# *Milk a New Food Group*

Clean raw milk from pastured cows is a complete and properly balanced food. You could live on it exclusively if you had to. Indeed, published accounts exist of people who have done just that[i]. What's in it that makes it so great? Let's look at the ingredients to see what makes it such a powerful food[ii].

## PROTEINS

Our bodies use amino acids as building blocks for protein. Depending on who you ask, we need 20-22 of them for this task. Nine of them are considered essential, in that we have to get them from our food. The remaining 11-13 we can make from the first nine in the chemical factories of our bodies.

Raw cow's milk has all 9 essential amino acids, saving our bodies the work of having to convert any into usable form. About 80% of the proteins in milk are caseins- reasonably heat stable but easy to digest. The remaining 20% or so fall into the class of whey proteins, many of which help with bodily processes.[iii] Also easy to digest, but very heat-sensitive[iv], these include key enzymes and enzyme inhibitors, antibodies, metal-binding proteins, vitamin binding proteins and several growth factors.[v]

Lactoferrin has numerous beneficial properties including improved absorption and assimilation of iron, anti-cancer properties and anti-microbial action against several species of bacteria responsible for dental cavities[vi]. Recent studies also reveal that it has powerful antiviral properties as well. This antiviral, antibodies provide resistance to many viruses, bacteria and bacteria toxins and may help reduce the severity of asthma symptoms.[vii]

Studies have shown a significant loss of these important disease fighters when milk is heated in pasteurization.[viii] [ix]

## CARBOHYDRATES

Lactose, or milk sugar, is the primary carbohydrate in cow's milk. Made from one molecule each of the simple sugars glucose and galactose, it's known as a disaccharide. People with lactose intolerance for one reason or another, no longer make the enzyme lactase and so can't digest milk sugar. This leads to some unsavory symptoms, which, needless to say, the victims find rather unpleasant at best. 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). Lactic acid boosts the absorption

of calcium, phosphorus and iron, and has been shown to make milk proteins more digestible.[x]

## Fats

Approximately two thirds of the fat in milk is saturated. Good or bad for you? Saturated fats play a number of key roles in our bodies: from construction of cell membranes and key hormones to providing energy storage and padding for delicate organs, to serving as a vehicle for important fat-soluble vitamins. We will study this in more detail later but the good news is fats from foods God designed will not cause heart disease. Keep in mind the Three Principles.

The fat in milk can cause our stomach lining to secrete a hormone (cholecystokinin or CCK) which, aside from boosting production and secretion of digestive enzymes, let's us know we've eaten enough.[xi] With that trigger removed, non-fat dairy products and other fat-free foods can potentially help contribute to over-eating.

CLA, short for conjugated linoleic acid and abundant in milk from grass-fed cows, is a heavily studied, polyunsaturated Omega-6 fatty acid with promising health benefits. CLA's many potential benefits: it raises metabolic rate, helps remove abdominal fat, boosts muscle growth, reduces resistance to insulin, strengthens the immune system and lowers food allergy reactions. By design, grass-fed raw milk has from 3-5 times more then the amount found in the milk from feed lot cows.[xii]

## Vitamins

Volumes have been written about the two groups of vitamins, water and fat soluble, and their contribution to health. Whole raw milk has them all, and they're completely available for your body to use. Whether regulating your metabolism or helping the biochemical reactions that free energy from the food you eat, they're all present and ready to go to work for you.[xiii]

## Minerals

Our bodies, each with biochemistry as unique as our fingerprints, are incredibly complex, so discussions of minerals, or any nutrients for that matter, must deal with ranges rather than specific amounts. Raw milk contains a broad selection of completely available minerals ranging from the familiar calcium and phosphorus on down to trace elements, the function of some, as yet, still rather unclear.

A sampling of the health benefits of calcium, an important element abundant in raw milk includes: reduction in cancers, particularly of the colon: higher bone mineral density in people of every age, lower risk of osteoporosis and fractures in

older adults; lowered risk of kidney stones; formation of strong teeth and reduction of dental cavities, to name a few. [xiv],[xv]

An interesting feature of minerals as nutrients is the delicate balance they require with other minerals to function properly. For instance, calcium needs a proper ratio of two other macronutrients, phosphorus and magnesium, to be properly utilized by our bodies. Guess what? By design the entire array of minerals in raw milk (from cows on properly maintained pasture) are in proper balance to one another thus optimizing their benefit to us.[xvi]

## Enzymes

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.[xvii] Just keeping track of them would require a post-doctoral degree!

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. Given the choice, I'll bet that busy organ would rather occupy itself with making metabolic enzymes and insulin, letting food digest itself.

The enzymes found in raw milk break down starch, lactose (milk sugar), fat (triglycerides) and phosphate compounds respectively, making milk more digestible and freeing up key minerals. Other enzymes help to protect milk from unwanted bacterial infection, making it safer for us to drink.[xviii]

## Cholesterol

Milk contains about 3mg of cholesterol per gram - a decent amount. Our bodies make most of what we need, that amount fluctuating by what we get from our food.  Eat more, make less. Either way, we need it. Why not let raw milk be one source?

Cholesterol is a protective/repair substance. A waxy plant steroid, our body uses it as a form of water-proofing, and as a building block for a number of key hormones. It's natural, normal and essential to find it in our brain, liver, nerves, blood, bile, indeed, every cell membrane.

## Beneficial Bacteria

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. [xix]

Raw milk is a living food, a gift, with remarkable self-protective properties. But here's the twist: most foods tend to go south as they age (or spoil), raw milk just keeps getting better. Through helpful bacterial fermentation, you can expect an increase in enzymes, vitamins, mineral availability and overall digestibility.[xx] Not bad for old age!

## Notes on Nursing

Notes from Dr. Rex Russell

Most scientists claim that life came from random chance process and by natural selection. In nature, however, a chorus of voices rings with the message that this theory fits neither simple nor complex observations. To maintain health, the following must be present simultaneously and in proper balance: organic vitamins, minerals, essential fatty acids, essential amino acids and unrefined carbohydrates. These are all present in human breast milk as are the hundreds of other lesser understood food factors. The longer scientists study the human breast and its milk, the more obvious it is that neither random chance nor survival of the fittest could explain its complexity.

The design of the milk is perfect in caloric content, amino acid concentrations and enzyme concentrations. Both lipase and lactase are ideally concentrated, meeting the developing infant's needs much better than could any formula of other mammal's milk.

The caloric content and the nutrient balance of the mother's milk change dramatically according to the infant's needs. Our most brilliant neonatologists using the best computers could not design a better balanced product than breast milk, regardless of the infant's needs at whatever age or stage of development.[1]

### What about Homogenization and pasteurization?

I received raw milk from a friend of mine as a gift since she owned a cow and I wanted to experience it. At first I was a little squeamish about the thought of drinking raw milk. When I brought it home the fat had risen to the top. I took this off and put it in the blender with a little salt. In one minute, viola! I had butter! The milk tasted very creamy and had a delicious flavor better than any milk I had ever had.

*In Proverbs 30:33 says:*
*Surely the churning of milk bringeth forth butter, and the wringing of the nose bringeth forth blood*.

My raw milk experience had proven this statement true. If you ever want to prove to a critic the Bible is true just show them this verse and then give them to option how they want you to prove its accuracy; wringing their nose or churning raw milk?

**Fun foodie Idea – Find raw milk and make your own butter. Then take milk you brought home from the store, pasteurized and homogenized, and try to make butter with it. Does it work? No. Why not? The milk we buy from the store is no longer in the form God designed for our health.**

Pasteurization is heating food, in this case milk, to 161 degrees for fifteen seconds, which denatures milk enzymes and changes its protein structure, making if difficult for our bodies to assimilate and digest. There's no debate about the effectiveness of pasteurization for killing unwanted bacteria. There's also no doubt that pasteurization gives dairy products a longer shelf life by lowering the presence of bacteria that cause spoilage. But pasteurization also kills desirable bacteria found in fresh milk, and it denatures milk enzymes that may be active in the human digestive tract when fresh milk is consumed. There is little research, however, to determine what nutritional benefits are lost when milk is pasteurized. There is speculation about changes in protein structure, calcium, amino acid, and vitamin C bioavailability all being triggered by pasteurization, but there is no research that confirms or rejects these occurrences[xxi]. [xxii]

Homogenization breaks down and blends fat globules in milk which suspends them evenly in the milk. If milk is not homogenized the fat globules are large enough to separate from the milk and thereby are less absorbed in the bloodstream. An example of this is cream separating and rising to the top of a container. This means the milk does not need stirring and may add to the storage life.[xxiii], Beginning in the 1960's and continuing through the 1980's, an M.D. named Kurt Oster published a series of articles linking a connection between homogenization and the development of heart disease. Dr. Oster discovered an enzyme (xanthine oxidase) is capable of digesting the lining of the arteries, causing ulcers inside our arteries. Oster was convinced that because of homogenization, unmetabolized XO was being absorbed from the digestive tract up into the blood stream where it could trigger immune reactions and cause damage to blood vessel walls. The result was described as plaque formation - the very same plaque formation that gives rise to atherosclerosis in many U.S. adults. Research studies have yet to conclusively prove, or disprove, Oster's theories.

---

[i] Fat and Blood, BiblioBazaar, LLC, 2007. Mitchell, S.W., p. 119-154. and The Miracle of Milk- How to Use the Milk Diet Scientifically at Home, Read Books, 2008. McFadden, B.

[ii] Mattick, E., Golding, J., 1936. Relative value of raw and heated milk in nutrition. Lancet 2:703-6.

[iii] http://www.msstate.edu/org/fsfa/Vol1/2-Pihlanto.htm

[iv] http://www.interscience.wiley.com/journal/120048318/abstract?CRETRY=1&SRETRY=0
[v] http://www.foodsci.uoguelph.ca/dairyedu/chem.html and http://www.interscience.wiley.com/journal/119167856/abstract
[vi] http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=128229
[vii] Ammendolla, M., Pietrantoni, A., et al, 2007. Bovine lactoferrin inhibits echovirus endocytic pathway by interacting with viral structural peptides. Antiviral Res 73:151-160 and http://www.dairyscience.info/lp-system.htm
[viii] http://www.dailymail.co.uk/health/article-399520/Untreated-milk-cuts-childrens-allergies.html
[ix] http://journals.cambridge.org/action/display Abstract from Page=online&aid=887004
[x] http://jds.fass.org/cgi/reprint/70/1/1 and http://www.springerlink.com/content/u221412268137476/
[xi] http://www3.interscience.wiley.com/journal/119043936/abstract, and Lieverse, R.J., et al, 2006. Role of cholecystokinin in the regulation of satiation and satiety in humans. Ann. New York Acad Sci 713:268-272
[xii]Dhiman, T. R., et al, 1999. Conjugated linoleic acid content of milk from cows fed different diets. J Dairy Sci 82:2146-56.
[xiii]http://www.foodsci.uoguelph.ca/dairyedu/chem.html#vitamin
[xiv]Power, M.L., et al, 1999. The role of calcium in health and disease. Am J Obst & Gyn 181:1560-1569
xvhttp://content.nejm.org/cgi/content/abstract/328/12/833 (kidney stones). and Nishida, M., et al, 2000. Calcium and the risk for periodontal disease. J Periodontology 71(7):1057-1066
xviStevenson, M.A., et al, 2003. Nutrient balance in the diet of spring calving, pasture-fed dairy cows, N Z Vet J 51(2):81-88
xviihttp://jds.fass.org/cgi/reprint/56/5/531
[xviii]Olivecrona, T., et al, 'Lipases in Milk' In: Advanced Dairy Chemistry Vol. 1: Proteins 3rd Ed., (pp. 473-488), and Shakel-Ur-Rehman, et al, "Indigenous Phosphatases in Milk' In: Advanced Dairy Chemistry Vol. 1: Proteins 3rd Ed., (pp.523-533). And Pruitt, K., 'Lactoperoxidase' In: Advanced Dairy Chemistry Vol. 1: Proteins 3rd Ed., (pp. 563-568).
[xix] http://jds.fass.org/cgi/reprint/79/6/971
[xx] de Vrese, M. et al, 2001. Probiotics- compensation for lactase insufficiency. Am J Clin Nutr 73:421S-429s
xxi Trends in Food Science & TechnologyVolume 17, Issue 8, August 2006, Pages 423-437, Does homogenization affect the human health properties of cow's milk?
xxii George Mateljan Foundation, "Pasteurization", http://whfoods.org/genpage.php?tname=george&dbid=149#answer. Accessed June 2009.
[xxiii] Ibid. p. 219.