



Dairy products

To your health!

You are the boss of your own body. And that's a good thing, but of course it also brings a certain responsibility with it. Everything that you eat and drink has an influence on the mechanism. The saying 'you are what you eat' is as true as ever today.

To be effective, a boss needs to be a good listener – in this case, to your body – and needs to have access to the right information to take decisions. But the media often sends mixed messages when it comes to food and its influence on the body. Our health charter 'tastes good, good for you' not only guides us in offering a healthy and balanced diet, but also serves to inform our consumers on this subject.

Sodexo informs you through posters about the composition of the meals, and about nutrition, Body Mass Index (BMI) and exercise tips. We also provide a Vitality corner on-site at your company cafeteria: an info stand manned by a dietician who can answer any food related questions. The brochure 'Dairy products' is part of a series of handy booklets, each covering a nutrition-related topic. Written in plain language, with figures that speak for themselves, and packed with handy tips and advice that you can put into practice immediately.

'Milk, the white motor' is an advertising campaign that is indelibly etched into our collective memories. And the underlying message still holds true. But there are more aspects to the topic of dairy products than the fact that they are a good source of protein and calcium. What about allergies and nutritional supplements in dairy products? And are all dairy products equally healthy and effective? Find out for yourself, with or without your white milk-mustache.



Michel Croisé
C.E.O. Sodexo



A. DAIRY PRODUCTS, A SOURCE OF ...

1. GENERAL

Dairy products form an important source of calcium, phosphorous, proteins of high biological value (such as found in meat, fish and eggs) and vitamins A, D, B2 and B12.

Dairy products with no added sugars and a light fat content are generally low in calories.

This category includes:

- The milk secreted by mammals. The term "milk", on its own, without further description, can only be used to refer to cow's milk.
- Processed milk: sterilised, pasteurised, powdered, evaporated,...
- Modified milk products such as yoghurts and dairy desserts
- Cheese : fresh or aged

Cream and butter are classified in the fats category as they are very high in fat. Ice cream is classified in the sweets group because of its high sugar content.

2. NUTRITIONAL VALUE

Proteins

The proteins from milk and dairy products have a high biological value and are equivalent to the quality of the proteins found in meat, poultry, fish and eggs. Proteins are indispensable for growth, for regenerating and maintaining tissues, for the transport of the elements of blood, to the functioning of enzymes and hormones, ...

The protein content varies from approximately 3.5 to 4g per 100ml in the case of milk to 24g per 100g for certain cheeses.

Lipids

Milk fat represents approximately half of its energy value. For the most part, these fats are of little nutritional value as they are primarily saturated fats. This is why the consumption of ½ cream milk and low-fat dairy products is recommended.

The content of lipids and cholesterol varies depending on the degree to which the product has been skimmed. The lipids content will vary from 0% in the case of fully skimmed products to 40% for certain cheeses. For example this is approximately 28% for sliced cheese of the Gouda variety and 4% for full-cream milk.

Carbohydrates

Milk and dairy products contain carbohydrates in the form of lactose which plays a role in building brain structures. This is why it is virtually the sole carbohydrate consumed by newborns. Lactose also facilitates proper assimilation of calcium. Milk contains approximately 5g of lactose, or carbohydrates, in other words, per 100 ml.

It should be noted that the absorption of lactose requires an enzyme called lactase. This enzyme is deficient in certain people, which makes it difficult for them to digest milk (causing diarrhoea, abdominal pains, gas, ...). Hard cheeses generally contain little or no lactose, which makes them easily digestible for people who are lactose intolerant.

It should also be kept in mind that certain dairy products have added sugar (saccharose) while others contain fruit. Obviously, these products are higher in carbohydrates than plain dairy products and therefore higher in calories. Read labels carefully.

Minerals

- Dairy products are an excellent source of calcium. Calcium's principal role is to give us strong teeth and bones but it is also essential for muscle contraction, blood coagulation and the permeability of cell membranes. An adult needs a daily calcium intake of 900 mg. Adolescents, high-level athletes, pregnant or nursing mothers and the elderly have elevated needs (1200mg/day). In order to meet the recommended daily intake of calcium (900 mg), it is advisable to eat approximately 3 servings of dairy products (one glass of milk + one slice of cheese + 250g of fromage blanc for example). Low-fat products contain just as much calcium (and other minerals) as full-fat products, it is only in the area of fats and fat-soluble vitamins (vitamins that are dissolved in fats) that they have lower content.
- Dairy products also contain phosphorous, an essential building block for all living cells that is involved in all life processes. Together with calcium, it ensures solid bones and teeth. It is essential to maintain a good balance between these two minerals. At a ratio of 1 to 4, the proportion between calcium/phosphorous in milk is optimal for growth.
- Other minerals and oligoelements are only minimally present in milk. However, it should be pointed out that:
 - Milk is low in iron in its natural state, but some milk is enriched with iron and can have a content of up to 1 mg per 100 ml.
 - Milk has a sodium level of 45 mg per 100 ml. Some milk is treated to remove sodium for those on strict low-sodium diets

Vitamins

Milk contains:

- vitamin B2: indispensable for metabolising proteins, lipids and carbohydrates.
- vitamin B12: indispensable for blood coagulation and the synthesis of DNA, and also plays a role in protecting against cardiovascular disease.
- vitamin A (fat soluble): the content of vitamin A depends on the fat content. vitamin A plays an essential role in night vision, cellular differentiation, growth and reproduction. It also has antioxidant properties, and thus prevents cardiovascular disease, cancer and the premature aging of cells.
- vitamin D (fat soluble): present in small quantities that are nonetheless sufficient for stimulating the absorption and fixation of calcium. Vitamin D also varies depending on the season.

B. MILK AND DAIRY PRODUCTS

Milk

Milk can come directly from a dairy production unit ("farm-fresh milk"), and may or may not be subjected to thermal treatment, may be full-fat, partially skimmed or completely skimmed.

The milk we drink every day is subjected to a thermal treatment that may be one of the following three types:

- Pasteurised: heated o at least 71.7°C.
- UHT: milk subjected to an ultra high temperature procedure for at least 1 second at 135°C which ensures total sterilisation.
- Sterilised: it has been heated and sterilised in hermetically sealed containers twice over, which reduces the nutritional value.

Milk can also be concentrated through the partial evaporation of water, may be concentrated and sweetened or completely dehydrated to make powdered milk.

Buttermilk is the non-fat part of the cream obtained when it is churned to make butter. It generally has the same nutritional composition as ½ cream milk but is far richer in zinc.

Fermented milks

According to the Royal Decree on yoghurts and other fermented milk products, fermented milk is the net result of a process of coagulating skimmed, semi skimmed or full-fat milk, through inoculation with the help of lactic bacteria, possibly in combination with yeast.

Yoghurt is a coagulated milk product obtained through fermentation with lactic acid produced through 2 fermenting agents: *Streptococcus thermophilus* and *Lactobacillus bulgaricus* which are naturally present in milk.

The protein content of yoghurt is slightly higher than that of milk, and in both cases, the proteins are of equally high biological value.

Yoghurts can also vary in fat content. As in the case of milk, the majority of these are saturated fats.

- To be classified as skimmed, they must contain less than 1% fat,
- To be classified as natural (plain), they must contain a minimum of 1% fat
- If they are made with full-fat milk, they must contain 3.5% fat.

Approximately 25% of the lactose is transformed into lactic acid by the bacteria. This is what makes yoghurts often more easily digestible than milk. Certain yoghurts are high in carbohydrates as they have added sugar and/or are made with added fruit.

The calcium content of yoghurt is even higher than that of milk, which makes it one of the most calcium dense foods. The ratio between calcium/phosphorous is also excellent.

Composition of the different types of yoghurt:

Type of yoghurt	Average content per 100 g of product				
	Proteins (g)	Lipids (g)	Carbs (g)	Calcium (mg)	Calories (Kcal)
Yoghurt (plain)	4.3	1.1	4.8	170	50
Yoghurt (full-fat, plain)	4.1	3.5	4.7	151	70
Yoghurt (plain skimmed)	4.5	0.3	4.9	150	50
Yoghurt (plain sweetened)	3.9	0.9	13.4	155	80
Yoghurt (skimmed, with sugar)	4	0.1	13.8	150	70
Yoghurt (flavoured)	4	1	14.5	150	85
Yoghurt (skimmed, flavoured)	4.3	0.1	7.1	160	50
Yoghurt (drink, plain, with sugar)	2.9	1.2	12.8	110	75
Yoghurt (drink flavoured)	2.9	1.4	13.3	107	80
Yoghurt (drink with fruit pulp)	2.7	1.6	13.5	107	80
Yoghurt (full-fat with fruit)	3.5	2.7	18	130	113

Source : Connaissance des aliments, Emile Fredot. Editions Tec & Doc.

In the production of fermented milk product, cow's milk may be replaced by milk from other mammals. Koumis is thus made through the alcoholic (3%) fermentation of mare's milk.

Kefir is milk fermented through the activation of *Saccharomyces kefir* which produces an alcoholic (1%) fermentation.

Yoghurts are of high nutritional value. In fact, the lactic acid that they contain inhibits the development of harmful germs and stimulates the motion of the digestive tract, which aids the elimination of the same harmful germs. Regular intake is necessary in order to maintain this beneficial effect. This is because the bacteria found in yoghurt do not stay in the digestive tract, and must be replaced every day. Yoghurt is a living food product that is highly recommended because it maintains intestinal health and reduces disorders.

Dairy desserts

These can include, for example, cream desserts, mousses, crèmes brûlées, rice pudding, îles flottantes, sundaes, custards, puddings, ... Milk is the main component of these dairy desserts.

However, they often have considerable sugar content (the addition of fructose, saccharose, glucose syrup, honey, ...), and are sometimes very high in fat (the addition of chocolate, eggs, cream.) They also often contain other additives (flavouring, thickening agents, gelatines, emulsifiers, colorants,...) which serve to modify the flavour, texture, colour or thickness.

The protein content is fairly similar to that of other dairy products, in contrast to the content of lipids and carbohydrates which are highly variable depending on the products. A crème brûlée can contain up to 25% lipids and rice pudding can have up to 30% carbohydrates.

The calcium content can also vary greatly depending on the dessert in question.

It is therefore especially advisable to check the labels on these types of products. They can represent a high caloric intake that can completely throw a daily nutritional intake out of balance.

Cheese

Cheeses are the products obtained from raw materials that are exclusively derived from dairy sources such as milk, cream and , buttermilk. They may or may not be fermented, aged or creamed.

Classification of cheeses

Fromages frais	Aged cheese	Melted cheeses
<ul style="list-style-type: none">- Fromage blanc- Petit suisse- Fromages frais (salted)- Cheese spread	<ul style="list-style-type: none">- soft cheeses<ul style="list-style-type: none">-with mouldy crust-with washed crust-without crust- veined cheeses- pressed cheeses ½ hard, uncooked<ul style="list-style-type: none">- with mouldy crust- with washed crust- cooked, pressed cheeses or hard cheese	

The nutritional value of cheese is highly similar to that of milk. They contribute proteins of high biological value (from 8g per 100 g of fromage frais to 29g for 100g of hard cheese), calcium (see table below) and a lot of fat (much more than in milk), unless they have been highly skimmed. The fats in question are saturated fats that therefore have little nutritional value. They should be consumed in moderation but should certainly not be avoided completely because they are precious resources for our bones. One should try to limit intake to 30g of cheese per day. Light-recipe cheeses are also very rich in calcium (sometimes even exceeding traditional ones) and are therefore of great nutritional value because of their lower fat content. However, check the labels because some light products may still be relatively high in fat.

Fat content should therefore always be checked on the nutritional information shown on the label, under the columns "lipids" or "oils" or "fats". This in fact shows the fat content of the finished product (the actual content of the product you are purchasing).

Manufacturers are required by law to list on their packaging (in a separate place from the nutritional info) the fat content of the dry weight. This refers to the fat content regardless of the water content. Only in this form is this information representative of the real fat content (see brochure on 'labelling').

Calcium density in dairy products:

Product	Calcium density (mg Ca/100 kcal)	Average amount of calcium per portion (mg)
Plain Yoghurt	346	125 g = 159
Plain skimmed yoghurt	340	125 g = 200
Skimmed milk	330	200 ml = 236
Hard cheese (Emmental)	275	30g = 306
Fromage blanc 0%	275	100g = 140
½ cream milk	250	200 ml = 236
Semi-hard cheese (Gouda)	230	30 g = 276
Full-fat yoghurt	215	125 g = 187,5
Full-fat milk	190	200 ml = 240
Soft cheeses with washed crust (Munster)	190	30 g = 135
Veined cheese (Bleu)	175	30 g = 158
Fromage blanc with 20% fat	145	100 g = 125
Fromage blanc with 40% fat	95	100 g = 111
Soft cheese with mouldy crust (Brie)	95	100 g = 120
Petit Suisse with 40% fat	78	2 x 60g = 115
Melted cheeses	45,5	30 g = 71

Source : Connaissance des aliments, Emile Fredot. Editions Tec & Doc.

C. IN ORDER TO MEET THE RECOMMENDED CALCIUM INTAKE, A DAILY CONSUMPTION IS REQUIRED OF:

Adults (900 mg/j) :

- 30g of cheese (preferably low-fat and hard)
 - 1 glass of milk (this could also be consumed as part of a white sauce and/or a dairy dessert such as pudding)
 - 2 yoghurts (plain or skimmed if possible)
- = 306 + 236 + 400 = 942 mg Ca

OR

- 30g of cheese (preferably low-fat and hard)
 - 1 litre of Calcium-enriched water (see brochure on water)
 - 400 g of vegetables: 200
- = 306 + 468 + 200 = 974 mg Ca

Pregnant or nursing mothers, adolescents, high-level athletes (1200 mg/j) :

- 30g of cheese (preferably low-fat and hard)
 - 2 glasses of milk (this could also be consumed as part of a white sauce and/or a dairy dessert such as pudding)
 - 2 fromages blancs (20%)
 - 400 g of vegetables : 200
- = 306 + 472 + 250 + 200 = 1228 mg of calcium

Naturally, many other combinations are possible.



Sodexo
Rue Charles Lemairestraat 1
1160 Brussels
02-679 12 11
nutrition@sodexo-be.com
www.sodexo.com

