Dairy - the good, the bad and the ugly

The Good: Raw milk

Whether it’s from cows, goats, sheep, buffalo, or even reindeer, unheated, unprocessed milk has been a safe, reliable food source for a good, long time. Clean raw milk from pastured cows is a complete and properly balanced food. You could live on it exclusively if you had to. Even in the tropics, and centuries before refrigeration had been invented, raw milk was an important food source for many cultures. By exploiting the preservative benefits of fermentation, primitive peoples were able to take a great food and make it even better. Few people are aware that clean, raw milk from grass-fed cows was actually used as a medicine in the early part of the last century. Milk straight from the udder, a sort of "stem cell" of foods, was used as medicine to treat, and frequently cure some serious chronic diseases. From the time of Hippocrates to until just after World War II, this "white blood" nourished and healed uncounted millions.

Raw cow's milk has all 8 essential amino acids in varying amounts, depending on stage of lactation. About 80% of the proteins in milk are caseins- reasonably heat stable and, for most, easy to digest. The remaining 20% or so are classed as whey proteins, many of which have important physiological effects. Easy to digest, but very heat-sensitive, these include key enzymes and enzyme inhibitors, immunoglobulins (antibodies), metal-binding proteins and vitamin binding proteins to assist absorption, and several growth factors.

Lactose, milk sugar, is the primary carbohydrate in cow's milk. People with lactose intolerance no longer make the enzyme lactase and so they can't digest milk sugar. This leads to some unsavoury symptoms. Raw milk, with its lactose-digesting Lactobacilli bacteria intact, may allow people who traditionally have avoided milk to give it another try.

The end-result of lactose digestion is a substance called lactic acid (responsible for the sour taste in fermented dairy products). Besides having known inhibitory effects on harmful species of bacteria, lactic acid boosts the absorption of calcium, phosphorus and iron, and has been shown to make milk proteins more digestible by knocking them out of solution as fine curd particles.

The 60 plus (known) fully intact and functional enzymes in raw milk have an amazing array of tasks to perform, each one of them essential in facilitating one key reaction or another. Some of them are native to milk, and others come from beneficial bacteria growing in the milk. The most significant health benefit derived from food enzymes is the burden they take off our body. When we eat a food that contains enzymes devoted to its own digestion, it’s that much less work for our pancreas. The amylase, bacterially-produced lactase, lipases and phosphatases in raw milk break down protein, starch, lactose...
(milk sugar), fat and phosphate compounds respectively - making milk more digestible and freeing up key minerals. Other enzymes, like catalase, lysozyme and lactoperoxidase help to protect milk from unwanted bacterial infection, making it safer for us to drink.

Through the process of fermentation, several strains of bacteria naturally present or added later (Lactobacillus, Leuconostoc and Pediococcus, to name a few) can transform milk into an even more digestible food. With high levels of lactic acid, numerous enzymes and increased vitamin content, 'soured' or fermented dairy products like yogurt and kefir provide a plethora of health benefits for the savvy people who eat them.

Raw milk is one of the best sources of the amino acids needed to manufacture glutathione; unfortunately these are denatured in the pasteurization process thus preventing the body from manufacturing it.

The bad : Pasteurized milk

In the late 1800s, primitive sanitation, refrigeration and rampant tuberculosis contributed to the deaths of thousands – if not millions – of milk drinkers. Louis Pasteur’s revolutionary technique of treating milk with heat to kill bacteria, known as pasteurization, almost eliminated those fatalities.

But raw milk producers say pasteurization is no longer necessary in an age where raw dairy can be produced safely -- and that heat treating milk can actually be more harmful than helpful. David Gumpert, author of The Raw Milk Revolution, says that as the dairy industry grew and safety standards improved pasteurization became more about preservation and less about consumer protection. Research conducted on raw milk has shown its ability to kill off pathogenic bacteria time and again, in different studies various strains of Campylobacter, Listeria, E-coli etc were injected into raw milk in massive quantities. Each time there was a dramatic reduction or total elimination of the pathogen. It is worth noting that the amounts of pathogens used would never be seen in real life.

As the British Minister of Agriculture recently stated, “the human race existed long before Pasteur was heard of.” It is undoubtedly beneficial to destroy dangerous germs, but pasteurization does more than this - it kills off harmless and useful germs alike, and by subjecting the milk to high temperatures, it also destroys some nutritious constituents. After pasteurization, the lactic acid bacilli are killed. The milk, in consequence, cannot become sour and quickly decomposes, while undesirable germs multiply very quickly.

Pasteurization’s great claim to popularity is the widespread belief, fostered by its supporters, that tuberculosis in children is caused by the harmful germs found in raw milk. Scientists have examined and tested thousands of milk samples, and experiments have been carried out. Recent figures published
regarding the spread of tuberculosis by milk show, among other facts, that over a period of five years, during which time 70 children belonging to a special organization received a pint of raw milk daily. One case only of the disease occurred. During a similar period when pasteurized milk had been given, 14 cases were reported. A recent US government report has shown that the risk of illness from raw milk consumption is very small compared to other foods. Of the estimated 9.4 million raw milk drinkers in the US (a conservative figure), on average only 42 illnesses per year are linked to raw milk. In fact the research has shown US citizens are 35,000 times more likely to get sick from other food than raw milk. In Europe, only 1.5% of all food-related outbreaks in the EU are caused by consumption of milk and dairy products, this includes all forms of dairy, milk, cheese, yoghurt, cream etc both pasteurised and unpasteurised.

An article in the American Journal of Clinical Nutrition points out that people in the US and Scandinavian countries consume more dairy products than anywhere else in the world, yet they have the highest rates of osteoporosis. Pasteurization changes calcium into an insoluble form which we can no longer absorb. The old myth that you can get calcium from milk is very shaky indeed and we have major increases in osteoporosis even though plenty of milk is consumed. It is a common misconception - kept alive by the dairy industry, that dairy products are a good source of calcium. People who drink a lot of pasteurized milk have even been found to have a higher incidence of osteoporosis. A component of raw milk, the enzyme Phosphatase, which helps our bodies effectively utilize calcium. Pasteurization destroys this enzyme. Furthermore, the Lee Foundation for Nutritional Research has shown that pasteurisation destroys the vitamin A, around 38 percent of the vitamin B complex, and about 50 percent of the vitamin C content of milk. Research has also shown that an anti-cancer metabolite contained in raw milk is destroyed in pasteurisation, and many enzymes are also damaged.

Not all cows make the same milk.

A recent study by Auckland medical researchers, published in the latest issue of the New Zealand Medical Journal, also suggests a strong link between consuming milk with A1 beta-casein - which most New Zealanders consume each day - and heart disease and Type 1 diabetes. These health problems are linked to a tiny protein fragment that is formed when we digest A1 beta-casein, a milk protein produced by many cows in New Zealand, Australia and in Western-European countries. Milk that contains A1 beta-casein is commonly known as A1 milk, whereas milk that does not is called A2 (like the Jersey cow’s milk). Originally all milk was A2 until a mutation affecting some European cattle occurred some thousands of years ago. Herds in much of Asia, Africa and
parts of southern Europe remain naturally high in A2 cows (like the Jersey cows).

**Dairy and mucus**

The University of Maryland Medical Center notes that eating foods you have an allergy or sensitivity to can encourage mucus build up. You can become sensitive to any foods which you cannot break down properly due to digestion problems or the over-processing of the food. Undigested food particles irritate the intestinal membranes, causing excess mucus production not only in the digestive tract, but in other mucus membranes also, covering the respiratory and the genitourinary tract. It is not the fat content that gives the milk this so called mucus producing property, but the person's inability to break down its main protein, casein. Pasteurization destroys enzymes, beneficial bacteria and denatures proteins making them more likely to cause allergies or food intolerances, leading to excess mucus production.

There are two limiting factors in casein (and also in gluten) digestion - one is a protein digesting enzyme, and the other one digests the carbohydrate links present in these problematic molecules (fermentation by lactobacilli and kefir is helpful in the later). DPP-4 is one of the few enzymes able to facilitate the digestion of proline-rich proteins and polypeptides, thus assist in the complete breakdown of gluten (in wheat, rye, barley) and casein (in milk and dairy products). These allergenic proteins are highly resistant to hydrolysis by other proteolytic enzymes and have been implicated in a number of serious adverse food reactions including the enteropathic manifestations of celiac disease. Prolyl peptides are also believed to act as exorphins, or opioid receptor agonists, that may mediate or exacerbate neurobehavioral symptoms in people with autism spectrum disorders (ASD). DPP-4 is normally expressed by the cells of the healthy intestinal brush border. Studies show intestinal DPP-4 activity is abnormally low in children and adults with celiac disease. Moreover, persons with ASD actually produce antibodies against DPP-4. If the intestinal brush border is damaged by medications that reduce the beneficial flora, one can have a hard time digesting these proteins, especially if the food they contain them are highly processed.

Dating back to the 12th century the Jewish physician Moses Maimonides wrote about asthma and associated the intake of milk with potential exacerbation of asthma. Traditional Chinese medicine also suggests that milk is a mucus-forming food and recommends that it be avoided. This might have been owing to the assumption that milk stimulates mucus production in the respiratory tract, resulting in increased airway resistance and aggravation of asthma.\(^2\)\(^3\) Investigators from New York examined 21 subjects (11 with asthma and 10 without asthma) and although they found no clear change in airway resistance to alter airflow parameters, they did suggest that milk lipids can alter gas exchange in those with asthma.

The widespread notion that children with asthma should avoid milk has been further strengthened in recent decades. In Spock's famous book, *Dr Spock's Baby and Child Care*, he suggests that asthma and other respiratory problems can be aggravated by milk intake and recommends removing milk altogether from the diet. This belief is upheld still today among many parents
Despite very little scientific evidence linking milk consumption and asthma - the proof of the pudding is the eating ... or in this case, the not eating. If you struggle with excess mucus, try cutting all commercial dairy products out of your diet and see what happens.

On the other hand, there are many literature and studies point towards the health benefits of consuming **RAW** milk. A recently published study published in the Journal of Allergy & Clinical Immunology of over 8,300 children in rural parts of continental Europe found a significant reduction in asthma development of 41% for raw milk drinkers. They were also half as likely to develop hay fever as those who drank shop bought or boiled milk. This research has linked the benefits to whey proteins in the milk which are destroyed in the process of pasteurization.

The first raw milk conference was recently held in Prague. Some of the study results included significant reductions in asthma, atopy and allergies in children who drink raw milk. In most of these studies the children drinking raw milk lived on a farm. The children in the control groups usually lived in rural areas but drank shop bought, pasteurized milk.

A small study has shown children who are allergic to shop bought milk and react immediately to its consumption are able to tolerate raw milk without experiencing any adverse affects.

**The ugly: Homogenized milk**

While I can understand the necessity of pasteurization in cities where it is hard to get fresh raw milk, it is very hard to find sound reason for its homogenization. It involves squirting the milk through very small holes; this breaks up the fat globules so that they become so small, the thermal vibrations and currents in the milk are large enough to keep them mixed; this means that in future it won't re-separate. This questionable process was introduced by dairy companies as far back as 1932. Homogenized milk tastes blander but feels creamier in the mouth. It is whiter and more resistant to developing off flavors. Kurt A. Oster, M.D., head of cardiology in Connecticut, has been researching homogenised milk for over 20 years. His findings conclusively show that in the process of extending shelf life and stopping the cream separating out of milk, medicine has a clear culprit for increased arteriosclerosis. Dr Oster along with Dr Donald Ross of Fairfield University and Dr John Zikakis of the University of Delaware, pointed out that homogenising result in damage to plasmalogen from the milk fat globular membrane releasing the enzyme Xanthine Oxidase (XO), which is able to pass intact into the blood stream. There it attacks the artery walls, causing lesions and the end result is scar tissue and calcified plaques with a build-up of cholesterol and other fatty deposits. According to these experts, dietary cholesterol is not the main cause of heart attacks; it is homogenised milk. (I would also add high blood sugar and homocysteine levels to that.)
Dr Frank Oski said in the finish of his disturbing book, Don’t Drink Your Milk: "Milk has no valid claim as the perfect food. As nutrition, it produces allergies in infants, diarrhoea and cramps in the older child and adult, and may be a factor in the development of heart attacks and strokes."

Luckily for us, there is a local farm in Limerick that at least omits homogenization. And if you are lucky to live beside a Grade A raw milk farm, enjoy it’s benefits! In the 29 U.S. states where raw milk is allowed for sale, agriculture ministries and health authorities alike encourage consumers to physically go to the farm and meet the farmer before they consume the product. The Weston A. Price Foundation, America’s largest raw dairy advocacy society, recommends its dairy farmers do their own testing privately in addition to any mandatory testing required by the state.

Since the Irish government has decided to introduce Regulations for the sale of raw milk in Ireland from January 2013, it will hopefully be more widely available.

Books of interest:
**Keith Woodford** - Devil in the Milk, Illness, Health and Politics, A1 and A2 Milk

**David Gumpert** - The raw milk revolution

**Dr Benjamin Spock**'s Baby and Child Care

**Dr Frank A. Oski** - Don’t drink milk

Links:
www.rawmilkireland.com
www.raw-milk-facts.com
www.realmilk.com