



# The truth about Oils

## By The Nude Horse (Equine Epidemiologist)

Along with 'sugars', the debate on what oils are actually bad and what are good is possibly the most contentious topic in the nutritional industry this century.

### Saturated fats:

egg yolks, whole milk, cream, butter, coconut oil, lard and fatty meats, cheese

### Polyunsaturated fats:

**Traditional – extracted easily:** fish oils, flaxseed, peanut oil, sesame, pressed hemp oil, peanut oil

**Industrial – extracted via high heat & chemical additives:** rice bran oil, canola oils, sunflower oil, cottonseed oil, soybean oil, refined hemp oil

**Trans fats:** Hydrogenated vegetable oils

Note: Saturated fats are solid at room temperature, while polyunsaturated fats are liquid at room temperature.

### Why the belief that saturated fats are bad:

Diet professionals have slammed 'saturated fats' as the cause of heart disease in humans from as early as 1912.

From as early as 1912 Russian Scientist, Nikolai N Anichkov announced his discovery that saturated fats were the 'primary factor' of induced atherosclerosis (plaque that builds up inside the arteries). Nikolai tested vegetarian rabbits with egg yolks and purified cholesterol added to their diet. What he **did not disclose** is this: Anichkov fed his rabbits cholesterol dissolved in **vegetable oil** (polyunsaturated oil).<sup>1</sup>

At about the same time Crisco came to market (made from cottonseed oil – subjected to special processes to make it hard at room temperature – like butter). Clever marketing supported by shady research findings (biased, adding hidden polyunsaturated fats to saturated fats, financially backed by biased groups and opting not to disclose the control group findings) to support the belief margarine was a safer choice than butter. There was much money to be made by Crisco.

Alarming in 1948 Proctor & Gamble 'awarded' almost \$2,000,000 to the American Heart Association, transforming it

from a small professional society into the giant it is today.<sup>2</sup> The theory of heart disease prevention by increasing the intake of polyunsaturated oils began with fabulous financial backing of the food industry itself. Health food organizations chose to ignore the millennia of household consumption predominately of saturated fats without the shocking rates of 'modern diseases' witnessed since the 1950's.

Not all were taken in by this new theory. Research undertaken during the 1920's to 30's supported **saturated fats as disease preventing** thus the British Medical Association moved to recommend diets higher in milk, eggs, butter and more meat. The British schools were provided with 'free full-fat milk' and during WWII the British children were rationed eggs, cod liver oil and orange juice. The results? School children deaths of diphtheria, measles, scarlet fever and whooping cough and rickets fell dramatically. From 1930 to 1960 the life expectancy in England climbed from sixty to seventy years.<sup>3</sup>

### Could health professionals be so wrong?

Consider the rise and fall of *trans fats*. From the 1970's they were used in everything from cakes, cookies, breads, snack foods, deep fryers, movie popcorn, chips, restaurant foods, salad dressing etc. The food industry promoted *trans fats* as 'healthy'. The Life Science Research Organization of American Societies for Experimental Biology declared *trans fats* to be *safe for consumption*.

Only in recent times have *trans fats* been exposed as dangerous for consumption from data revealing *trans fats* contribute to cancer and heart disease.<sup>4</sup>

A 1994 study estimated that over thirty thousand heart disease deaths per year in the USA are attributed to the consumption of *trans fats*.<sup>5</sup>

In Australia, the Heart Foundation Tick Program has led the way to removing *trans fats* from margarine spreads since the 1990's. However, under Australian food law manufacturers don't have to list *trans fats* on the nutrition information panel.

**If they got it so wrong with *trans fats***, shouldn't we question the legitimacy of research supporting polyunsaturated oils (vegetable oils) as the 'healthier choice' over saturated fats?

Sydney Diet Heart Study revealed at clinical trial, substituting **polyunsaturated fat found in vegetable oil**, nuts, and seeds in place of saturated fats **increased the rates of death** from all causes of coronary heart disease and cardiovascular disease.<sup>6</sup>

Consider, since when have most plants or rice been a high source of oil? It's time you learnt how oil is made from non-oily plants.

### The 9 steps to making vegetable oils including rice bran oil<sup>7</sup>:

1. Oil seeds such as soybean, rapeseed (canola), cotton, rice and sunflower are gathered. Most of these seeds are from plants that have been genetically engineered to resist the **toxic pesticides** applied to them.

2. The seeds are husked and cleaned of dirt and dust then crushed.
3. The crushed seeds are heated to temperatures between 110 degrees and 180 degrees in a steam bath to start the oil extraction process.
4. The seeds are put through a high-volume press which uses high heat and friction to press the oil from the seed pulp.
5. The seed pulp and oil are then put through a **hexane solvent bath** and steamed again to squeeze out more oil. (**Hexane is produced by the refining of crude petroleum oil, upto 100 parts per million remain in the oil**).
6. Now the seed/oil mixture is put through a centrifuge and **phosphate is added** to begin the separation of the oil and seed residues.
7. After solvent extraction, the crude oil is separated and the solvent is evaporated and recovered. The **seed pulp residues** are conditioned and reprocessed to **make** by-products such as **animal feed**.
8. The crude vegetable oil is then put through further refining techniques including degumming (adding **phosphoric acid** or citric acid and more heating), neutralization and bleaching. The impurities are removed by treating the oil with caustic soda (**sodium hydroxide**) or soda ash (**sodium carbonate**). The heated oil is treated with various bleaching agents such as fuller's earth, activated carbon, or activated clays. Bleaching promotes fat oxidation since some natural antioxidants and nutrients are removed along with the impurities.
9. **Deodorization** is the last step in the refining of vegetable oils. Pressurize steam at extremely high temps (440 degrees or more) is used to remove volatile compounds which would cause off odours and tastes in the final product.

### More bad news...

Heating at such high temperatures creates dangerous **free radicals** and **aldehydes** and neutralize or **destroy** any beneficial antioxidants such as **vitamin E**.

The **industrial processes** to create vegetable oil damages the extracted fats and makes them **unstable and rancid** right from processing (rancid smells hidden by the deodorizing step), when consumed **free radicals** enter the body.

A free radical is an atom or group of atoms that has an unpaired electron and is therefore unstable and highly reactive. It will try and steal an electron from a neighbouring molecule to stabilize itself. Once a free radical forms and it succeeds in gaining another electron from a nearby molecule, it leaves its victim short an electron and has now made this new molecule a free radical, which will in turn, try and steal an electron as well. The result is what we call a free radical cascade, an enormous chain reaction of **free radicals** that quickly **wreaks havoc triggering disease**.

**Polyunsaturated** fats (PUFs) are greatly **immunosuppressive**. How so? It was during the early days of kidney transplantation that doctors first encountered the problem of tissue rejection as their patients' bodies destroyed the alien transplanted kidneys. If transplantation were to be a success, they had to find a way to suppress the immune system. Newsholme had

said that there was **no better way to immunosuppress** a renal patient **than with sunflower seed oil**. Kidney transplant doctors fed their patients linoleic acid. (Linoleic acid is the major polyunsaturated fatty acid in vegetable oils.) But the transplant doctors were then **astonished to see how quickly their patients developed cancers**: some cancers were up to twenty times as frequent as was expected.<sup>8</sup>

Professor Raymond Kearney of Sydney University put it in 1987: 'Many laboratories have shown **polyunsaturated fats** are superior to diets rich in saturated fats **promote mammary tumours**. In such studies omega-6 linoleic acid appeared to be the crucial fatty acid and **vegetable oils** (eg Corn oil and sunflower oil) which are rich in linoleic acid are **potent promoters of tumour growth**.'<sup>9</sup>

### Is a low fat diet a healthier choice?

Western diet models today still choose to promote 'low fat' as a healthier alternative than consuming saturated fats such as butters, whole milks, meat fats and cream. Do the facts stack up to this trend?

Consider Eskimos, they eat liberally of animal fats from fish and marine animals. On their native diet, they are free of disease and exceptionally hardy.

A study of Puerto Ricans revealed that although they consumed substantial amounts of animal fat (mostly as lard) they had a very low incidence of colon or breast cancer.<sup>10</sup>

France, Switzerland, the Netherlands, Iceland, Belgium, Finland and Austria have the highest rates of saturated fat consumption yet have the lowest rates of death from heart disease.<sup>11</sup>

### Cholesterol – what they never told us

Cholesterol is important to **survival and health**. Cholesterol keeps the cell membranes waterproof, so that different chemical processes are possible on the inside and the outside of the cell. It provides powerful antioxidant protection to the cell membrane. The greatest concentration of cholesterol occurs in the brain and the nervous system, and then in the muscles. Cholesterol serves as a precursor to bile salts necessary for digesting fats and to vitamin D.

It is the parent substance out of which hormones are produced. Some as sex hormones – estrogen, testosterone & progesterone others as hormones that regulate blood sugar levels, blood pressure and mineral uptake. These hormones even help us deal with stress, receptors for serotonin, the body's feel good chemical require cholesterol to work properly.

Literature will explain LDL as bad cholesterol and HDL as good cholesterol. What's the differences to these two different densities of lipoproteins? LDL carries cholesterol and other nutrients to the cells and HDL carries cholesterol away from the cell and back to the liver. Literature fails to mention oxidized cholesterol, many scientists now believe to be the real villain in coronary disease, as it seems to initiate the process leading to the buildup of plaque in the arteries. A main cause of cholesterol oxidation in the blood stream is intake of **highly reactive free radicals** from **industrial polyunsaturated oils**.<sup>16</sup>

## What's the difference between Omega 3 and 6

Studies show a diet balanced in a ratio of Omega 6:Omega 3 or under 4:1 is ideal. Research reveals the result of feeding livestock **grains** and **vegetable oils** is that the animals **Omega 6 to Omega 3 ratios changes dramatically**. Grass fed animals have a ratio of 3:1, conversely grain-fed beef has upto 10:1.<sup>12</sup> **Why is this a problem?** Omega 6 fats are inflammatory, whereas Omega 3 fats have an anti-inflammatory effect. Pasture grass naturally offers a ratio of 1:4 (Omega6:Omega3).

Of course, inflammation is essential for our survival. It helps protect our bodies from infection and injury, but it can also cause severe damage and contribute to disease when the inflammatory response is inappropriate or excessive. Excess inflammation may be one of the leading drivers of the most serious diseases to plague man and animals this century.

Have a read on the labels of the oils offered in your local stock feed store, are they not made from processed seeds (rice) and vegetable oils, **loaded predominately with Omega-6**.

### Common vegetable oil Omega 6:3 ratios profiles:

Rice Bran Oil is 20:1  
Sunflower Oil is 18:1  
Canola Oil is 2:1  
Safflower Oil is 162661:0  
Corn oil is 46:1  
Hemp Oil 3:1

Fortifying your horse's diet with an omega 3 of at least 2-5 to 1 omega 6 provides key health benefits. Research indicates these additional health benefits of increased Omega 3 uptake:

- Improved skin and hair coat quality
- Decreased joint pain
- Improved bone formation
- Reproductive benefits
- Prevention of gastric ulcers
- Anti-inflammatory
- Alleviate allergic hyperactivity
- Support horses in heavy work
- Reduce exercise-induced bronchiole constriction

### Oils rich in Omega 3:

Fish Oil (cod liver) 1:21  
Flaxseed Oil 1:4

Technically flax seeds and flax seed oil do not contain omega-3's. They instead contain alpha-linolenic acid, which a body's enzymes use as a raw material to synthesize its own EPA and DHA (omega-3 oils). Approximately 5% only convert into the necessary EPA and DHA. Fish oil on the other hand delivers ready to use EPA and DHA. Kentucky Equine Research recommends supplementing 60 ml/day of fish oil. (Pagan, Lawrence, Lennox)

### Are Cold pressed polyunsaturated oils – better?

It pays to do a check on the source of the vegetable oil, are the plants genetically modified? How has the oil been stored from

manufacture? What additional processes have occurred if added to other feeds?

For example:

Stock feed manufactures readily add cold pressed Canola Oil to their blends. However, Canola oil was created from **genetic modification** (GMO) of rapeseed to contain little if any erucic acid. One study indicates Canola oil **creates vitamin E deficiency**.<sup>13</sup> Canola oil goes rancid quickly if not stored in opaque or dark packaging and kept cool. Once subjected to high temperature pelleting processes it creates dangerous free radicals and neutralizes or destroys the vitamin E content.

### Safer choice of dietary oils for man and animal

Unrefined Coconut Oil is 92% saturated fat. Two-thirds of the saturated fat is in the form of median-chain fatty acids. Of particular interest is lauric acid, found in large quantities in coconut oil (also found in human breast milk). This fatty acid has strong antifungal and antimicrobial properties.<sup>14</sup> Pan et al., 2010 authors concluded the high medium chain triglycerides (MCF) richly found in coconut oil improve cognitive function, providing a source of brain energy. Twenty four Beagles at trial supplemented with 5.5% of their diet of MCF, found their cognitive ability improved significantly only after 2 weeks, also increasing their learning ability. In addition to its brain-boosting qualities coconut oil has been found to:

1. Help weight loss by increasing metabolism (sending signals of satiety to the brain and cannot be stored as fat).
2. Improve digestion and absorption of fat soluble vitamins (vitamin A, D & E).
3. Benefit the skin and coat.
4. Provide a rapid form of non-carbohydrate energy.<sup>15</sup>

Fish oil is loaded with Omega 3's to assist balancing the omega 6 to 3 ratio – leading to many key health benefits that fight disease and inflammation as already discussed.

<sup>1</sup> Konstantinov IE et al. Nikolai N. Anichkov and his theory of atherosclerosis. *Geriatrics*. 1961, 16:407

<sup>2</sup> Marvin, HM. 1924-1964: The 40 Year War On Heart Disease. New York: American Heart Association, 1964.

<sup>3</sup> <http://www.second-opinions.co.uk/love-fat.html#VIEKJrPloro>. Accessed Oct 16, 2015.

<sup>4</sup> Willett WC et al. Consumption of trans-fatty acids in relation to risk of coronary heart disease among women. *Society for Epidemiology Research. Annual Meeting*, June 1992, Abstract 249.

<sup>5</sup> Willet WC and Ascherio A. Trans fatty acids: are the effects only marginal? *Am J Public Health*. May 1994 84 (5):722-24.

<sup>6</sup> <http://www.bmj.com/content/346/bmj.e8707>

<sup>7</sup> <http://www.healthy-eating-politics.com/vegetable-oil.html>

<sup>8</sup> Uldall PR, et al. *Lancet* 1974; ii: 514

<sup>9</sup> Kearney R. Promotion and prevention of tumour growth — effects of endotoxin, inflammation and dietary lipids. *Int Clin Nutr Rev* 1987; 7: 157.

<sup>10</sup> Fernandez NA. *Cancer Res*, 1975, 35:3272; Martines I et al. *Cancer Res*. 1975, 35:3265

<sup>11</sup> European Cardiovascular Disease Statistics, 2005 ed., <http://www.heartstats.org/uploads/documents%5CPDF.pdf>. Accessed Oct 12, 2015

<sup>12</sup> <https://www.peptideclinics.com.au/omega-3-omega-6-ratios/>

<sup>13</sup> FD Sauer et al. Additional vitamin E required in milk replacer diets that contain Canola Oil. *Nutrition Research*. 1997, 17(2):259-69.

<sup>14</sup> Kabara JJ et al. Fatty Acids and derivatives as antimicrobial agents. *Antimicrob Agents Chemother*. Jul 1972

<sup>15</sup> Aldrich, 2009; Wolf, 2009

<sup>16</sup> Kummerow FA. The relationship to oxidized lipids to coronary artery stenosis. *Atherosclerosis*. Mar 2000, 149(1):181-90; Kummerow FA. Changes in the phospholipid composition of the arterial cell can result in severe atherosclerotic lesions. *J Nutr Biochem*. Oct 2001, 12(10):602-7.