Dairy Fat Is Not Associated with Heart Disease

- Different foods often contain different types of saturated fats.
- Long-term consumption of dairy saturated fats by adults is not associated with the incidence of coronary heart disease.
- National dietary health guidelines that often recommend adults consume low quantities of dairy fat may need revision.

The defense attorney summed up. "The prosecution’s case against dairy fat’s alleged health misdeeds is flawed and circumstantial. The flimsy forensic evidence does not stand up to repeated scientific inspection. The accused just looked like one of the suspect crowd and became wrongly branded with their guilt." Now, a clinical trial [1] following an elderly population for a remarkable 21 years, as well as mounting independent evidence [2-7], reports on dairy fat’s innocence. Dairy fat is not associated with risk of cardiovascular disease (CVD). Four past articles in SPLASH! have also summarized related aspects of the growing body of scientific evidence supporting this conclusion [8-11].

Health authorities in Western societies frequently list CVD as the leading cause of death in their populations, typically accounting for about a quarter of all mortalities [12-14]. CVD includes coronary artery disease, stroke, and various other forms of heart failure. Scientists have long known that the risk of CVD is associated with age, genetics, lifestyle factors, and diet [15-20]. Only the latter two factors can be modified during a lifetime and thereby potentially reduce the risk of CVD. National health authorities from most countries make a number of dietary and lifestyle recommendations to diminish the risk of CVD in their populations. Often, one of their principal recommendations is a reduction in the consumption of saturated fats, including dairy fat [21]. This recommendation resulted from scientific evidence showing that dietary saturated fats are associated with CVD [21-23]. Scientists demonstrated that diets rich in saturated fats increase the level of a complex of low-density lipoprotein (LDL) and cholesterol in the blood, which leads to increased cholesterol deposition in the walls of blood vessels causing their narrowing and ultimately blockage, as well as an increased risk of clot formation [3, 6]. The region of tissue normally supplied by the blood vessel is then injured or killed by the lack of oxygen. The general term “saturated fat,” however, includes all types of saturated fats. One size fit all is the mantra.

What Is Fat?

Today, we universally denigrate fat. It is often viewed as a threat to our health, longevity, and body image. Perhaps it is comforting to have a single scapegoat for our many concerns. Paradoxically, fat is essential for the structure and function of every cell in the body and it is a major source of cellular energy. There is no life without fat.

Fat comes in a variety of chemical structures and small differences can cause big biological changes. The molecular structure of a fat usually consists of several carbon atoms joined together in a string-like fashion, and at one end of the string, there is an acid group (i.e. a carboxyl group). The carbon atoms in saturated fats are linked by single chemical bonds. Each carbon atom in these fats is saturated with two hydrogen atoms, hence the term “saturated” fat. Polyunsaturated fats, by contrast, contain some pairs of carbon atoms that are joined together by two chemical bonds and these carbon atoms have fewer hydrogen atoms attached to them.
De Oliveira and five colleagues recently reported results from a long-term clinical trial designed to test whether three specific dairy fats present in the blood from elderly people were associated with total mortality, cause-specific mortality, and incidents of CVD [1]. The scientific paper describing the clinical trial was published in the *American Journal of Clinical Nutrition* [1]. The trial was the first investigation to test for an association between all causes of death and the levels of dairy fats in the blood. The investigators are located at six universities and research institutions in the U.S.A. The multi-institutional involvement in the clinical trial reflected the need for collection of health records for a large population of elderly adults who were monitored by the investigators over an impressive 22-year follow-up period. That is long-term planning!

De Oliveira and colleagues reasoned that previous investigations examining the relationship between health and fat consumption in large populations may be confounded by the self-reporting of the dietary intake, as dairy fat is often hidden in many processed food products. Also, scientists repeatedly demonstrate that self-reported estimates of dietary intake are notoriously biased [1, 24]. People often deceive themselves. To overcome this issue, De Oliveira and colleagues directly measured the amounts of three dairy fats present in the blood of people consuming dairy products. These fats are named pentadecanoic, heptadecanoic, and *trans*-palmitoleic acids; big names with only small differences in their chemical structures. Pentadecanoic and heptadecanoic acids are saturated fats containing strings of 15 and 17 carbon atoms, respectively. *trans*-Palmitoleic acid (a monounsaturated fat), contains a string of 16 carbon atoms with one pair of its carbon atoms joined together by two chemical bonds and the rest by single bonds.

Investigators involved in past studies demonstrated that the levels of the three dairy fats in blood were directly related to the amount of ingested dairy fat (references listed in [1]), making them reliable markers of dairy fat intake. De Oliveira and colleagues measured the levels of the three dairy fats in blood from 2,907 adults aged over 65 years. The measurements were performed at the beginning of the clinical trial and then 6 and 13 years later. These repeated measurements over a long period of time were a major strength of the trial design that sets it apart from related clinical trials. The incidence of disease and death in the investigated population was assessed 21 years after the start of the trial.

At the start of the clinical trial, the average age of the test population was a sprightly 75. The inevitable hand of providence meant that 2,428 of the 2,907 adults died during the subsequent 21-year follow-up period. A sobering statistic! The data were then subjected to a complex statistical analysis to determine whether there were associations between the levels of the three dairy fats in blood from the 2,907 people and total mortality, cause-specific mortality, and CVD incidents. The conclusions were clear. There was no significant association between the levels of the three dairy fats in the blood and total mortality or the incidence of CVD. The investigators also concluded that a higher level of heptadecanoic acid in blood was associated with lower risk of death caused by CVD or stroke, but there was a slightly higher risk of death from non-CVD causes that could not be identified. De Oliveira and colleagues summarized evidence from other large clinical trials that also concluded dairy fat is not associated with CVD [4, 5]. The investigators additionally cited studies concluding that dairy products were either neutrally or beneficially-associated with CVD risk [4, 6, 7, 25]. Most of the latter investigations did not specifically measure dairy fat intake.

As they say in the motoring advertisement, “oils ain’t oils.” Likewise, the health focus on fat generally treats all saturated fats as the same. De Oliveira and colleagues, in an earlier clinical trial involving 5,200 people, concluded that higher intake of dairy fat was associated with lower risk of CVD while higher intake of saturated fat from meat was associated with greater CVD risk [6, 10]. These conclusions suggest that saturated fats from different sources may have different effects on health. The investigators noted that dairy fat compared with beef fat has a higher proportion of shorter fats and dairy fat is also characterized by a higher proportion of fats with an odd number of carbon atoms in their chemical structures. Fats containing odd and even numbers of carbon atoms are metabolized in slightly different ways when used for energy production within cells. De Oliveira and colleagues also listed evidence that fats containing odd compared with even numbers of carbon atoms are associated with heart health and decreased risk of type 2 diabetes [6, 26]. Clearly, beef and dairy saturated fats are structurally different and they have different effects on human health.
Implications

De Oliveira and colleagues in their 2018 publication concluded: "Overall, our findings do not support harmful associations of dairy fat consumption for incident CVD events later in life." This is a significant conclusion that builds on an expanding body of strong supportive evidence. Indeed, De Oliveira and colleagues imply that the national health authority recommendations for low dairy fat intake may need revision. Currently, health authorities lump together dairy fat with all saturated fats and consequently dairy fat has taken the rap for the health misdeeds of other saturated fats. Dairy fat has now been cleared. The days of the tasteless skinny latte may be numbered.


Contributed by
Dr. Ross Tellam (AM)
Research Scientist
Brisbane, Australia

What’s in the Dairy Case? Oat, Pea, and Coconut Milks: Plants in Cows’ Clothing?

- Plant-based milk substitutes are increasing in popularity due, in part, to an erroneous belief that they are nutritionally superior to cow milk.
- Oats, rice, coconut, peas, and even bananas are transformed from their native states into liquids that are similar to milk in texture and appearance by the addition of thickening agents and emulsifiers, and are fortified with several minerals and vitamins.
• Plant-based milk substitutes offer many health benefits, such as reducing cholesterol, in addition to their basic nutrition, but they should not be used to replace dairy foods, particularly by young children and adolescents.

They say there is a lid for every pot. If you’ve recently stood in front of your local grocery store’s dairy case, overwhelmed by the different types of “milks” currently available, you may wonder if there isn’t also a milk type for every shopper. Grains, beans, nuts, and even fruit are being transformed into beverages that can be poured over cereal, whipped up in a latte, and used for dipping chocolate chip cookies. The plant-based milk substitute market has exploded over the last 10 years, quickly becoming a multi-billion-dollar industry in the U.S. and around the globe [1, 2]. This growth has been fueled in part by consumers believing these milk substitutes are as nutritious as (or even more nutritious than) cow milk [3], a perception that is strongly influenced by the use of the word milk in the product name and their very placement next to cow milk in the dairy aisle. Add in claims on the packaging regarding calcium and vitamin D fortification, and it is not hard to see why people would think that anything cows can do, plants could do better. But consumers should proceed with caution—just because these drinks look, feel, and act like cow milk does not make them nutritional equals. Two previous SPLASH! milk science update contributions discussed how soy and almond milk beverages measured up to cow milk. Read on to find out the nutritional benefits and shortcomings of oat, coconut, rice, pea, and banana (yep, banana) milk.

The Milky Way

Grocery stores have aisles dedicated to water and juice, so if a beverage is found in the dairy case it suggests this product has properties more similar to cow milk than these other drink choices. But how do plant milk manufacturers transform cereals, nuts, beans, and fruit into something that resembles cow milk in appearance and texture?

The first hurdle requires turning a solid into a liquid, and the second requires making that liquid as creamy and milk-like as possible. First, plant parts are extracted in water to make what is best described as a slurry—small plant pieces suspended in water. These small solid pieces must then be strained out. At this point in the process, oat and rice (and other cereal-based) milk makers add in enzymes to break down the natural starches into smaller sugars, which function both to help make the product easier to digest and to sweeten the drink [4]. Some plant milks, such as pea milk, have a slightly different order of operations. Instead of milling with water, yellow peas are milled into flour, the fiber and starch are removed, and the remaining pea protein flour is then blended with water [5]. Either way, the straining process leaves the solids behind, which is ideal for making a smoother tasting drink but also may result in throwing out key nutrients. For example, most of the protein from nuts remains in the solid particles rather than the strained liquid. This explains why a serving of nut milk (like almond and cashew) is so much lower in protein than a serving of nuts.

At this stage, the plants may have been successfully transformed into liquids, but they are more similar in texture and viscosity to water than milk. To make them milky, the next steps (of some but not all brands of plant-based milks) include homogenization, which uses high pressure to break down fat particles into smaller particles, thereby making them more evenly disbursed throughout the liquid; emulsifiers, which help to keep these smaller particles dispersed throughout the solution; and finally, thickening agents, which are added to achieve a creamier consistency. This is also the stage where many of the milks are fortified with vitamins and minerals, namely vitamin D and calcium, to try and match their composition in cow milk [1-4]. Some milks are also fortified with vitamin B12 [2], a vitamin in short supply in vegan and vegetarian diets.

Coconut milk beverage has the opposite problem of cereal- and legume-based milks. Strained coconut meat actually produces a liquid (called coconut milk, no beverage at the end) that is too creamy to be a cow milk substitute but is ideal for making curries and soups. Coconut milk beverage is essentially dilute coconut milk, but also undergoes homogenization, can have added emulsifiers, and many brands are calcium and vitamin D fortified.

Matching milk texture is important but so is looking like milk. To this end, a recent study [1] ascribed a whiteness index (WI) to assess how well various plant-based milks approximated the color of cow milk.
Cow milk has a WI of 81.89, and the closest plant-based milks were soy milk and coconut milk (with ratings between 67 and 75 depending on brand and flavor) [1]. Not surprisingly, cashew, almond, and brown rice milk had much lower scores (in the 50s) [1]. If whiteness is indeed a factor is selecting a milk substitute, some plant milks have a natural advantage over others.

**Inside the Carton**

A comparison of cow milk with plant-based milks is essentially a comparison of cow milk with calcium and vitamin D-fortified plants, as these milks are nothing more than plants, water, and perhaps added sweeteners. Transformation into milk does not increase a plant’s protein or micronutrient content, which is where most plant-based milk substitutes come up short when compared with cow milk. It seems surprising, then, to learn that a survey found half of respondents believed plant-based milk substitutes to be nutritionally superior to cow milk [3].

Part of the misconception may come from confounding healthy with nutrient-rich foods. Plant-based milks (like the plants from which they are derived) are certainly important functional foods, or nutriceuticals—foods that provide health benefits beyond their nutrients [6]. Their transformation into beverages may even increase their intake by consumers, thereby making important contributions to the health of the population. But when you do a side-by-side comparison of what is actually inside the cartons [e.g., 1–4, 7], plant-based milks are not a suitable nutritional substitute for cow milk.

**Oat milk**

Oat milk, like the oats from which it is made, is low in fat and calories and high in iron, folic acid, and fiber. Oats are actually a good source of protein as well; one 8-ounce serving of oat milk has about half the protein (approximately 4 grams) of cow milk (approximately 8 grams). However, the digestibility and protein quality of oat protein is lower than that for whey and casein, the proteins in cow milk (a trend that holds true for all nondairy milks, with the exception of soy) [1–4].

Oat fiber is present in oat milk and has been demonstrated to lower cholesterol, specifically low-density lipoproteins (LDL), also known as the bad cholesterol [4, 8, 9]. Oat fiber has also been demonstrated to lower the glycemic index (a measure of how quickly glucose enters the bloodstream after eating a food) of oat-based foods, including oat milk [1, 8]. Drinking oat milk is thus a way to drink your whole grains rather than eat them.

**Rice milk**

If anyone has ever been on an elimination diet, they are well aware that rice is the first food you get to start adding back in because it is one of the leading hypoallergenic foods. Rice milk offers the same benefit, and is often recommended for people with cow milk protein allergy who may also react to soy and nut milks. It should not, however, be used as a milk substitute for infants and toddlers with allergies without other major dietary interventions because it is so low in protein (rice milk has less than 1 gram of protein per 8-ounce serving) [10]. Rice milk lacks calcium and must be fortified, and has carbohydrate as the primary energy source. This means the milk has a naturally sweet taste but also means that it is probably more similar to juice than to milk.

There is also a unique concern with rice milk: arsenic levels [1, 7, 11]. Rice accumulates arsenic as it grows, and the toxin does make its way into rice milk. Levels of inorganic arsenic (which is the more toxic form) in several brands of rice milk were found to exceed the current EU and U.S. standards for arsenic levels in drinking water [11], suggesting that regular consumption could pose health risks, particularly in pregnant women and young children.

**Pea milk**

Pea milk is one of the most recent plant-based milk substitutes to emerge on the shelves of the dairy case. Pea milk is similar to soy milk in boasting a high protein content, with some pea milks advertising even higher protein levels than cow milk. But don’t forget to think about protein quantity. Pea protein is not a complete protein, which means it does not provide all of the essential amino acids, and thus should
not be the only protein source in the diet. The list of the nutritional benefits of peas is quite long, and these benefits pass on to pea milk: iron, vitamin C, antioxidants, vitamin K, and fiber are all quite high. Peas are also naturally very low in sugar and fat, which means the majority of energy in pea milk is provided by protein, which does not get filtered out in the milk-making process, as is the case for many nut milks [2]. Peas are naturally low in calcium, vitamin D, and vitamin B12 and are usually fortified with these nutrients as a result. Indeed, many brands boast having more calcium than cow milk. But what is on the nutrition label and what makes its way into your bloodstream may be two very different numbers. The short-chain fatty acids present in cow milk, but missing from pea milk (and other plant milks), enhance calcium absorption in the intestines. For those with a cow milk protein allergy or on a vegan diet, pea milk offers many of the same nutritional benefits of cow milk. However, protein quality and calcium bioavailability should still be kept in mind when making this nutritional swap; pea milk may come close to cow milk but could still leave consumers with nutritional deficits.

Coconut milk beverage

Coconut milk beverage is a diluted form of coconut milk; the former is found in refrigerated cartons in the dairy case and the latter is usually found in cans in the international food section of the grocery store. Coconut milk is made by grating and squeezing the meat of the coconut, resulting in a thick and creamy white liquid (hence the name “milk”). Coconut milk beverage shares some, but not all, of the nutrients found in coconut meat. For example, coconut milk beverage provides medium-chain fatty acids. Some studies have shown that these fats improve heart health by raising the good cholesterol, high-density lipoproteins (HDL) and lowering LDL [7,12]. Indeed, these fats are the main energy source of coconut milk beverage, as there is little protein (<1 gram per 8-ounce serving). Recently, coconut milk has been marketed as a blended drink with almond milk. Although still low in protein, the addition of almond milk provides consumers with heart-healthy unsaturated fats as well.

Banana milk

Apparently even bananas are getting in on the milk act. Whereas other fruits are blended with water and marketed as juice, bananas’ creamy consistency must lend itself better to a plant-based milk substitute. Depending on the brand, bananas may be combined with grains and seeds, or even soybeans (and potentially some thickening agents and emulsifiers) to create a potassium-rich, vegan milk alternative. The addition of ingredients such as chia seeds and soy beans increases the milks omega-3 fats and protein content but also begs the question of why it is called banana milk when the majority of the nutrition, save for potassium, comes from added plants? Why not banana-flavored soy milk (as they already offer strawberry, vanilla, and chocolate)?

Your Crowded Dairy Case

Although this may seem like plenty of nondairy milk options, this article only touches on the most popular (or unusual, as is the case with banana milk). Hemp milk, sesame milk, peanut milk, quinoa, amaranth, and even potato milk are available in organic food sections and even some large grocery store chains, making it hard for consumers to find cow milk in a section labeled “dairy.” The sheer variety of plant-based milks and the different options (unsweetened, vanilla, and even coffee creamers) may allow consumers to tailor their plant-based milk to their specific dietary needs (e.g., nut allergy, low sugar). As they continue to grow in popularity, there is a critical need to educate the public on each plant-based milk’s nutritional benefits and their shortcomings compared with cow milk. The perception that they are as nutritious as cow milk has the potential to result in nutritional deficiencies, particularly if these milks are used to replace cow milk in growing children and adolescents.

Picking a Selenium Form for Enriching Infant Formula

- The FDA requires that infant formulas be fortified with selenium, a micronutrient essential for infant health and development, but it doesn’t recommend a particular form of selenium for the fortification.
- A recent review article suggests that organic forms of selenium—particularly selenium-enriched yeast—are more bioavailable, better absorbed and retained, and may have improved biological activity compared with inorganic forms.
- Most studies of selenium fortification of infant formula have used inorganic selenium, and the review recommends additional studies evaluating the safety and health outcomes of fortification with organic selenium.

When thinking about infant nutrition, selenium isn’t necessarily the first thing that comes to mind. But it’s been known for more than 50 years that selenium is a crucial micronutrient. This trace mineral can’t be synthesized in the human body, and is required for a variety of functions including antioxidant defense, modulation of the inflammatory response, and production of thyroid hormones [1,2]. It acts in conjunction with many proteins, and about 25 genes encoding these “selenoproteins” have been identified in humans [3–5]. Selenoprotein deficiency has been associated with an increased risk for cardiovascular disease and stroke [2].

Selenium is particularly important for infant health and development. Infants are born with some selenium reserves, and infants born at term usually have larger selenium stores than pre-term infants [6]. Selenium concentrations in preterm infants are considerably lower than those of both formula-fed and breastfed term infants. Preterm infants are at risk for selenium deficiency [7]. Supplementation with trace minerals, including selenium, is particularly important in these infants [8]. But even for infants born at term, selenium stores are quickly depleted as the infants grow, and dietary sources of selenium become increasingly important.

Breastfed infants generally receive sufficient selenium from human milk, which typically contains higher concentrations of the nutrient than unfortified cow’s milk-based formula. The selenium concentration in the blood of breastfed infants generally increases from birth until the age of six months and then remains stable in the long term [9]. However, infants fed unfortified formulas have consistently lower selenium levels compared with breastfed infants, and their selenium levels decrease several months after birth, suggesting that their selenium intake may be too low to support their rapid growth [4]. Researchers have thus suggested that infant formula should be supplemented with selenium levels similar to those in human milk [10].

After considering the evidence about the importance of selenium in infant nutrition, in June 2015 the United States Food and Drug Administration (FDA) added it to the list of required nutrients in infant
formulas, and required that they contain selenium at levels between 2.0 and 7.0 µg per 100 kilocalories [11].

However, selenium exists in both organic and inorganic forms, and the FDA did not recommend a particular form for fortification. Infant formula has so far been supplemented with inorganic forms of selenium such as sodium selenite or sodium selenate. Human milk doesn’t contain inorganic forms of selenium, and it is instead secreted as part of organic compounds.

In a new review article, distinguished professor emeritus Bo Lönnerdal from the University of California at Davis and colleagues suggest that organic forms of selenium may have some benefits over inorganic forms for fortifying formula [12].

Most trials of selenium fortification in infants have used selenite, an inorganic form of selenium. Clinical trials have demonstrated that infants receiving formula fortified with inorganic selenium have improved selenium levels compared with infants receiving non-fortified formula [13–15]. However, the recent review suggests that organically bound forms of selenium—such as selenomethionine and selenium-enriched yeast—are better absorbed and retained than inorganic forms, and fortification with selenium-enriched yeast may be particularly beneficial compared with other organic forms.

Evidence from preclinical studies suggest that inorganic forms of selenium may be more acutely toxic than organic forms, although studies on selenium-fortified infant formulas have reported few adverse effects [13-15]. Several studies have also shown that organic selenium is more efficiently incorporated into milk proteins than inorganic forms, and is more rapidly and extensively absorbed by the body [8,16–20]. In addition, selenium from selenium-enriched yeast may be 1.5–2 times more bioavailable than inorganic selenium, and may also have increased biological activity and be retained longer in the body [20–22].

There may also be differences between various organic forms of selenium. Studies have shown that different forms may have different levels of antioxidative activity, and selenium-enriched yeast may be particularly beneficial [23]. Selenium-enriched yeast is also expected to be safe for use; it is used in inactive form and in tiny quantities, and is closely related to another form of yeast that has been used as a probiotic in children since the 1950s. In addition, a standardized formulation of selenium-enriched yeast in which selenium levels are entirely bound to organic compounds, with no free inorganic selenium present, has been shown to be safe and well tolerated in growing infants and older individuals [21,22,24]. The review concludes that organically bound forms of selenium, and particularly selenium-enriched yeast, are safe and may be preferred for use in infant formulas compared with inorganic forms. However, most studies of selenium fortification in infant formula have so far used inorganic selenium, and the researchers suggest that more studies are needed to evaluate the safety and potential health benefits of enriching formula with organic selenium, and in particular with standardized selenium-enriched yeast.

Large Study Finds Consuming Milk Cuts the Odds of Crohn’s Disease

- A large prospective study has found that consuming milk reduces the probability of developing Crohn’s disease.
- The same study did not find a statistically significant link between consuming milk and another type of inflammatory bowel disease, ulcerative colitis, although the same trend was evident in the data.
- This is only the second epidemiological study to look for such links, and the first involving a large number of participants, as well as both men and women.

For years it has not been clear how consuming dairy products affects one’s chances of developing the two main forms of inflammatory bowel disease, Crohn’s disease and ulcerative colitis. On the one hand, saturated fats are thought to contribute to the risk, and dairy products contain these. But on the other hand, various unique components of milk, yogurt and cheese, such as certain anti-inflammatory factors and, depending on the product, even particular bacteria, are thought to be protective. Now, by far the largest epidemiological study of dairy consumption and the development of these diseases has been published [1]. It reports that people who consume milk are significantly less likely to develop Crohn’s disease than those who do not. The data for ulcerative colitis were less conclusive.

Crohn’s disease and ulcerative colitis are similar. They are different forms of chronic inflammation of the gut—a mismatched immune response to the bacteria inhabiting the digestive system. In Crohn’s disease, the inflammation occurs in patches among areas of healthy tissue, in all layers of gut tissue, and in any region of the digestive tract from the mouth to the anus [2]. Ulcerative colitis is limited to the inner-most lining of the colon, and the whole of the colon tends to be affected at once. The symptoms and generally understood causes are more or less the same. Some genetic profiles are thought to increase the probability of becoming afflicted, but it is common for only one of two identical twins to be diagnosed with either disease, which suggests environmental factors play a major role in the diseases’ development. Indeed, smoking approximately doubles the likelihood of getting Crohn’s disease [3].

The scale of the just-published study is indicated by the acronym: EPIC, which stands for European Prospective Investigation into Cancer and Nutrition Cohort. The participants were all healthy when they enrolled at some point between 1991 and 1998, which they could do in any one of eight European countries. When they enrolled, they answered detailed questionnaires about the frequency at which they consumed about 200 different types of food, including whole fat, semi-skimmed and skimmed milk, fermented milk, natural and flavored yogurt, and various categories of cheese.

More than 400,000 people did complete these questionnaires. And, over the years until, in some centers, December 2010, these individuals’ health trajectories were recorded. Exactly 244 of the participants developed ulcerative colitis over the study period. Meanwhile, 110 participants were diagnosed with Crohn’s disease. The large team of researchers involved in coordinating this study then looked for statistically relevant differences in the diets of the people who were diagnosed compared with those who remained healthy—and they did a subsequent “matching study” to ensure their findings were robust.
Isolating cause and effect was not straightforward in this case. This is because, while there are reasons to think that consuming dairy products reduces the chance of getting inflammatory bowel disease, people who are diagnosed—or think they might have it before they are diagnosed—often avoid dairy to reduce their symptoms. In other words, a correlation of low dairy intake and the occurrence of symptoms might result from the reverse causal pattern to the one that the researchers were interested in. For this reason, the researchers decided to err on the side of caution and exclude from the analysis anyone diagnosed inside 18 months of the study’s start date.

The main result, however, is straightforward: participants who were diagnosed with Crohn’s disease were more likely to not consume milk than those who remained healthy. This was the case whether or not the effects of other environmental variables, such as education level and total number of calories consumed, were statistically removed in the analysis. Curiously, the researchers did not find that the amount of milk in the diet matters, just its presence or absence—and they speculate that this could imply that consuming just a small amount of milk is enough to provide a protective benefit. Similar dietary patterns were seen in the data for people who developed ulcerative colitis, but these were not statistically significant.

What makes these results so important is that, unlike most research in this field, participants were not asked to recall what they ate and drank years earlier. Anyone who has missed a few days of a food diary and tried to fill in the gaps will realize how unreliable such information is likely to be. Before this study was published, there was only one other prospective study that sought to look for the same relationships, but it was much smaller in scale, only French women took part, and it did not examine the risks for Crohn’s disease and ulcerative colitis separately [4]. That study failed to find a link, and left researchers wondering whether this was because it did not have enough participants to reveal a real effect. Now, with more participants, both men and women, and with the diets of many different countries represented, that link has been established.


Contributed by
Anna Petherick
Professional Science Writer & Editor
[www.annapetherick.com](http://www.annapetherick.com)

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