

## CHAPTER I

# The Essential Guide to Fats

Australian Aborigines would kill a kangaroo, examine its insides for fat and if it was too lean, abandon the carcass where it lay (1-3). This practice took place for the simple reason that Aborigines fully understood the importance of fat. They had sufficient dietary wisdom to know that too much lean meat without the fat would make them sick. Eskimos accumulated the same knowledge; they discovered that if they ate too much lean deer meat without other fattier meats, they would very quickly become ill (4).

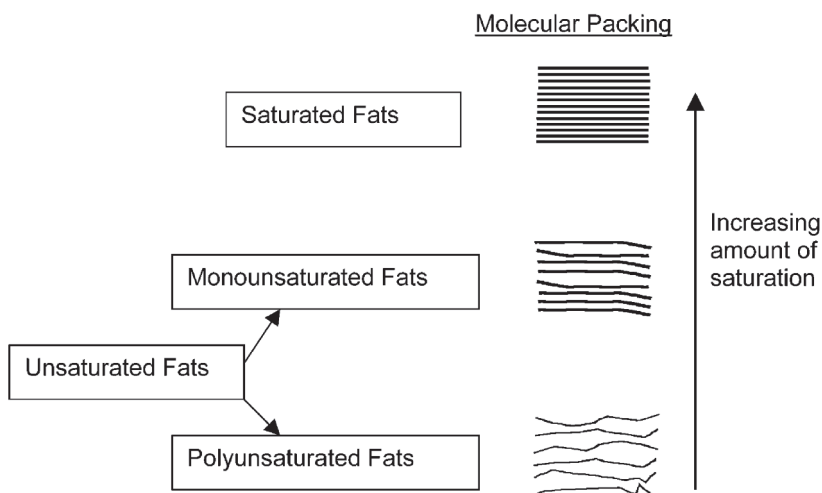
Animal fats contain various vitamins and other *activators* that are absolutely essential for good health. Some of these nutrients can also be obtained from vegetable sources, but overall animal fats provide the best source.

Nutrition is all about team work. In order for one nutrient to be absorbed and used properly, other nutrients must be present. If meat does not contain enough fat it will be lacking in certain nutrients. These nutrients provide activators for other nutrients to be assimilated. Since a full range of nutrients are required for the proper absorption of meat, the body will have to obtain any missing nutrients from its existing store. Each time very lean meat is eaten the body's store of some nutrients is further depleted. This situation can be sustained for only a short period of time until the body becomes nutritionally deficient. Eventually the body becomes weak, the immune system is compromised and disease sets in.

## \$29 BILLION REASONS TO LIE ABOUT CHOLESTEROL

Dietary fats consist of a wide range of different *fatty acids*. Each of the fatty acids has a very important role to play within the body and there is still a great deal that we do not know about how each of them function. Fats are the last major essential nutrient to be examined by science and appear to be the most fascinating (5). Generally, there are three types or groups of fatty acids designated in accordance with their level of *saturation*.

Saturation refers to how closely the molecules of the fat are packed-in together. The molecules that saturated fats are made up of are more linear (or straight) and can be packed-in close together. However the molecules that unsaturated fats are made up of have kinks or bends in them, which means that they cannot be packed-in as tightly. Unsaturated fats can be *monounsaturated* or *polyunsaturated*. Polyunsaturated fats are less saturated than monounsaturated fats. This is illustrated in figure 1A.



**Figure 1A.** Basic Illustration of Different Types of Fats

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Fats are often described in terms of 'good' fats and 'bad' fats. It has become fashionable to designate saturated fats as 'bad' and unsaturated fats as 'good'. Therefore, we are advised to consume more unsaturated fats. In particular, polyunsaturated fats are promoted. However, no natural fats are intrinsically good or bad – it is the proportions that matter (6). The human body needs a wide range of different types of fats, but it may need larger quantities of some fats than others. As long as the fat has not had its molecular structure altered through processing or cooking it can be considered healthy.

Within nature, fats are provided in the form of a balance or mix of different fatty acids. No source of fat is purely saturated or purely unsaturated; rather they exist as a range of fatty acids.

Fats that are obtained from some animal sources (such as beef, lamb, chicken and pork) are generally more saturated. Hence they are called saturated fats even though they also contain unsaturated fats. In a similar way, fats from vegetable sources are called unsaturated fats because they have a predominance of unsaturated fats. Table 1A shows the basic composition of some common fats.

The degree of saturation determines how stable the fat is. For this reason saturated fats are much more stable than unsaturated fats. Polyunsaturated fats in particular are very unstable and degrade easily – meaning their molecular structure can easily be altered.

Some 'experts' tell us that we should cook with vegetable oils. However, this advice is at odds with our scientific understanding. Vegetable oils such as sunflower oil, safflower oil, and rapeseed oil are predominately polyunsaturated fats. These fats have a low melting point and are not resistant to heat.

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**Table IA.** Composition of Some Commonly Eaten Fats. Adapted from reference (7). Note: fats are sometimes referred to as oils. The two terms can be used interchangeably; however the term oil tends to be used when the fat is liquid at room temperature.

Type of Fat	Saturated	Monounsaturated	Polyunsaturated
Chicken Fat	31%	49%	20%
Pork Fat	40%	48%	12%
Olive Oil	13%	75%	12%
Sesame Oil	15%	42%	43%
Flax Seed Oil	9%	18%	73%

When polyunsaturated fats are heated, and when they are exposed to oxygen or sunlight, they create *free radicals*. Free radicals are unstable molecules that can attack healthy cells and lead to cancer and heart disease. Free radicals can also accelerate the aging process, cause complications with diabetes and contribute to a range of other disorders. Unfortunately, the general public are not informed that polyunsaturated fats become dangerous and should not be consumed when heated. Instead, vegetable oils are promoted ironically as healthy for the heart.

Out of all vegetable oils, only extra virgin olive oil is suitable for cooking with because it is more saturated and less refined than other vegetable oils. Butter, lard, and ghee (clarified butter) as well as coconut oil are the most saturated and hence the best fats to use for cooking. These are the fats that have been used for cooking by many generations of people, long before the food industry invented ways of making cheap oils from vegetable crops.

The molecular stability of saturated fats is put to good use within the cells of the human body. Each of the cells within the body has

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an outer skin or *cell membrane*. Saturated fats make up a large proportion of this membrane and provide each cell with the structure and stiffness it needs. Saturated fats also provide a valuable source of energy. In addition, they have very strong anti-viral, anti-fungal and anti-bacterial properties (8).

It is also of note that during the storage of body fat, the human body tries to protect itself from the accumulation of polyunsaturated fats by favouring fats that are more saturated. If saturated fats are unhealthy, why are they the body's preferred type of fat? Before an increased consumption of polyunsaturated fat is accepted as beneficial, an adequate explanation of this should be provided (9).

Although polyunsaturated vegetable oils are very unstable and should not generally be used for cooking, there are some polyunsaturated fats that do form an important part of the diet. Two forms of polyunsaturated fats that have received a great deal of attention are *omega 3* and *omega 6*. These are designated *essential fatty acids* (EFAs) because the body cannot make these specific fats and they must be obtained on a regular basis from our diet. Just how much omega 3 and omega 6 the human body needs is unclear, however we do know that consuming much more of one than the other is detrimental to health.

Omega 3 and omega 6 have opposing properties. Omega 3 reduces inflammation (10) and helps blood to flow more easily through vessels and arteries. This is exactly what is needed in order to prevent heart disease. However, the consumption of too much omega 3 will make it very difficult for the body to produce blood clots in the event of any damage to tissues and excessive bleeding can take place (11). This is where omega 6 comes in – it helps blood to coagulate in order to stop the bleeding at the site of an injury.

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Similarly, if too much omega 6 is consumed, its properties can work against us. The coagulation can slow down the flow of blood through vessels and arteries and increase the risk for heart disease. Omega 6 can also encourage inflammation, which is another important feature of heart disease. Clearly, a balance of omega 3 and omega 6 is required so that these fats can work together to reach a compromise between their respective properties.

Most people in industrialised countries consume too much omega 6. This is because omega 6 is found in relatively large quantities in vegetable oils (such as sunflower oil) and in grain based foods such as cereals, bread and pasta. The consumption of these foods has increased drastically during the last few decades. Omega 3 however, is more difficult to obtain, the primary source being obtained from oily fish and fish oils.

An over consumption of omega 6 compared to omega 3 is associated with not only an increased risk for heart disease but also a range of other degenerative conditions (12).