega 3. It therefore is not used often in horses.

### How do I keep the correct balance of Omegas?

One of the best means is to increase forage and decrease concentrates as much as possible while maintaining a healthy weight.

For the concentrate, select a quality, complete feed that promises an improved Omega balance. It may still be weighted toward a higher Omega-6 profile, but ensuring the product still includes Omega 3 is always beneficial.

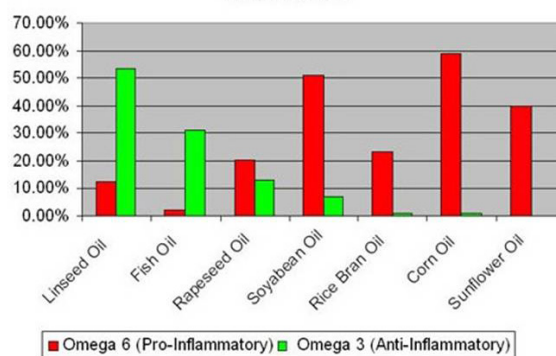
Choose concentrates that contain antioxidants such as vitamins C and E and minerals like selenium and zinc. During aerobic respiration which breaks down oil, free radicals are produced which, if not countered with antioxidants, can damage cell membranes including those of the muscles. Whilst the body 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. Studies have shown that horses receiving oil will need additional Vitamin E at a rate of 1IU per ml (so if you feed 300ml of oil your horse will need 300IU of vitamin E extra) and thus you may need to look at your dietary levels to ensure enough is provided or look at including an additional Vitamin E supplement (Marlin, 2017) This calculation can be a little complex and thus its worthwhile contacting a nutritional consultant to help you with this before commencing.

### How much should I feed?

The amount required depends largely on the reason for which it is being fed. Adding coat shine generally requires only a small amount such as 80-120ml per day.

However, if extra energy is required, 150 – 400ml may be needed. Up to 100ml per 100kg of body weight of oil per day can be fed but this depends largely on the horse and how well he adapts to oil supplementation. The average horse will not need this maximum

Omega 6 & Omega 3 levels of different oil sources



level.

When selecting oils do note that palatability may play a role. If you are simply using for coat shine any of the recommend oils could be used at these smaller amounts however if you are using for energy you may want to select something with a more neutral palatability. For example some horses may not be happy to eat 250ml of fish oil and thus Linseed maybe better.

### How do I introduce oils?

As with all new feed additions, horses should be slowly introduced to the added oil. Start with a small amount of about 20-60ml increasing this amount by 20-40ml each week until the desired level is found. This may seem slow but this allows for the horse's digestive system to adapt to the fat which will reduce the likelihood of soft manure, a typical, though usually transient, effect of using oil. 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). Keep in mind, therefore that it will take 6-12 weeks before all the positive benefits of using high Omega-3 containing oils become apparent.

Compiled by Hannah Botha

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### Resources used:

<http://www.baileyshorsefeeds.co.uk/feedingexplained/browsearticles:376.htm>, <http://www.equinews.com/article/omega-3-and-6-fatty-acids-horses-there-ideal-ratio>  
[www.davidmarlin.co.uk/portfolio/oil-fired-up-the-value-of-feeding-oil-to-horses-and-how-to-choose-which-oil-is-best/](http://www.davidmarlin.co.uk/portfolio/oil-fired-up-the-value-of-feeding-oil-to-horses-and-how-to-choose-which-oil-is-best/)



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