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# NUTRITION Science Fact Sheet

## MILK FAT

- Dairy products are part of a healthy and balanced diet.
- Dairy products are much more than milk fat.
- Dairy products are an important provider of many minerals and vitamins and high quality protein.
- Milk fat contains a wide variety of fatty acids.
- Saturated fatty acids should be considered individually and not as a whole group due to their different physiological effects.
- In the diet, saturated fatty acids come from different sources (animal and vegetable) and not just from dairy products.

### DAIRY IS MUCH MORE THAN MILK FAT

Dairy products play an important role in the healthy, daily diet of the whole population. They are rich in many nutrients and key contributors of several minerals, vitamins and high-quality protein.

In Western diets, dairy products are the primary source of calcium providing between 40-70% of daily needs. Cheese - independently from its fat content - provides many minerals and vitamins such as fat-soluble vitamins A and D, vitamins B2, B6, B12, as well as high-quality protein. Butter is a good source of fat-soluble vitamins such as vitamin A (15% RDA in 15g) and provides essential fatty acids to the diet.

Beyond pure nutritional value, several other health benefits are known or have been suggested. Dietary guidelines in every EU country recommend dairy as part of the daily diet.

### RAW MATERIAL & COMPOSITION OF MILK FAT

Dairy products are defined by the raw material milk and their final nutrient content depends on the natural composition of the milk. The composition of milk fat also varies slightly according to the breed of the cow, stage of lactation, season, geographical location and feed composition.

### MILK FATTY ACIDS

The main characteristic of milk fat is the variety of fatty acids it contains: more than 400 different fatty acids! Milk fat contains on average 65-70% saturated fatty acids and 30-35% unsaturated fatty acids (Figure).

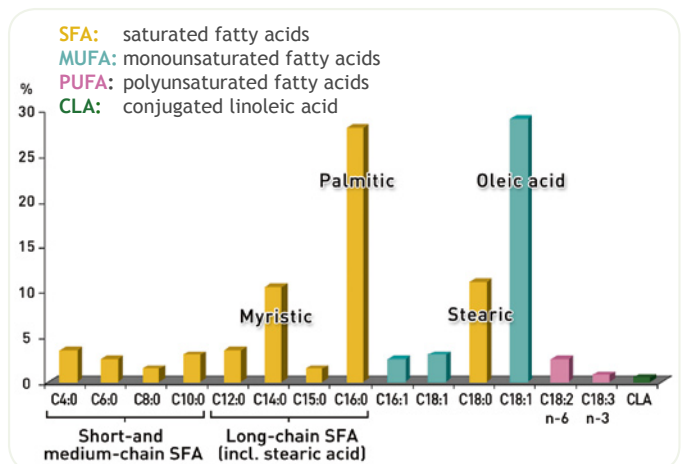


Figure: General fatty acid composition of milk fat (data from Legrand P. Sciences des Aliments 2008. 28:34-43)

### Saturated Fatty Acids

Amongst saturated fatty acids in milk fat, there are around 10-13% short- and medium-chain saturated fatty acids and 50-55% long-chain saturated fatty acids, including palmitic (27%), myristic (10-12%) and stearic acid (9%).

### Unsaturated Fatty Acids

Amongst unsaturated fatty acids in milk fat, there are around 25-30% monounsaturated fatty acids, among which oleic acid is the most important, and 2-6% polyunsaturated fatty acids, including omega 3 and omega 6 fatty acids in an optimal physiological balance.

### Trans Fatty Acids

Trans fatty acids are also unsaturated fatty acids. Trans fatty acids naturally occurring in meat and dairy are produced in the rumen of the cow. Levels in milk fat vary between 1-8% of the fat amount. Whole milk contains only about 0.3g trans fatty acids per 100ml. Consumed as we usually do, they do not have any negative effect on health.

## MILK FAT

### Conjugated Linoleic Acid

Conjugated linoleic acid and mostly rumenic acid account for around 0.7% of milk fat. Potential benefits on health have been shown in animal studies. Human research is ongoing.

### HEALTH EFFECTS OF DIFFERENT MILK FATTY ACIDS

Milk fat is complex and should not be viewed only as saturated fat. Furthermore, saturated fatty acids should be considered individually and not as a whole group. Recent data show that the different saturated fatty acids in milk fat have different effects on health:

Several studies show that short-chain and medium-chain saturated fatty acids do not have a negative impact on the blood lipid profile. They are easily digested and metabolised differently in the body compared to longer chain fatty acids.

Certain long-chain saturated fatty acids such as stearic acid act neutral on the cholesterol level. Myristic acid has various physiological roles in the body such as protein metabolism and the synthesis of omega 3 long chain fatty acids.

Average intake of ruminant *trans* fatty acids in the European diet is low and contribution to energy intake is minimal (around 0.7% energy). In addition, there is no scientific evidence that intake of naturally occurring *trans* fatty acids with the habitual consumption of dairy has any negative health effects on heart health.

If consumed in excess, some experimental studies suggest that about 1/3 of the milk fatty acids are considered as less favorable. In practice, people do not consume individual fatty acids but foods, and also not in such high quantities. Other foods also contribute saturated fatty acids to the diet, such as vegetable oils (e.g. palm oil), snack foods and meat.

### FAT CONTENT OF DAIRY PRODUCTS

Dairy is a diverse group of products with broad variation in nutritional composition as well as a huge diversity in habitual intake pattern across European countries. Dairy products with different fat level have been available for a long time in all countries.

### Milk and Yoghurt

Raw milk fat content varies around 4%. Milk sold in stores is usually available as skimmed (0.3%), semi-skimmed (1.5%) and whole (3.5%). However, other fat levels are

also available. Yoghurt and yoghurt drinks can be made from all types of milk and are therefore also available in different fat levels.

### Cheese

Cheeses are available in many different forms - e.g. hard and soft cheeses, as spreads or slices - and also with very different fat levels. In the EU, you can find a large variety of cheeses with a content of fat from 0% to about 35%.

### Cream

Cream is available in different fat levels (from 10% to 45%). Cream is usually used for cooking and together with other foods. It is therefore eaten in small quantities.

### Butter

Butter is consumed in small quantities. It is used as spread or cooking ingredient and is therefore consumed together with other foods such as bread and vegetables.

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