Dairy foods and heart disease: a challenge to the dairy industry

It is widely accepted that saturated fats raise cholesterol and increase risk of heart disease. Official dietary guidelines across the world recommend that no more than 10% of calories should come from saturated fats. In the UK, dairy foods contribute about 20% of total fat intake and over a third of saturated fat; in the USA, dairy foods contribute about 15% of total fat and 30% of saturated fat. *Saturated fat from dairy foods alone amounts to 5% of total calories - about half the recommended maximum intake.*

The message to cut dairy fat to promote good health is clear, but rather than accepting and working with that recommendation the dairy industry has chosen to put profit above health and keep on pushing dairy fat into the food supply. When consumers voted with their wallets against milk fat by switching to reduced fat milk, the dairy industry responded by recycling the fat back into them by other routes (cheese, cream, ice-cream and convenience foods) and charging them twice for the privilege. The success of the dairy industry in recycling its unwanted fat is shown by fact that the amount of fat and protein supplied by dairy products other than butter has remained remarkably constant in both the UK and USA for the last four decades despite whole milk sales plummeting.

Based on a study of 80,000 women over a period of 14 years, Professor Walter Willett observes that "*replacing 5% of calories from saturated fat with unsaturated fats would reduce the risk of heart attack or death from heart disease by 40%.*" In other words, if the 5% of total calories currently coming from dairy products as saturated fat were replaced by largely unsaturated fats such as olive oil and nuts and seeds, a very substantial decrease in heart disease would be expected.

The UK Dairy Council, however, makes a concerted attempt to undermine this health message with claims such as:

> "There is a growing body of evidence … that milk itself does not raise blood cholesterol."
>
> "Compelling new research has confirmed that regular milk drinkers do not increase their risk of heart disease."

These claims are echoed by the US National Dairy Council Handbook of Dairy Foods and Nutrition (2000) which goes so far as to claim:

> "Findings to date do not support blanket recommendations to preferentially decrease intake of animal fats such as milk fat to reduce the risk of heart disease or other major chronic diseases. Rather moderation in total fat intake, from both animal and vegetable sources, is recommended."

It is tempting to dismiss the dairy industry claims as mere wishful thinking, but in the interests of clarity as to the health implications of a dairy-free diet we have chosen to challenge these claims head-on. The Vegan Society, of course, would like to see the dairy industry disappear for animal welfare and environmental reasons as well as for health reasons, so in that sense we are not unbiased either. However, in the interests of exposing the truth about dairy foods and health we are offering the UK Dairy Council, and indeed its US counterpart, a right of reply on our website and in a future issue of our magazine. We will give them every opportunity to engage in an open debate – if they dare.

Claim No. 1: Dairy products are necessary to provide enough calcium to prevent osteoporosis, regardless of adverse effects.

Calcium is a very good thing, but increasing calcium intake from 500 mg per day to 1500 mg per day will add less than 90 mg per day to the calcium *retained* by most adults, and less than 50 mg per day for the 10% of adults with the lowest calcium absorption, who are at particular risk of osteoporosis.

Other aspects of diet are equally significant. 10 g of salt per day will *subtract* about 70 mg per day from retained calcium by increasing calcium losses in urine whereas 4000 mg of extra potassium from a diet rich in vegetables, fruits and other unrefined plant foods will *add* 60 mg per day to retained calcium by reducing calcium losses.

Vitamin K is especially important in promoting healthy bones and reducing calcium losses, particularly in postmenopausal women.

In other words, relying on calcium alone to prevent osteoporosis is like fielding a football team with only strikers and no defenders.

Dairy products are not the best source of calcium as they cause calcium losses at the same time as providing calcium. A third of the calcium absorbed from milk and more than two thirds of the calcium absorbed from cheese is wasted in this way. In contrast, green leafy vegetables such as kale and spring greens provide plenty of well absorbed calcium while at the same time reducing calcium losses.

Our prehistoric ancestors obtained abundant calcium from plant foods while dairy products are a recent and unnecessary innovation. A diet based on Vegan Society recommendations will have abundant amounts of calcium and potassium along with plenty of vitamin K - a key nutrient for bone health which is notably missing from milk but plentiful in green leafy vegetables.

A comprehensive review of relevant research can be found at
http://www.vegansociety.com/briefings/dietandbone/

Dairy products are an exceptional source of calcium, but relative to recommended intakes they are an equally exceptional source of saturated fat. The recommended maximum daily saturated fat consumption on a 2000 kcal diet (typical for many women) is 22g. 1000 mg of calcium from dairy products comes with 17g of saturated fat somewhere in the food supply while 1000 mg of calcium from cheddar cheese comes with a stunning 30 g of saturated fat. The dairy industry charges as much for reduced fat milk as for any other milk, creating a cheap source of unwanted and unhealthy fat which is pumped back into the food supply, thus negating any benefit to the population as a whole. As Prof. Willett puts it,

> "once a cow is milked, the fat from that milk is in the food supply and *someone* ends up drinking or eating it."

Claim No. 2: Dairy products are beneficial for heart health despite raising cholesterol.

The "compelling new research" indicating that "regular milk drinkers do not increase their risk of heart disease" refers to the study by Andy Ness and others published last year entitled "Milk, coronary heart disease and mortality." Like the study by Willett cited earlier, this study measured

some aspects of diet and lifestyle and observed subsequent mortality but it involved less than a tenth of the number of people in Willett's study.

The authors observed a statistically significant reduction in deaths from heart disease with increased consumption of milk as a drink (11% for the medium milk group and 32% for the high milk group) after adjustment for age. This relationship remained largely unchanged after adjustment for other risk factors, but was found to have a 1 in 10 chance of being a random observation – in other words it ceased to be statistically significant.

On the other hand, in Hu and Willett's study of US nurses, *the fully adjusted risk of heart disease in those consuming two glasses of whole milk per day was 67% higher than for those consuming no whole milk*, with less than a 1 in 10,000 chance that the increased risk was a random observation. This study observed no significant effect from skimmed milk.

Both studies are subject to the criticism that it is difficult to adjust for all related characteristics of individuals freely choosing their own diet and lifestyle. It is even more difficult to persuade people to make long-term changes to their diet according to specific instructions, so observational studies such as those cited are often the best evidence available. However, this is not the case for milk and heart disease.

There was a common but misguided belief in the 1950s that high dairy ("Sippy") diets were good for ulcers. Some doctors assigned most of their ulcer patients to high dairy diets while others made little use of such diets. Thus a unique experiment on the effect of assigning individuals to high dairy consumption was created.

A study on the Sippy diet compared mortality in ulcer patients in the UK and USA depending on whether they had been assigned to the "Sippy" diet or not. Ulcer patients on the Sippy diet were compared both with ulcer patients on other diets and with other patients in terms of the percentage showing evidence of heart attacks (myocardial infarction) on autopsy. The results were striking:

	Ulcer patients on Sippy diet	Ulcer patients on other diets	Patients without ulcers
UK	18%	3%	8%
USA	36%	15%	15%

In the UK the chance of the differences between the Sippy groups and each of the other groups being a random finding was less than 1 in 20 and in the USA it was less than 1 in 100. The study thus provides uniquely strong evidence that high dairy intake substantially increases risk of dying from a heart attack.

The dairy industry also advances two indirect arguments for milk being protective due to non-fat components, namely calcium and B12.

There is good evidence that increases in calcium intake work with increases in potassium and decreases in sodium to reduce blood pressure and reduce risk of stroke and heart disease. As noted above, a healthy vegan diet provides ample calcium without the dangerous saturated fat that goes with it in dairy products.

Milk is also a source of B12 and adequate B12 is essential to avoid elevated levels of homocysteine – a major risk factor for heart disease and overall mortality. Most nonhuman primates get enough B12 from plant foods contaminated with soil and insects. Modern vegans spare the insects and avoid the potential ill effects of contaminated soil and are therefore advised to get at least three micrograms of B12 from fortified foods or supplements daily. This, along with plentiful folate and B6 from green leafy vegetables and other plant foods, is sufficient to minimise homocysteine levels.

Once again, a diet following Vegan Society guidelines provides everything humans need for health. *Adding dairy products with their accompanying saturated fat offers only disadvantages in terms of health.*

Claim No. 3: Dairy products don't actually raise cholesterol anyway.

The first two claims were flimsy and unsubstantiated but this claim moves even further into the realms of fantasy. The US Dairy Council Handbook provides 178 references in the chapter on "Dairy Foods and Cardiovascular Health" and highlights a 1977 study by Howard and Marks suggesting that milk consumption causes a significant drop in cholesterol. It also includes several other studies carried out around that time. Unsurprisingly, it completely ignores a later paper by Howard and Marks which states:

> "Roberts et al. report that they can find no evidence that milk contains a cholesterol-lowering factor as previously proposed by us. After reviewing their evidence, our other published work, and more recent unpublished results, we agree that such is indeed the case."

The handbook also fails to mention the paper by Roberts et al. which shows a 9% increase in cholesterol with one litre of whole milk per day: to lose one key reference could be considered an accident, to lose two is (at best) carelessness.

Conclusion

The addition of dairy products to a diet based on Vegan Society recommendations will significantly undermine health. The dairy industry is indulging in wishful thinking and selective citation and should either

- stop recycling fat from low fat dairy products back into the food supply, or
- stop promoting dairy foods as healthy, or
- show that we have got it completely wrong.

We welcome a debate to make the truth evident to all.

References

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