

The benefits of feeding oil to horses

by David Marlin | Posted on December 2017

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In simple terms, oils and fats are compounds high in energy that do not dissolve in water. Oils and fats are the same, except oils describe fats that are liquid at room temperature whilst fats are solid at room temperature. The horse's normal diet does not naturally contain high amounts of oil or fat. For example, most forage's only contain 2-3% of their dry weight as fat and most grains or cereals contain 2-5% fat. Despite this, it's possible to feed horses relatively high amounts of fat (3-4 times their normal intake in common feeds) – although not as high as humans who can consume diets which may be over 75% fat!

How oils can be fed to horses

There are two ways that oils can be fed to horses. The first is as a straight oil such as linseed oil. This is often useful where the diet is already balanced with respect to protein and no further protein is needed or desirable – although this is rarely an issue in horses. Despite what you may read about the horrors of protein, horses cope well with a slight to moderate excess. This is because what may be adequate for one horse can be deficient for another, as there is a large variation between horses in their ability to utilise nutrients in the diet. The oil primarily provides energy without protein, fibre, vitamins or minerals.

The second way is to provide a feed material high in oil, such as linseed meal which is around 40% oil. So as an example, if you were feeding 100ml of linseed oil, that would be equivalent in oil content to feeding 250g of linseed meal.

Another important fact about oils is that they all provide the same amount of energy – around 900 calories per 100g.

Advantages of feeding oil to horses

There are significant advantages to feeding straight oil or high oil grains/cereals/seeds to horses. Oil is a safer source of energy than cereals which are higher in starch, and is less likely to cause hindgut disturbance.

Horses that are in hard work, or who have poor appetite, compromised digestion or who are poor doers, may also struggle to consume or get the benefit from large cereal-based feeds – but they can be managed adequately on a high oil diet. This is because the digestibility of oils is higher than that of cereals; in simple terms the horse's digestive system can extract the energy from oils more easily than it can from cereals.

Oil is also beneficial for horses prone to laminitis, tying-up, colic, Sweet-Itch and other skin conditions. There is also a significant amount of scientific work showing that particular types of oil are beneficial for joint problems. However, it's not quite as simple as going to the supermarket and buying a large bottle of the cheapest cooking oil. Not all oils offer the same health advantages, and even with the right type of oil you need to be providing the right amount of vitamin E (at a minimum of 1 IU vitamin E per ml of oil).

Triglycerides and omega 3, 6, and 9

Oils such as linseed, sunflower, corn and soya contain a lot of different fatty, acid-rich substances called triglycerides. Triglycerides themselves are made up of different types of fatty acids, including the omega-6 or omega-3s. These are often referred to as poly-unsaturated fatty acids (PUFAs).

Omega-3 and omega-6 cannot be made by the horse and must be obtained from the diet (so known as essential fatty acids). Modern horse diets are generally high in omega-6 fatty acids, which are mostly derived from cereal grains and pulses, or from corn, soya and rapeseed (vegetable) oils. In contrast, the diet is often relatively low in omega-3 fatty acids. Most oils also contain omega-9 which are not essential fatty acids as they can be made in the body from unsaturated fats. However, if omega 3 and 6 intake is low then the omega-9 must come from the diet.

In people, omega-9 has been shown to increase the amount of HDL (good) cholesterol compared with the bad (LDL) cholesterol and may help reduce the risk of cardiovascular disease. However, we know very little about the horse's requirements for omega-9.

There are two very important omega-3 fatty acids – eicosapentaenoic acid, often abbreviated to EPA, and docosahexaenoic or DHA. EPA and DHA are the building blocks for hormones that control immune function, blood clotting, and cell growth as well as components of cell membranes. They can also influence skin and coat condition. In people, our diet has tended to increase in omega-6s and decrease in omega 3s. This dietary imbalance has been one factor linked to the rise of such diseases as asthma, coronary heart disease, many forms of cancer, autoimmunity and neurodegenerative diseases – all of which are believed to stem from inflammation in the body. The imbalance between omega-3 and omega-6 fatty acids has also been proposed to contribute to obesity, depression, dyslexia, hyperactivity and even a tendency toward violence. For these reasons, a diet high in omega-3 and low in omega-6s is seen as highly beneficial.

Benefits of fatty acids

The potential beneficial effects of omega-3 fatty acids arise through their ability to alter the omega-3: omega-6 ratio in the blood and body tissues – in particular the cell membranes. This in turn modifies the response of many different cells to various inflammatory stimuli, such as injury, allergens and infectious agents (bacteria, viruses and fungi).

Omega-3 fatty acids offer therapeutic potential in certain chronic inflammatory skin conditions, as they can reduce the production of certain prostaglandins; substances that promote inflammation. Of the common sources of oil fed to horses today, linseed is the highest in omega 3 and lowest in omega 6, therefore having the greatest anti-inflammatory potential.

Within joints, damage to the cartilage leads to inflammation which further damages the cartilage, leading to an ongoing cycle. In humans, the inflammation is usually controlled with drugs known as NSAIDs (non-steroidal anti-inflammatory drugs; For example, ibuprofen). In horses the equivalent would be 'bute' (phenylbutazone).

In human medicine there has been an increasing amount of work showing that consumption of omega-3 fatty acids over several months by patients with arthritis and osteoarthritis can reduce the need for anti-inflammatory drugs [1]. There is also a study which showed that omega-3 fatty acids can reduce inflammation in cells from horse joints [2].

Which oil source should I be using for my horse?

Straight oil or high oil feed material? For some, the option to add a small amount of oil to a horse already receiving a lot of feed (such as racehorses in full work) or to aid skin condition is ideal. However, using a high oil material such as micronised linseed either top dressed or as the base for a diet also has advantages. I frequently use micronised linseed as a base diet for horses with EGUS as oil causes less inflammation in the stomach than starch based feeds. It's also my number one choice for horses with a history of tying-up and horses that are prone to colic. These horses show a dramatic improvement and reduced incidence of reoccurrence. Micronised linseed is also extremely palatable and easily digestible as it is already finely ground and is ideal for older horses and poor doers.

As you can see from the figure below, not all oils are equal. Oils such as soyabean, oat, rice bran and sunflower are all very low in omega 3, high in omega 6 and relatively high in saturated fats. It is also clear that linseed has the best oil profile of any of the oils commonly fed to horses. The suitability of an oil doesn't matter whether it is fed as a pure oil or as a whole feed – such as linseed meal, soyabean meal.

In summary, if your horse struggles with condition, is prone to skin conditions including Sweet-Itch, prone to tying-up, EGUS, laminitis, colic or joint problems, then introducing a pure oil or oil-based feed to the diet whilst cutting back cereals is highly beneficial. As with any diet change in horses, remember to gradually introduce the oil-based feed over a period of one to two weeks, whilst at the same time slowly reducing the amount of cereal or other energy sources being fed.

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