



ILLUSTRATION: LAUREN REBBECK

Good fat, bad fat

Dietary fat is perhaps one of the most confusing and controversial areas of nutrition for people to navigate. Naturopath Tania Flack makes it easy for you.

FOR many years a low-fat diet was promoted as the best choice for weight management and heart health. This sent the food manufacturing industry into overdrive, developing techniques - sometimes nothing short of chemical wizardry - to remove natural fats from foods and make them 'healthier'. Then the pendulum began to swing and earlier research into heart health and cholesterol was questioned, coinciding nicely with the Paleo juggernaut which highlighted the importance of healthy fats in the diet. Perhaps this was taken too far by some people, with high fat diets and energy-dense raw desserts becoming the Holy Grail for those wanting to lose weight and have sustained energy. However, this diet didn't suit everyone, and conflicting advice from high profile academic heavyweights, medical professionals and government bodies, such as CSIRO and the Heart Foundation, has added to the confusion. So what is the right type and amount of dietary fat?

Why you need fat

Fats are an important part of any healthy diet. They are a valuable source of energy and yield 37.7 kilojoules (or 9 calories) per gram, regardless of the type of fat. Fat adds flavour and texture to food and, as a slow-burning fuel, is more satiating, so we feel full for longer. Fats support cell growth, act as building

blocks for hormone production, and are essential for cell membrane health. They transport important nutrients like calcium into cells. Fats are an essential component of neurological tissue and are needed throughout every life stage, from embryonic development onwards, to ensure healthy functioning of the brain, nervous system, myelin sheath (which encases nerves), and eyes.

Many important vitamins are fat-soluble, including vitamins A, E, D and K, plus choline, lecithin and phospholipids. If we don't have dietary fats, we can't access these vital nutrients. This is also the case for the carotenoids, a diverse group of plant pigments which act as powerful antioxidants in the body and have broad-ranging health benefits. A high dietary intake of carotenoids, including beta-carotene and lycopene, is protective against several cancers,

Omega-3 fats protect the adult brain: people who eat oily fish at least once a week have a 60 percent lower risk of developing Alzheimer's disease.



Our ancestors' diet provided them with a ratio of 1:1 omega-3 to omega-6 fats – but thanks to modern food processing, the ratio in today's Western diet is 1:16.

cardiovascular disease, and eye disease, including macular degeneration. Salads containing tomatoes, capsicum and leafy greens, for example, are a great source of carotenoids, but they need to be eaten with a healthy fat like cold-pressed virgin olive oil or avocado in order to access the antioxidant benefits. Lycopene, found in tomatoes and other red-coloured vegetables, is particularly protective against prostate cancer. Studies show that when a lycopene-rich salad is eaten without fat there is no measurable blood level of lycopene evident - but when avocado is eaten as well, there is a four-fold increase in lycopene absorption.

Polyunsaturated fats

There are four types of fats, which differ in chemical structure, physical properties, and health impacts. Fats are made up of a glycerol backbone to which fatty acid chains are connected. The type of fat they are depends on what types of bonds exist between the carbon atoms. Polyunsaturated fats are mainly found in plants. They are heavily promoted as being the healthiest fat and Australian dietary guidelines recommend an intake of 28-40g for men and 14-20g for women. Polyunsaturated fatty acids shouldn't be used in high heat cooking, and are most beneficial when eaten in their whole form or used cold in salad dressings. Of the polyunsaturated group of fats both omega-3 and omega-6 fats are essential, meaning they cannot be manufactured in the body and must be taken in through the diet. Omega-3 fatty acids are found in fish and seafood while omega-6 fats are found mainly in nuts and seeds; common sources are safflower and sunflower seeds, corn, and soybeans.

“The good”: Perhaps the most beneficial of all polyunsaturated fats are the omega-3 fats found in oily fish and seafood and in seeds like flax and chia (these provide alpha linoleic acid, which can be converted in the body into omega-3 at a very low ratio). Omega-3 fats have a myriad of health benefits thanks to two major constituents, eicosapentaenoic acid (EPA) and docosahexaenoic

acid (DHA). EPA has powerful anti-inflammatory properties that protect the cardiovascular system by reducing damage to blood vessel walls and decreasing platelet aggregation, so lowering the risk of blood clotting and atherosclerosis. Multiple clinical trials demonstrate the cardioprotective benefits of fish oils, particularly for people with a history of elevated triglycerides and LDL. DHA has particular benefits for neurological tissue and is recommended during pregnancy and breastfeeding to support healthy development of the brain, eyes and nervous system. Omega-3 fats also protect the adult brain: research shows that elderly people who eat oily fish at least once a week have a 60 percent lower risk of developing Alzheimer's. Plus, they have marked benefits as an adjunctive therapy in depression, anxiety, bipolar disorder, borderline personality disorder, and schizophrenia.

“The bad”: Due to their chemical structure, polyunsaturated fats are more delicate and easily damaged than other fats, which is perhaps why Mother Nature has packaged them up with wonderful antioxidants like vitamin E and selenium, to counteract their potential to contribute to oxidative stress. So, in their whole form they are a perfect package of nutrients and antioxidants; however, during the extraction process polyunsaturated oils lose much of their antioxidant properties and become more prone to oxidation. Animal studies show that both sunflower and corn oil can lower endogenous antioxidant enzyme activity, and corn oil can increase markers of lipid peroxidation. This type of oxidative stress is strongly linked to chronic degenerative diseases, including cancer, cardiovascular disease, neurodegenerative disease, and chronic inflammation.

Then there is the 3:6 ratio: anthropological and nutritional studies indicate that our ancestors' intake of whole, unprocessed foods provided them with a ratio of approximately 1:1 omega-3 to omega-6 fats. This is profoundly different from what we eat today. Thanks to modern food manufacturing, the addition of processed seed oils to food products, and a significantly lower intake of whole foods, the estimated ratio for a standard Western diet is approximately 1:16 omega-3 to omega-6! This rapid dietary change has mostly happened in the last 150 years of human history and may be partly responsible for the cardiovascular disease, cancer, diabetes, and metabolic syndrome we see today, which are far less common in people eating a more primitive, unprocessed diet. These chronic degenerative health conditions are all associated with increased production of inflammatory mediators, such as tumour necrosis factor-A, C-reactive protein, leukotrienes, thromboxane and interleukin-6. Increasing the ratio of omega-6 to omega-3 fatty acid has been shown to elevate these inflammatory markers.

Food sources of healthy fats

- **Polyunsaturated fatty acids:** Walnuts, sunflower seeds, flax seeds or flax oil, fish (salmon, mackerel, sardines, herring, tuna, trout), chia seeds, pine nuts, Brazil nuts
- **Monounsaturated fatty acids:** Avocado, olive oil, almonds, cashews, peanuts, rice bran oil, sesame seeds
- **Saturated fats:** Coconut oil, grass-fed beef and lamb; dairy (butter, cream)

“The ugly”: Polyunsaturated oils are used widely in manufacturing commercial foods (margarine, deep-fried fast foods, bakery products, biscuits, crisps, crackers), and are often heated to high temperatures; this creates the ‘ugly cousin’ of the fat world – trans fats. Listed on food labels as ‘hydrogenated or partially hydrogenated vegetable oils’, these fats are undoubtedly the most damaging you can eat. Trans fat consumption is associated with a multitude of health problems, including cardiovascular disease, diabetes, obesity, and cancer. They are perhaps the slowest form of food poisoning and can have catastrophic effects on health over time. Sadly, there is no legal requirement in Australia for food manufacturers to declare the level of trans fat in a product, although other countries are starting to do this. The World Health Organisation recommends that trans fats are limited to less than 1 percent of total energy intake.

However, not all trans fats are created equal: they are also found in both human breast milk and the meat and dairy products of ruminant animals. For example, margarine has far less trans fat than butter, according to the Heart Foundation - about 0.2g of trans fat, compared to 4g in butter. But, while commercially-produced trans fats are strongly associated with increased risk of cardiovascular disease and cancer, evidence suggests that naturally-occurring trans fats have widespread benefits, including supporting immune function and protecting against cancer, obesity, diabetes, and atherosclerosis.

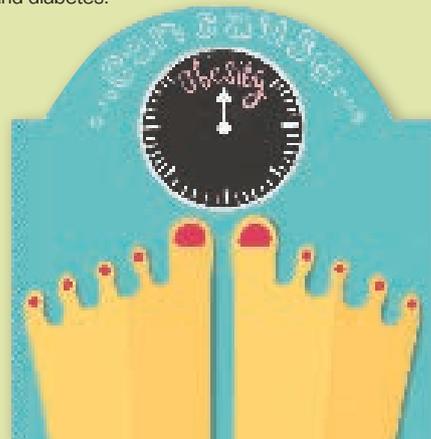
Monounsaturated fats

Like polyunsaturated fats, monounsaturated fats contain important nutrients and antioxidants; however, they only contain one unsaturated bond between their carbon molecules, making them a more stable fat which is usually liquid at room temperature but starts to solidify when chilled. Great sources of monounsaturated fats are avocado, peanut oil, sesame oil, rice bran, hazelnuts, and macadamias. However, the most well-known monounsaturated fat is olive oil. Olive oil, particularly first-pressed or virgin olive oil, has a range of constituents, including oleic acid and other phenolic compounds that are anti-inflammatory and antioxidant. Studies show that, as part of a Mediterranean-style diet, it lowers the incidence of heart disease, stroke and type II diabetes. It also lowers blood pressure and reduces the risk of atherosclerosis and blood clots by reducing endothelial adhesion within blood vessels, increasing ‘good’ HDL while lowering ‘bad’ LDL and total cholesterol, and slightly lowering triglycerides; it also improves glutathione antioxidant status.

Saturated fats are typically solid at room temperature and more stable than other fats, making them ideal for high-heat cooking. They are predominantly found in animal products,

Trans fat trouble

- Trans fats raise levels of LDL and reduce the particle size, increasing its atherogenic potential while decreasing HDL.
- Consumption of trans fats is so strongly associated with heart disease that one study showed that it led to a three-fold increase in risk of sudden cardiac death.
- They significantly increase systemic inflammation by elevating levels of C-reactive protein, which is associated with atherosclerosis and diabetes.
- They increase insulin resistance, which leads to obesity.
- Consumption of trans fats in early pregnancy may have negative impacts on birth weight, and cause growth and development problems in infants.
- Studies show that a high intake of trans fats leads to a faster rate of cognitive decline in older populations and there is evidence associating trans fat consumption with neurodegenerative diseases.
- Trans fat consumption may be linked to an increased risk of cancer.



such as lamb, beef, pork, poultry with skin, and dairy products; however, some plant-based oils, such as coconut oil and palm oil, also contain saturated fats. Saturated fats are often considered the ‘bad guys’ of the fat world, as excess intake elevates cholesterol levels, particularly LDL and triglycerides which are traditionally associated with a higher risk of heart disease. However, the role of cholesterol in heart disease has been debated at length in recent years, and we now know that lowering cholesterol is not the only answer for heart disease and that inflammation is likely to be a target for future interventions. Until we know more, be mindful of your saturated fat intake; the World Health Organization recommends reducing saturated fats to less than 10 percent of total energy intake.

Unprocessed saturated fats are an important part of a healthy diet and small amounts can be beneficial. Coconut oil, for example, has many health benefits and is approximately 90 percent saturated fat. Studies show it lowers blood pressure, improves endothelial function, increases both ‘good’ HDL and ‘bad’ LDL cholesterol, but - thanks to its antioxidant phenolic constituents - it also reduces the oxidation of LDL. Plus, it has antimicrobial, antiviral and antibacterial properties.

Fats are an important part of a healthy diet; however, they are sensitive to oxidation, particularly when exposed to heat. So enjoy fats in their whole form, the way Mother Nature intended – as nuts, seeds, oily fish, avocado, coconut, and small amounts of grass-fed animal fats. Use oils sparingly and avoid using polyunsaturated fats for high-heat cooking. 

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References available on request.