## Dairy: Friend or Foe? It all Depends on the Milk!

Milk is an indigenous food in the diets of many traditions around the world, from the Swiss alps, to the Ladakhis in the mountains of Tibet, to the Masaii pastoralists of Africa. Raw, fermented milk has been a staple for countless Europeans, Africans, and Asians for millennia. In a heartfelt examination of the politics and meaning of milk, Jessica Prentice suggests that milk is the original comfort food. Milk connects us to the "Mother energy" that represents our dependence on the earth, the feminine energy of connectedness, and reciprocity of giving and receiving. The cow represents self-sufficiency, wealth and status. She is the original stock in the stock market, the horn of plenty, the mater that brings things into being. Traditional cultures that celebrated their dependence on the land and animals, which are renewable resources, lived largely self-sufficient lives. In our modern, industrialized world, we have become dependent on non-renewable energy sources, illustrated in particular by our distorted and complicated relationship to milk. Prentice observes:

> Milk is profoundly intimate. Just contemplating it makes us feel vulnerable. On a spiritual level, it is symbolic of so much that we are uncomfortable with: our animal nature; our dependence on and love for women, feminine sexuality and sensuality; our birth and thus our death and mortality.

Both milk and breastfeeding are constantly being abused, dismissed, or challenged. For example, *The Human Genome Project*, which is decoding the microbial genes of every major human gland, liquid and orifice, from the ears to the genitals, neglected to include breast milk! Predictably there will be publicity on the dangers of breast feeding in the period leading up to UNICEF's World Breastfeeding Week, the first week in August. There is legitimate concern about the amount of industrially produced toxins that lodge themselves in animal fat. However, Barbara Cohen, a doula and breastfeeding specialist in New York City, notes that "when this topic is exposed most people today take home the idea that we shouldn't drink milk and we shouldn't breastfeed, rather than that we need to clean up our planet, which is what the authors typically intend as their message." Sandra Steingraber in Having Faith, explores how milk can become a nasty product of the environment that we live in but stresses that it is still far superior to the factory-made alternatives:

> Scientists used to think breast milk was sterile, like urine. But it's more like cultured yoghurt, with lots of live bacteria doing who knows what. These organisms evolved for a reason, and somehow they're helping us out. One leading theory is they act as a vaccine, inoculating the

infant gut. A milk sample has anywhere from one to 600 species of bacteria. Most are new to science (http://www.guardian.co.uk/lifeandstyle/2012/jun/16/breasts-breastfeeding-milk-florence-williams).

See the La Leche League (http://www.llli.org) for information about breastfeeding. Neither industrially produced animal milk nor factory produced “artificial baby milk” (or “formulas” as they call them), can impart the necessary nutrients and protective benefits needed for optimal health. The nutritional profile of human milk, for example, changes over time and even from feeding to feeding to meet the baby's changing needs and provides immunological protection from illnesses that the mother has been exposed to.

The Weston A. Price Foundation offers several recipes for homemade baby formula based on raw, grass-fed dairy for those cases when a mother cannot breastfeed or needs to supplement. They also provide dietary recommendations for women who are breastfeeding, in order to nurse successfully, produce healthy milk, and maintain their own health. See, http://www.westonaprice.org/childrens-health/recipes-for-homemade-baby-formula

The healthy, milk-drinking populations that Dr. Price studied consumed raw milk, raw cultured milk, or raw cheese from animals grazing on fresh grass or fodder. It is very difficult to find this kind of milk in our country today. Legislation and harassment by authorities has all but driven raw milk from the market in the United States.

## Why Raw?

Pasteurization grew out of a fear of TB in the milk, caused in part by dirty industrial farming methods. Pasteurization destroys enzymes that help digest and assimilate the nutrients in the milk. It also wipes out good bacteria and causes vitamin loss. Homogenization, which often accompanies pasteurization, breaks down the fat into very small particles so they cannot separate from the milk and rise to the top. These small particles of fat are more likely to go rancid. Many individuals with so-called milk intolerance do just fine with raw, whole milk. Here are some interesting facts about whole raw milk, compiled by the Weston A. Price Foundation for their Healthy4Life booklet:

1. Raw milk contains an enzyme called lactoperoxidase, which kills bad bacterial; this enzyme doesn't work very well after pasteurization, hence pasteurized milk goes putrid instead of sour.
2. Raw milk contains an enzyme called lacto-ferrin, which prevents anemia; this enzyme doesn't work very well after pasteurization.
3. Raw milk contains special substances that help strengthen the digestive tract; when milk is pasteurized, these substances don't work very well and the milk can be very irritating to the digestive tract.
4. Raw milk contains special bacterial call lacto-bacilli, which are good for you. When we have a lot of these good bacteria in our digestive tract, we digest our food very efficiently.
5. Raw milk contains white blood cells and many other important compounds that are found in blood; for this reason, raw milk supports theimmune system. These compounds don't work after pasteurization.
6. Raw milk contains many important fats, which support our health in many ways; these fats are damaged during the process of pasteurization and homogenization.

## Why Grass Fed?

Factory farmed cows are fed high protein feeds that boost milk production but are hard to digest which causes pathogenic bacteria in the milk. Alfalfa hay typically receives many applications of herbicides. Corn and soybeans are heavily sprayed, and are hybrid or GMO crops with compromised nutritional value. Cows that are kept in confinement are under stress and need frequent antibiotic treatment for mastitis.

In The Full Moon Feast, Jessica Prentice suggests that the single greatest gift a cow offers us is to turn inedible grass into nourishing milk and cream. A cow's digestive system is uniquely equipped to convert grass and plant food into available nutrients. A cow that is free to browse will seek the most nutritious vegetation. Milk can be a valuable source of calcium, protein, good bacteria, and fat soluable vitamins A, D, E, and K. If a cow has access to good quality, green grass, its cream is yellow and rich with vitamins A and D which help assimilate the calcium and protein in the milk. A Jersey cow, and other older breeds like the Guernsey or Dutch Belted, are well suited to grazing and can thrive without grain. Babies and young children are not able to convert carotene in plant foods to vitamin A and need to get their vitamin A from animal foods. Adults with certain health problems such as diabetes and thyroid disorders, also cannot make this conversion.

The older breeds of cows such as the Guernsey or Dutch Belted, have a milk protein that is easier to digest than that of the black and white Holsteins and Freisians. This is important for those with a compromised digestive systems. The Holsteins generally give milk that contains a beta-casein type A1 which behaves like an opiate if it enters the blood stream through a leaky gut. Epidemiological studies have implicated this A1 milk protein in heart disease, Type 1 diabetes, autism and schizophrenia. This issue is examined in Devil in the Milk by Keith Woodford. See also Thomas Cowan's website for a discussion, http://thebovine.wordpress.com/2009/03/20/the-devil-in-the-milk-dr-thomas-cowan-on-how-a2-milk-is-the-answer-to-the-mystery-of-why-even-raw-milk-sometimes-does-not-seem-to-be-enough-of-an-improvement-over-store-bought/.

## Why Culture?

When left at room temperature, raw milk sours and separates into curds and whey. This cultured, fermented dairy is low in casein (milk protein), and high in lactic acid. Lactic acid produces bacteria that dominate putrefying bacteria, give the milk its sour taste, and keep it from spoiling for days or weeks, which was important in the days before refrigeration.

Fermenting dairy also enhances its nutritional value and makes it easier to digest, particularly for individuals with a compromised digestive system. Examples of cultured dairy are yogurt, kefir, cultured cream, and cultured buttermilk (which is different from traditional buttermilk left over from butter making). In cultured milk, the milk protein (one of the most difficult proteins to digest) has been partially broken down by the lactic-acid producing bacteria, and enzymes are produced that help digest the milk. Butter was traditionally always cultured, before industrial processing made “sweet butter” the standard.

You can inoculate the milk with a particular culture to give the lactic-acid producing bacteria a head start and result in a product with a particular flavor or consistency. Yogurt uses a starter culture that contains probiotic bacteria, or lactobacillus, i.e. bacteria that generate lactic acid, which is what gives yogurt its sour taste. These bacteria are very important in maintaining intestinal health. When buying yogurt, make sure it contains “live cultures”. Tara or Kefir is made with “grains” that are colonies of

yeast and bacteria that look like curds. Other cultures include buttermilk, pima, and crème fraiche.

Culturing can also restore nutritional value to pasteurized milk and enhance its digestibility. Unfortunately, most organic milk on the market has been ultra-pasteurized (which completely destroys the benefit of being organic) and makes it useless for fermentation. In fact, simple refrigeration can prevent the growth of certain cultures, as was discovered by French cheese makers.

Raw animal foods such as raw milk provide important nutrients not found in other foods. Ethnic groups who do not use dairy, obtain their vitamins and minerals from things like insects, organ meats, fish eggs and the fat of marine animals, foods that many of us do not eat. Thus, Sally Fallon concludes that for Americans who do not eat bugs or blubber, raw, grass-fed butter is not only better, it is essential! And, if you culture it, it's even better! See http://www.westonaprice.org/food-features/why-butter-is-better. She presents an in-depth discussion of milk and milk products in her book Nourishing Traditions.

Sally Fallon suggests that "the science and art of fermentation is in fact the basis of human culture":

> without culturing, there is no culture. Nations that still consume cultured foods, such as France with its wine and cheese...are recognized as nations that have culture...Many commentators have observed that America is a nation lacking culture — how can we be cultured when we eat only food that has been canned, pasteurized and embalmed?

Thus, she concludes that culture begins on the farm, not in the opera house, and binds a people to the land and its artisans.

## Local Sources

There is a growing movement of consumers seeking raw, unpasteurized milk. In the process they are becoming educated, find sources, and learn how to decide for themselves whether the farming practices of a particular farm meet their own personal standards. Amanda Rose has written a short report designed to help consumers analyze a farm. She explains that examining a farm's practice is not always straight-forward, especially if you are meeting a farmer at a marketplace. Even when visiting the farm, if you do not have the tools to examine a farm's practice, then you may not be able to make a decision that is best for you. Her report is available at of www.Traditional-Foods.com/sourcing/raw-milk. It is a work in progress and she welcomes comments and questions.

Pennsylvania is one of the few states where you can still buy raw milk in a store. In New York you can only buy it at the farm. See www.realmilk.com for the raw milk laws of the different states. Unfortunately, raw cream is hard to come by because the raw dairy laws apply only to whole milk and aged cheeses. Sometimes you can find grass fed, lightly pasteurized, un-homogenized milk or cream in the stores.

**The Hardler Farm**
11 Hardler Farm Rd, Honesdale, PA 18431
Mike Hardler: (570) 251-7937
Email: Hardlerfarm@yahoo.com
Raw cow's milk, older breeds like Jersey and Guernsey, grass fed with a small amount of grain. Raw goat's milk. Custom butchering. Grass fed beef, pork, nitrate free sausage. Goat milk soaps. The milk is

available in many retails outlets. There is also a farm store.

**Dirie Dairy Farm**
1345 Shandelee Road, Livingston Manor, NY, 12758.
MaryAnne and Richard Dirie: 845 – 482-4301
sonja@applepondfarm.com
Raw cow's milk, eggs. Open Wednesdays and Saturdays 11am-3pm or by appointment.

**Allysa Salvatore**
535 Beechwoods Road
Callicoon, NY 12723
Phone: 845-887-4526

The Farm to Consumer Legal Defense Fund serves to protect small farms, and raw milk farmers in particular. They recently filed a lawsuit against the FDA, challenging existing laws that prevent a farmer from crossing state lines to sell raw dairy. See http://www.farmtoconsumer.org for more information.

## Recipes

**Kefir**
1 quart raw milk
1-2 tablespoons of kefir grains

Rinse grains in strainer with water (well water of filtered municipal). Place grains in clean, whide-mouthed jar and add 1 quart milk. Stir. Cover loosely with cloth and leave on the counter until thick, about 24-72 hours. Stir to redistribute or shake the jar if the whey separates. Pour kefir through a strainer. Use plastic and glass (avoid metal strainers or spoons). Refrigerate kefir. Rinse grains and reuse. If you do not want to make another batch right away, put in the fridge with a cup of milk. They can be stored this way for a few weeks, or frozen for months. It may take a day or so revive them, and they will lose their culturing power if stored too long. Kefir grains multiply, so you can give them away. They can also be eaten.

**Yogurt cheese**
(homemade cream cheese)
Line a large strainer wet over a bowl with a clean cotton dish towel. Pour in one quart of yogurt, cover, and let stand at room temperature for about a day. The yogurt will slowly separate and the whey will run into the bowl, leaving the milk solids in the towel. Tie up the towel with the milk solids inside, being careful not to squeeze them. Tie this little sack to a wooden spoon placed across the top of a large pitcher or tall bowl so that more when can drip out. Or find another way to suspend the sack above a bowl for a long time. When the bag stops dripping, the cream cheese is ready. Store the whey in a mason jar and the cream cheese in a covered glass container. Refrigerated, the cream cheese keeps for about a month and the whey for about 6 months. If you like your cream cheese a little salty, add ½ tsp sea salt to the yogurt before straining. Serve with sourdough bread and smoked salmon or roe. Also great with muffins.

**Ricotta Cheese**
from Emma Lapp in Wholesome Home Cooking

1 gallon milk
¼ cup apple cider vinegar
½ tsp salt
3 Tblspn butter
½ tsp baking soda
herbs to tast (optional)

Heat the milk to 185 degrees F. remove from heat add vinegar and salt. Pour into cheescloth and drain 20 minutes. Mix in butter and baking soda. Add herbs to taste. Good without the herbs, then add some cream. Very good with lasagna and no other cheese is needed.

**Cultured Butter**
1 quart of cream makes 1 lb of butter

Leave 1 quart heavy "whipping" cream left at room temperature for a day to sour. Chill the cream before churning. If cream is too warm when churned, the butter will be soft and greasy. If it's too cold, not all of the butterfat will separate out. Around 60 degrees is good.

Put cream in food processor no more than 1/3$^{rd}$ full, fitted with a steel blade. Process until butter forms. It will only take a few minutes. Pour off the buttermilk and keep it to make delicious pancakes, biscuits, and breads or drink it straight. It is very nutritious. This is known as *traditional buttermilk* and it is not as thick as commercial buttermilk because it has not been cultured.

What's left in the churn is mostly butter with a bit of buttermilk mixed in. You can form the butter at this point, or you can wash the butter to remove the remaining buttermilk which will lengthen its keeping quality. To rinse, add fresh, cold water to your food processor and churn again for a few seconds. Pour off and refill until the water is clearer. Do this a few times.

To work the butter, take a hunk from the food processor and place in a smaller bowl. Press and squeeze against the sides until no more water can be poured off. Use wooden rice paddle, or grooved butter paddle for this. Press the the butter into a container for storage. Repeat until all the butter is worked. Salting the butter will enhance the flavor and lengthen the butter's keeping quality. Add ½ teaspoon per pound of butter (2 cups). Work it in by pressing in and folding over until the butter is firm and waxy.

Butter can be rolled into balls, pressed into a mold, or stored in crocks. Cover and chill well. It will last at least 2 weeks in the fridge. Butter can be frozen for long-term storage. Do not keep more than 6 months. It takes about 3 hours to thaw in the fridge. Store the buttermilk in a glass container and store in fridge. It has a very short shelf life but can be frozen as well.

**Buttermilk muffins**
Hannah Springer http://TraditionalFoodsKitchen.com
makes 9 muffins

Best results are achieved with 24 hours of soaking. Mix together 1 ½ cups whole grain flour with 1 cup buttermilk or cultured dairy of choice. Cover tightly with plastic wrap lid and leave in a warm place (the warmer the better, a little warmth helps the good bacteria get to work breaking down the flour, and helps the muffins rise well and be light.

After 24 hour (it's fine if it's longer) add the following:
1 egg
1 ½ tsp softened butter, lard, or coconut oil
2 tbsp maple syrup or other natural sweetener
1 tsp baking soda
a pinch of sea salt
*optional:*
½ tsp vanille extract
1 cup seasonal fruit such as chopped apple or well-drained berries (see below for pumpkin/squash variation)
spices to taste (½ tsp cinnamon is recommended for apple muffins)

Pour into buttered muffin tine (about 9 muffins in all). Bake at 325 degrees for 20 minutes or until golden on top. Muffins can be reheated in the oven by slicing them open and toasting for a few minutes, or wrapping in tinfoil and baking for 10 minutes. Serve with plenty of butter and a side of high-quality protein, raw milk cheese, eggs, or cured meat. I find that kefir goes very well with muffins.

Pumpkin/squash muffin or bread (variation)
makes 9 muffins or two small loaves

Mix together 1 ½ cups of whole grain flour and ½ cup buttermilk or cultured dairy of choice. Cover tightly and leave in warm place for 24 hours. Then follow recipe above but use ½ cup cooked pumpkin or squash in place of seasonal fruit. Add ½ tsp cinnamon, ¼ tsp nutmeg, and ¼ tsp cloves. You can also add ½ cup raisins. Bake in 2 small well-buttered loaf pans or in muffin tins.

## Recommended Reading


Nourishing Traditions, Sally Fallon
Full Moon Feast, Jessica Prentice
Wholesome Home Cooking, Lancaster Country Recipes compiled by Katie Stoltzfus
Wild Fermentation, Sandor Katz
Having Faith, Sandra Steingraber
Devil in the Milk: Illness, Health and the Politics of A1 and A2 Milk, Keith Woodford
Untold Story of Milk, Ron Schmidt
Stocking Up, Carol Hupping

http://www.westonaprice.org/childrens-health/recipes-for-homemade-baby-formula
http://www.westonaprice.org/food-features/why-butter-is-better
http://www.thehealthyhomeeconomist.com/101-uses-for-soured-raw-milk
Raw Milk Consumer Guide, www.Traditional-Foods.com/sourcing/raw-milk/

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http://upperdelaware-wapf.org/