

Michigan Dairy Review

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More Studies Highlight Health Benefits of Consuming Milk and Dairy Products

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Introduction

Milk and dairy products have been recognized as important foods for humans since 4,000 B.C. when Egyptian hieroglyphics were first used and when many now-common farm animals were first domesticated, including cows. The dairy sector has made continuous advancement over the years and today a wide variety of milk/dairy products are readily available to consumers. These products are an important source of key nutrients including high quality protein, energy, and many essential minerals and vitamins, although the nutritional importance of dairy fats is often less well understood. In response to considerable scientific research on the nutritional value of milk, dietary guidelines around the world have recommended daily consumption of dairy products for the overall health of the population.

Unfortunately, for over half a century, the concept of eating healthy has become synonymous with avoiding dietary fat and cholesterol, especially saturated fat. On a population basis, this has resulted in a diet low in saturated fat being at the core of nutritional advice in many countries for lowering plasma cholesterol and reducing heart disease risk. In the case of dairy products, there has been a general perception that a food containing saturated fat is unlikely to be beneficial to health. Recent estimates indicate that approximately 30% of our dietary intake of saturated fat comes from dairy products with cheese being the major source. However, over the last decade, evidence has accumulated that the composition and quantities of dietary fat is very important in determining the relative risk to diseases such as heart disease and cancer, and that milk-derived fat may offer significant health benefits compared with some common sources of dietary fats. It is important to recognize that individuals consuming dairy fats do not just consume saturated fat, but rather the fats in the whole dairy food are highly complex and may contain beneficial ingredients.

Challenge to Old Assumptions

The appropriateness of recommendations regarding the intake of dairy products (particularly in relation to reducing saturated fat intake by reducing dairy consumption) has been challenged by conclusions from a number of recent meta-analysis and data summaries. Peter Elwood and colleagues (Cardiff University, UK) published two reviews (2008: <http://www.ncbi.nlm.nih.gov/pubmed/19155432>; and 2010: <http://www.ncbi.nlm.nih.gov/pubmed/20397059>) that examined associations between milk/dairy products and health and survival. The long-term effects of milk and dairy product

consumption on health would ideally be tested in dietary intervention studies with disease/death events as the key outcomes. This is of course problematical, and thus far, no adequate studies of this type have been reported. As a result, Elwood and colleagues concluded that the most valuable evidence on associations between milk/dairy products and health and survival would be provided by long term observational (epidemiology) studies. These avoid the weaknesses of studies using markers of risk such as plasma cholesterol.

Elwood et al (2008) combined the results of several studies (often referred to as meta-analysis) that examined the associations between milk/dairy products and health and survival. This showed convincing evidence that a greater intake of milk can provide long-term reductions in the risk of heart disease. The relative risk (RR) of stroke and heart disease in subjects with high milk/dairy consumption 0.79 and 0.84, respectively, relative to the risk in those with low consumption (RR = 1.0, Figure 1). This means that subjects with high milk or dairy consumption had a 21 and 16% reduction in risk of developing stroke and heart disease compared with subjects with low dairy foods consumption.

This work has been extended to examine the evidence for differential effects of milk, cheese, and butter on incidence of vascular disease (Elwood et al 2010). It found that there were very few cohort studies available for cheese (5) and butter (6). For butter only 3 studies were suitable for meta-analysis yielding a non-significant RR for high vs. low consumption (0.93). For cheese, only 2 studies were suitable for meta-analysis. There are few actual scientific studies that have adequately compared the effects of full fat milk with fat reduced milk.

The results of Elwood and co-workers provide the best evidence available that those who consume large quantities of milk are at no greater risk of heart disease than those who consume little. Indeed, there appears to be a small but valuable reduction in risk of heart disease from increased consumption. As noted earlier, the evidence for cheese and butter is inconclusive. These findings are in broad agreement with the recently reported outcome of a remarkable 61-year follow up of the Boyd-Orr cohort study. This study involved the recruitment of 4,999 children in England and Scotland in 1937-39 with causes of death recorded from 1948. This study showed that a family diet in childhood, which was high in dairy products, did not give rise to a greater risk of heart disease or stroke mortality. Indeed all-cause mortality was lowest in those with the highest dairy/milk intake.

These findings are therefore suggestive that despite milk fat being rich in saturated fat, milk at least has other properties that are beneficial in respect to heart disease risk. With respect to 'reduced-fat' dairy products, there are studies that report disease rates in subjects who consume 'regular-fat' dairy foods, and in those who consume reduced-fat dairy foods. However, the data are hopelessly confounded due to the adoption of other health-related behaviors by subjects consuming low-fat milk. The appropriate question to ask therefore is: do fat-reduced milk/dairy foods provide any additional advantage to human health, or does the reduction in fat reduce the benefits of whole milk and dairy products?

Conclusion

Overall, the available evidence does not support the idea that consumption of dairy products increases the risk of heart disease. In fact, linking the benefits of milk consumption with deaths from key chronic diseases (including heart disease) led Elwood and colleagues to conclude that "high milk consumers probably have an overall survival advantage". It is unfortunate that due to a focus on the small rise in

blood cholesterol with milk drinking, the debate on milk has never achieved a reasonable balance in the evaluation of risks and benefits. Clearly, broad generalizations about fats can be misleading and often inaccurate.

There are several bioactive components found in milk fat, milk proteins, and other components that have potential benefits for health maintenance and the reduction of chronic disease risk, and this reinforces the need for the dietetic community to reconsider current recommendations on dairy products and human health. Continued recommendations to reduce milk fat intake may result in inadequate intakes of key nutrients in certain population groups.

We recently developed a series of informational posters on this subject. Contact the author for additional information on the scientific evidence related to the impact of dairy product consumption and milk fat in human diets on human health (517-353-8714 or Email, allock@msu.edu).