

Dairy Products and Health, Realities

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Received: August 30, 2019; **Published:** September 30, 2019

Abstract

The consumption of dairy products is a subject that generates a lot of controversy in relation to the possible risks derived from its consumption. However, there is enough scientific evidence to conclude that dairy products, without being essential, are interesting because they can provide a number of physiological benefits.

Keywords: Dairy Products; Health;

It is very common for controversy to arise around the consumption of whole dairy products in terms of cardiovascular and metabolic risk, but the strength of the scientific evidence is increasingly clear that whole dairy products may not be harmful but even beneficial.

First of all we must bear in mind that not all sources of saturated fat are the same. The main food sources of saturated fatty acids are products of animal origin, such as meat and meat products and dairy products such as butter, cheese, milk and other whole milk products [1,2]. Not all saturated fats behave the same and therefore some foods that provide saturated fat may not be harmful from a cardiovascular health point of view or may even be beneficial.

Dairy products, with the exception of butter, appear to be safe with respect to cardiovascular risk and may even contribute to reducing it [3] and fermented dairy products may be especially beneficial, perhaps in part due to probiotics [4].

Some published studies [5] evaluated the effects of cheese (and also meat) as a source of saturated fatty acids by comparing a diet that included such foods with one with the same kilocalories but where that saturated fat was replaced by an extra supply of carbohydrates. Cheese diets raised HDL and Apolipoprotein A1 more than the low-fat, carbohydrate-rich version of the diet and also increased bile acid secretion and in the case of cheese there is an increase in faecal fat excretion (something that does not occur in meat).

Other studies [6] conclude that there is no relationship between consumption of whole dairy products and metabolic syndrome and even suggest that dairy fatty acids may have a protective effect.

Change in strategy?

If this were so, the dietary strategy of recent years to advise reducing the intake of foods such as whole dairy products in order to reduce the intake of saturated fats and in return to take more carbohydrates (without taking into account the type of carbohydrates) could in some cases be a „nutritional error”. Although saturated fats have been denigrated for years, for some time now various studies have been suggesting that the effects of saturated fat on cholesterol and on the risk of cardiovascular disease itself seems to depend on specific saturated fatty acids and their interactions with the matrix in which they are found and its nutritional composition.

One of the reasons why not all sources of saturated fat are the same is that not all fatty acids are the same. Saturated fatty acids have been linked to an increase in inflammatory serum markers (such as C-reactive protein) indicating an increased cardiovascular risk. It does not appear that all saturated fatty acids behave equally. In some studies [7] that investigated the effects of 4 saturated fatty acids (lauric, myristic, palmitic and stearic) and the relationship between total saturated fat and polyunsaturated fat in terms of blood concentrations of highly sensitive C-reactive protein, adiponectin and leptin, it was found that there was a detrimental role of lauric and myristic saturated fatty acids and a high ratio of saturated fat and polyunsaturated fat to C-reactive protein levels.

Almost none of the recommendations of international bodies make a distinction between different saturated fatty acids perhaps because their predominant sources are the same foods [8].

Substitution of saturated fat by other alternatives?

FAO/WHO [8] has established that there is convincing evidence that the substitution of saturated fatty acids by polyunsaturated fatty acids decreases the concentration of LDL-cholesterol and the total cholesterol ratio: HDL cholesterol. The same with monounsaturated fatty acids decreases but to a lesser extent.

The substitution of saturated fatty acids by carbohydrates decreases the concentration of LDL-cholesterol, HDL-cholesterol but does not change the total cholesterol ratio: HDL cholesterol.

Interaction between fat and food matrix?

Calcium can be an example that the effects of saturated fatty acids in cardiovascular disease or cardiovascular risk are modulated by certain nutrients and therefore will depend on the matrix in which they are on the margin that not all saturated fatty acids behave equally.

Some studies [9] compared diets with semi-skimmed milk or semi-skimmed cheese with a non-dairy control diet and found that they produced an increase in total cholesterol and LDL cholesterol, albeit attenuated (not as much as might be expected in principle).

Certain studies [9] compared diets with semi-skimmed milk or semi-skimmed cheese with a non-dairy control diet and found that they produced an increase in total cholesterol and LDL cholesterol although attenuated (not as much as might be expected in principle) and it was observed that there was an increase in the excretion of faecal fat and that the effects of milk and cheese were similar.

It appears that some of the effects of dairy could be due to its calcium content (and not just the presence of specific saturated fatty acids). It has not been suggested in vain that calcium intake increases fecal excretion of fat and also helps to reduce body fat. It has been talked about for years that it is possible that during caloric restriction (when we ingest less energy than we spend) taking an adequate dose of calcium can help to lose body fat. In fact, there have been studies for years [10] that suggest that diets rich in calcium can help reduce body fat by increasing fat oxidation, increasing the thermogenic effect of foods and reducing fat intake (by forming soaps and being eliminated by feces).

Calcium in the form of dairy products appears to be more effective than elemental calcium since other components present in serum may promote this action [11].

A meta-analysis published in 2009 concludes that calcium intake increases excretion of fat by faeces [12], a systematic review published in 2011 [13] concludes that calcium intake helps reduce body weight and fat and a meta-analysis published in October 2012 concludes that calcium increases fat oxidation [14]. Less fat means less cardiovascular risk.

Some studies conclude that the intake of 3 or more daily servings of dairy can help reduce weight and body fat [15,16] and that an intake of 600 mg of calcium appears to be a sufficient dose to achieve the reducing effect on adipose tissue, best with 125 IU of vitamin D. In fact, it is suggested that combining calcium with vitamin D can have a greater effect since vitamin D can increase calcium intake in the adipocyte [17].

Some studies suggest that dairy products may help to increase lean mass in addition to helping to lose body fat [18] so that we could achieve an extra physiological benefit (increased basal metabolic expenditure and better weight control for example).

Modification of the lipid profile of milk?

There have been strategies (such as modifying cattle feed) that aimed to modify the lipid profile of milk by increasing its richness in conjugated linoleic acid and even in omega-3 fatty acids (DHA and EPA) to obtain a final product whose habitual consumption could offer a series of advantages from the point of view of cardiovascular health [19] although it is true that there is growing evidence [20] that saturated fatty acids in the context of dairy products (and especially in fermented dairy products) have neutral or inverse associations with cardiovascular disease. It may be that the problem is not so much saturated fat as excess carbohydrates when saturated fat is replaced by them. It appears that [21] replacing saturated fat with polyunsaturated or monounsaturated fat may reduce the risk of cardiovascular disease but when replaced by carbohydrates (namely simple sugars such as sucrose) there may even be an increased risk of cardiovascular disease. And it is that we cannot think about denigrating carbohydrates that are added instead of fats because many of the studies do not compare saturated fats and different types of carbohydrates in relation to the risk of heart disease, ie perhaps many people by reducing saturated fat increase the consumption of certain types of carbohydrates, refined sugars for example. Moreover, it is common to see in the market a wide variety of 0% fat or low fat products that nevertheless have a high amount of simple sugars, so it is not surprising that when choosing foods low in saturated fat are both rich in refined sugars.

So perhaps it is not so much that reducing saturated milk fat does not bring such significant benefits, probably this absence of benefits can occur when saturated fat is replaced by simple sugars which is the norm, because if saturated fat is replaced by whole grain, polyunsaturated fat or monounsaturated fat there are health benefits [22]. However, by replacing these saturated fats with other sources of carbohydrates, it is possible to replace them with whole grain, polyunsaturated fat or monounsaturated fat [22].

However, the substitution of these saturated fats by other carbohydrate sources (other than simple sugars) such as fruits, vegetables, whole grains... obviously they are not expected to worsen and perhaps other additional physiological benefits can be obtained.

What all this seems to indicate is that a certain distribution of macronutrients is of little value and what really matters is a heart-healthy diet rich in nuts (nuts, almonds...), fish, vegetables, fruits, legumes, whole grains and dairy products. With regard to dairy products, there are even systematic reviews and meta-analyses [23] which conclude that there is no consistent association between milk consumption and all-cause mortality or mortality from specific causes (cancer or cardiovascular disease).

Conclusion

The dairy group is a group of foods with an interesting nutritional value and whose frequent consumption can derive a series of physiological benefits.

It may not be necessary, in general, to weight skimmed versus whole dairy products so much, something that should be taken into account in dietary guidelines.

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Volume 14 Issue 10 October 2019

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