

# 16

## Raw Milk and Children

*The child on raw milk is very fit. Chilblains are practically eliminated. The teeth are less likely to decay. The resistance to tuberculosis and other infections is raised.*

*The Lancet*, May 8, 1937, page 1142

*Raw milk should not be consumed by anyone, at any time, for any reason.*

John F. Sheehan, Director of Dairy Food Safety  
Food and Drug Administration, Testimony before the  
Maryland House of Delegates, March 15, 2007

Government officials speak with one voice in their warnings against raw milk, especially noting that it should not be given to infants and children; they can be abruptly disdainful of reports from parents on how switching to raw milk helped alleviate serious health conditions in their children. These reports are not science, they say, only anecdotes.

Let's begin our discussion of raw milk for children with some representative anecdotes from the files of the Weston A. Price Foundation.

### ANECDOTAL EVIDENCE

A physician who prescribes raw milk to his patients describes a dramatic case involving a nine-month-old boy who had suffered three

ear infections in three months. The mother had fed the child a number of formulas based on processed cow's milk and soy protein, and she had even tried pasteurized goat milk. With each formula the child suffered recurrent vomiting, diarrhea, failure to gain weight and thrive, and he had been ill with either viral or bacterial infections almost continuously since early infancy. After the mother switched to a formula based on raw goat milk, however, the diarrhea and vomiting ceased and the child began to gain weight. His growth became normal and at one year he was perfectly healthy.

A Weston A. Price local chapter leader reports on a two-year-old boy with very serious asthma. After the mother put the boy on raw cow's milk, the child went through the entire winter without a visit to the doctor for any reason and no asthma attacks—except for one, a serious attack that occurred after the boy consumed pasteurized milk while on a family trip.

Another report describes an autistic eight-year-old boy who had not spoken a word since the sudden onset of autism at the age of two. After two months on raw cow's milk, all autistic behavior disappeared and the child began to babble as a prelude to speech. The only dietary or treatment change was a switch from pasteurized to raw milk.

Imagine the joy and relief that raw milk has given to these children, and the families of these children—an end to suffering, an end to worry. Family life can be peaceful and happy again, and the child now has the possibility of a normal life. Make no mistake, the official stance is that these children do not have the right to consume raw milk, even that parents who give raw milk to their children are guilty of child abuse because they are exposing them to serious risk.<sup>1</sup>

Written up by a physician and published in a medical journal—something most unlikely to happen in today's anti-raw milk climate—these anecdotes would be called “case histories.” But coming from parents, they are simply anecdotes, with the implication that parents lack the judgment to distinguish between good science and the placebo effect. But for parents observing their children, motivated first and foremost by the desire to see their children healthy, these “anecdotes” are pure observational science.

According to John Sheehan of the FDA, “Claims that raw milk has miraculous disease-curing properties are not supported by the scientific literature.”<sup>2</sup> Note that Mr. Sheehan does not say that raw milk’s miraculous disease-curing properties do not exist, only that they are not described in the scientific literature. And why is there so little in the scientific literature about the health benefits of raw milk? Why have scientists not studied this fascinating subject? The answer should be obvious. No scientist would risk his or her career to focus on such an unprofitable area of research, and no journal would challenge the dictum that raw milk is dangerous. It’s almost as though the FDA has promulgated an unwritten commandment: “Thou shalt not study raw milk.”

Yet raw milk has been studied and the few published papers present a consistent body of evidence on raw milk’s benefits, especially for growth, that is, especially for children. Most of these studies are old studies, carried out before the Second World War—but that does not mean these studies should be discounted. No one would jump off a tall building just because Newton formulated the laws of gravity several hundred years ago. Good science is good science in whatever age we live, and the body’s requirements for nutrients are the same now as they were hundreds of years ago.

#### EARLY HUMAN STUDIES

In 1926, when pasteurized milk and raw certified milk co-existed (and health officials still thought the certification of raw milk was a life-saving service), the *Archives of Pediatrics* published a study of two hundred twenty-four children whose parents obtained milk from the Boston Dispensary. Children received either raw certified milk; Grade A pasteurized milk; Grade A pasteurized milk plus cod liver oil; or raw certified milk plus cod liver oil and orange juice. Compared to those on pasteurized milk, children who received raw certified milk had better weight gain and greater protection against rachitis, a childhood disease, similar to rickets, caused by deficiency of vitamin D and sunlight, and associated with impaired metabolism of calcium and phosphorus. Interestingly, the addition of cod liver oil and orange juice did not improve the results for children on raw milk, but did allow those on pasteurized

milk to have better weight gain and more protection against rachitis. According to the authors, "The use of certified milk [raw] without orange juice or cod liver oil gave a considerably greater percentage of weight development than either pasteurized milk alone or pasteurized milk with orange juice and cod liver oil." They concluded that "a larger use of certified milk in infant feeding should be encouraged by the medical profession."<sup>3</sup>

The journal published a similar study three years later. The researchers compared two groups of infants. Group I (one hundred twenty-two babies) received raw milk; group II (one hundred twelve babies) received pasteurized milk. Those receiving raw milk had better weight gain than those on pasteurized milk. Rickets occurred more frequently in the group on pasteurized milk and the cases of rickets that did occur in the raw milk group were milder. There were twenty-four cases and nine deaths from diarrhea in the raw milk group compared to thirty-six cases and fifteen deaths in the pasteurized milk group. Mortality was ten percent in the raw milk group and sixteen percent in the pasteurized milk group.<sup>4</sup>

A 1931 study on the growth of Scottish school children was published in *Nutrition Abstracts and Reviews*.<sup>5</sup> Children drinking raw milk had a significantly greater increase in height and weight compared to those drinking pasteurized milk. ". . . [P]asteurized milk was only 66 percent as effective as the raw milk in the case of boys and 91 percent as effective in the case of girls in inducing increases in weight; and 50 percent as effective in boys and 70 percent as effective in girls in bringing about increases in height."

The authors gave the following explanation for the results, referring to another study that had previously appeared in the *Journal of Biological Chemistry*: "Kramer, Latzke and Shaw obtained less favorable calcium balances in adults with pasteurized milk than with 'fresh milk' and made the further observation that milk from cows kept in the barn for five months gave less favorable calcium balances than did 'fresh milk' (herd milk from a college dairy)."<sup>6</sup>

Also in 1931, health officials in Scotland reported on a project to determine whether milk could improve growth of impoverished chil-

dren in the Lanarkshire schools. It was a large and ambitious study—following twenty thousand children ages five to twelve. Five thousand received three-fourths pint of raw milk per day; five thousand received three-fourths pint of pasteurized milk per day for four months. The control group of ten thousand children received no milk.

In the final report, published in the journal *Nature*, March 21, 1931, the research team noted better growth in those children receiving milk but stated that “the effects of raw and pasteurized milk on growth in weight and height are, so far as can be judged from this experiment, equal.”

However, two scientists, Fisher and Bartlett, looked carefully at the data and followed up with a critical evaluation in the April 18, 1931 issue of *Nature*. They found that the initial evaluation was highly biased and that growth, especially in boys, was better on raw milk than pasteurized—and this on less than one pint of raw milk for only four months!

Further compelling evidence of the superiority of raw milk appeared in *The Lancet* in 1937, in a report on the work of the medical officer to a group of orphanages. The physician gave pasteurized milk for five years to one group of seven hundred fifty boys, while giving raw milk to another group of seven hundred fifty. All other conditions were alike except for this one item. During that period, fourteen cases of tuberculosis occurred in the boys fed pasteurized milk, while only one occurred in those fed raw milk. It was studies like these, plus the observations of physicians in both America and Europe, that led to the following statement in the *The Lancet* the same year: “The child on raw milk is very fit. Chilblains [a serious problem in houses without central heating] are practically eliminated. The teeth are less likely to decay. The resistance to tuberculosis and other infections is raised.”<sup>7</sup>

The orphanage study contains an interesting comment on the dental health of the children brought up on raw milk: “Dr. Evelyn Sprawson of the London Hospital has recently stated that in certain institutions children who were brought up on raw milk (as opposed to pasteurized milk) had perfect teeth and no decay. The result is so striking and unusual that it will undoubtedly be made the subject of further inquiry.”<sup>8</sup> Instead, the report has been conveniently forgotten; today, official pro-

nouncements recommend fluoride, not raw milk, for protection against tooth decay.

### EARLY ANIMAL STUDIES

Early studies on raw versus pasteurized milk in animals confirm the findings of early studies on human beings. In an earlier chapter, we discussed Francis Pottenger's work. His experimental findings from feeding cats various raw and pasteurized milk diets had been noted by a professor at Ohio State University in the early 1940s, who observed the same pathologies Pottenger described in cats fed pasteurized milk. As did Pottenger's, the professor's raw milk cats thrived.<sup>9</sup>

A rigorous controlled experiment in 1941 with calves at the West of Scotland Agricultural College at Auchincruive produced equally dramatic results. "Two groups, each of eight calves, were fed, one group on raw milk, the other on pasteurized milk . . . . The experiment covered a period of 90 days. All the animals in the raw milk group finished the trial without mortality. In the pasteurized milk group, two died before they were 30 days old, and a third died on the 92nd day; that is, two days after the experiment." The remaining calves in the pasteurization group were in ill health at the end of the experiment, while all of the animals in the raw milk group were in excellent health.<sup>10</sup>

The results of other animal experiments performed in England to determine the relative nutritional value of raw and heated milk were reported in 1931 in *The Lancet*: "Our results show definitely that some dietetic factors are destroyed when milk is sterilised, and to a definite but lesser degree when it is pasteurised, and that although fresh milk is capable of supporting sustained growth and reproduction in rats, heated milk is no longer capable of doing so."<sup>11</sup>

Five years later, the same authors reported that rats fed pasteurized milk showed loss of hair while those fed raw milk did not. The type of milk also influenced the comparative reproductive capacity of the rats: "Two females which had received sterilised milk for about eight months showed remarkable improvement after receiving raw milk for about eleven weeks and one gave birth to a litter when mated to a buck from the raw-milk group. Previous to this, 15 matings had been attempt-

ed with does and bucks both reared on sterilised milk, and no signs of pregnancy were shown on any one of these occasions.”<sup>12</sup>

Those who consume pasteurized and especially ultrapasteurized milk who wish to have children should consider themselves warned.

In 1931 Dr. Ernest Scott and Professor Lowell Erf of Ohio State University compared the effects of raw and pasteurized milk in rats. Those given whole raw milk had good growth, sleek coats, clear eyes and good quality blood; those given whole pasteurized milk had rough coats, slow growth, loss of vitality and weight and anemia.<sup>13</sup> The lack of anemia in the raw milk-fed rats is significant because, according to a discussion by Scott and Erf, the scientific consensus at the time was that all milk, raw and pasteurized, could cause anemia if it were consumed as the only food. The observed anemia in the pasteurized milk-fed rats is undoubtedly due to the destruction of lactoferrin during pasteurization, as well as the denaturation of vitamin A in the butterfat—vitamin A supports iron assimilation.

Anemia in young children is a serious condition and manifests as follows: “Infants with chronic, severe iron deficiency have been observed to display increased fearfulness, unhappiness, fatigue, low activity, wariness, solemnity, and proximity to the mother during free play, developmental testing and at home. In a recent preventative trial in Chile, ratings after 30-45 minutes of developmental testing showed that, compared with infants who received iron supplementation, a greater percentage of unsupplemented infants never smiled, never interacted socially, and never showed social referencing.”<sup>14</sup>

The presence or absence of anemia in the rats may explain the marked differences in observed behavior patterns between the two groups. Those on raw milk had “excellent dispositions” and did not show signs of stress when they were picked up and petted. Those on pasteurized milk were very irritable, often showing a tendency to bite when handled. This finding mirrors frequent reports from parents that their children’s behavior improves when they make the switch from pasteurized to raw milk.

Researchers Wulzen and Bahrs reported on their work with rats at Oregon State University during the early 1940s. “In all experiments,”

they wrote, “the growth of the rats fed raw milk was superior to that of similar experimental groups fed pasteurized milk.” Autopsies showed that the raw-milk-fed animals had no abnormalities, while in many cases it was “noted that the nuclei of heart cells from pasteurized-milk-fed animals were shrunken.” The authors found various other degenerative changes in the adrenal glands, muscles and livers.<sup>15</sup>

These researchers then performed another series of similar experiments with guinea pigs. They reported that “Animals fed raw whole milk grew excellently and at autopsy showed no abnormality of any kind. Those on the pasteurized milk rations did not grow as well and developed a definite syndrome, the first sign of which was wrist stiffness. On pasteurized skim milk ration the syndrome increased in severity until the animals finally died in periods ranging from a month to a year or more. They showed great emaciation and weakness before death.”<sup>16</sup>

Health officials insist that pasteurized milk has the same level of nutrients as raw, and for many of the nutrients this statement is technically correct. Raw and pasteurized milk from the same source contain the same amount of calcium, for example. But the real issue in growing children is how the calcium is used. In a series of experiments carried out at Randleigh Farm, an experimental dairy farm in upstate New York, during the late 1930s, researchers compared rats on raw and pasteurized whole milk. The raw milk-fed rats were larger and more robust, with good, healthy fur; those on pasteurized milk had hairless patches, called acrodynia, due to vitamin B<sub>6</sub> deficiency.<sup>17</sup>

The most serious difference showed up on autopsy. Those rats on raw milk had longer bones, and the bones were much denser. Typically the bones of the pasteurized milk-fed rats weighed one hundred forty-six grams while those on raw milk weighed two hundred six grams—they were about thirty percent denser. So while the amount of calcium in the two types of milk was approximately the same, it was utilized more effectively in the raw milk-fed rat. In humans, bone density for life is acquired in childhood and translates into a more robust constitution, greater height and more attractive facial structure.

The researchers at Randleigh Farm also compared the internal organs of the raw and pasteurized milk-fed rats. Their findings were simi-

lar to those of Dr. Pottenger. Those on pasteurized milk had poor color and compromised integrity of the intestine, liver and other organs—their insides were mushy.

In 1941, when researchers Wulzen and Bahrs performed autopsies on guinea pigs fed pasteurized whole milk, they found muscles streaked with calcification and calcium deposits under the skin and in the joints, heart and other organs, a pathology that was absent in guinea pigs fed raw milk. This finding gives us a good idea of what happens to the calcium that does not get built into the bones—it ends up in the soft tissues, where it does not belong. The researchers attributed the inappropriate calcium utilization to the destruction of a hormone-like factor in butter-fat called the Wulzen factor.

After the Wulzen and Bahrs study, the track goes cold. As laws for mandatory pasteurization were put into place, a chilly wind swept over the universities, and research into this fascinating subject came to a halt.

The one exception is the research on raw versus human milk described in Chapter 15. But in a serious lapse of logic, public health officials assume these studies on raw human milk have little relevance to raw animal milk. In any event, they did no good. Even though the research clearly showed that it was better to give human milk to babies raw, milk banks routinely pasteurize this precious, life-saving food.

#### A FAMOUS PEDIATRICIAN EXHORTS AMERICANS TO GIVE UP MILK

In 1983, long after health officials had forgotten about certified raw milk, Frank Oski, MD published what became a very influential book entitled *Don't Drink Your Milk*. Oski was Chairman of the Department of Pediatrics at the State University of New York Upstate Medical Center; he subsequently became Director of the Department of Pediatrics at the Johns Hopkins University School of Medicine and Physician-in-Chief at the Johns Hopkins Children's Center. He has been characterized as America's leading pediatrician.

"Milk has been linked to iron-deficiency anemia in infants and children," Oski writes. "It has been named as the cause of cramps and

diarrhea in much of the world's population, and the cause of multiple forms of allergy as well; and it may play a central role in the origins of atherosclerosis and heart attacks.

“Among physicians, so much concern has been voiced about the potential hazards of cow milk that the Committee on Nutrition of the prestigious American Academy of Pediatrics, the institutional voice of practicing pediatricians, released a report entitled, ‘Should Milk Drinking by Children Be Discouraged?’”<sup>18</sup>

About one-fifth of all infants under two in America suffer from iron-deficiency anemia, about half of which, according to Oski, is due to low-grade intestinal bleeding induced by sensitivity to milk. The amount of blood lost is too small to be detected visually, but is enough to lead to anemia.<sup>19</sup> Oski did not know about the Scott and Erf experiments, which showed that raw milk does not cause anemia.

Oski links a number of other symptoms to milk allergies including persistent or recurrent nasal congestion, asthma or chest infection, skin rashes and otherwise unexplained vomiting or diarrhea. These are all problems that I too have seen in many infants and children who consumed regular store-bought milk and milk-based formulas. Other investigators have linked kidney disease, eczema and rheumatoid arthritis to milk, and this too is consistent with my experience; I've long observed that regular pasteurized milk is one of the worst and most obvious triggers for children with eczema or rheumatoid arthritis.

Other investigators have published studies linking modern milk consumption to multiple sclerosis, amyotrophic lateral sclerosis (Lou Gehrig's disease), antisocial behavior in children and juvenile diabetes.<sup>20,21</sup> Of course, neither Oski nor any of these other investigators appear to have considered the possibilities of raw milk.

## ALLERGIES AND ILLNESSES ASSOCIATED WITH PASTEURIZED MILK

For many individuals allergies are the clearest manifestation of acute illness caused or aggravated by milk and other dairy products. Many articles in medical journals describe allergies to milk in babies and young children. The authors never mention the fact that the aller-

gies are almost always to pasteurized milk; the alternative of raw milk goes unrecognized and unmentioned. In one study, fifty-nine of seven hundred eighty-seven babies studied were found to have the classic allergic symptoms of recurrent nasal congestion and bronchitis, eczema, diarrhea or repeated vomiting in response to pasteurized milk or milk-based formula. In other studies the percentages of babies allergic to milk have been even higher. These children saw their doctors much more frequently and required hospitalization more often than children who were non-allergic. The earlier the babies were exposed to pasteurized milk, the more likely they were to show signs of intolerance.<sup>22</sup>

A more serious complication was described by investigators who worked with ten- to thirteen-year-old children with a kidney disease called nephrosis, which involves the loss of excess amounts of protein from a damaged kidney. Fluid accumulation with swollen hands and feet is commonly the result, and the problem can lead to permanent renal disease and death. When pasteurized milk was removed from the diet, the children showed signs of marked improvement, and when the milk was reintroduced, the problems returned. The researchers concluded that sensitivity to milk and other foods played a prominent role in causing the disease. Unfortunately, in this as in other studies, the investigators made no attempt to give raw milk and note the results.<sup>23</sup>

Other physicians have observed additional relationships between pasteurized milk and allergic disease in children. Eczema, musculoskeletal pain (“growing pains”), rheumatoid arthritis and strep infections are just a few of the problems pediatricians have alleviated by eliminating milk from the diet.<sup>24</sup> In my own experience, there is not a single problem that occurs in infants and young children that cannot be helped by eliminating pasteurized milk and dairy products from the diet. Upper respiratory symptoms, frequent ear infections and asthma are often the most obvious symptoms, but virtually any complaint may be a manifestation of allergy to pasteurized milk, as well as to other processed foods. Of the hundreds of children I’ve treated, virtually every child whose parents have been willing to eliminate these foods from the child’s diet has seen marked improvement in symptoms, often with subsequent progress to vibrant good health.

Physicians have also noted a number of interesting and disturbing relationships between the consumption of pasteurized milk and several serious chronic diseases. Investigators at the Baylor College of Medicine found that the factors that characterized patients with Lou Gehrig's disease included exposure to lead and mercury and high consumption of pasteurized milk.<sup>25</sup> A number of pediatricians have noted milk allergy in juvenile rheumatoid arthritis. In *Don't Drink Your Milk*, Oski quotes pediatrician Dan Baggett:

"I have had several children with signs and symptoms of early rheumatoid arthritis. Without exception, during the past eight years, I have had the good fortune to relieve them and watch their certain return to good health by simply eliminating all traces of milk from their diet."<sup>26</sup> Oski notes that many other pediatricians have had similar experiences. He also comments on the "many subtle and puzzling forms" that milk allergy may take.

Other investigators have found a relationship between heavy milk drinking and antisocial behavior. Young criminals were found to drink almost ten times more milk than those in a control group.<sup>27</sup>

It is against this background of ever increasing problems with pasteurized milk that we turn to a remarkable series of studies carried out in Europe between 2001 and 2007. These studies looked at "farm milk"—that is, raw milk—as one of several factors that might protect children against allergies and asthma. These were the first studies on the effects of raw animal milk to appear in the literature since the 1940s, and they were published in prestigious journals. Significantly, they were carried out in Europe, not the U.S.

In the first, published in *The Lancet*, 2001, which involved twenty-six hundred families, researchers found that "Long-term and early-life exposure to stables and [raw] farm milk induces a strong protective effect against development of asthma, hay fever and atopic sensitization [rashes]."<sup>28</sup> In the second, published in the *Journal for Allergy and Clinical Immunology*, 2006, researchers concluded that children who even infrequently drank raw milk had significantly less current eczema symptoms and a greater reduction in atopy [allergic hypersensitivity].<sup>29</sup>

The third study, called the PARSAVAL study, looked at almost

fifteen thousand children ages five to thirteen. Researchers found that consumption of raw milk was the strongest factor in reducing the risk of asthma and allergy, a stronger factor than living on a farm or having a pet. These findings were published in 2007, in *Clinical and Experimental Allergy*.<sup>30</sup> Health officials can no longer claim that “all the studies on raw milk are old studies.”

Asthma is a crippling, even life-threatening condition. Over five thousand people in the U.S. die from asthma per year. According to the CDC, asthma is the second most prevalent chronic condition among children, afflicting at least five million. It results in approximately fourteen million days of missed school each year and carries the specter of toxic inhalers and emergency room visits. The European studies point to a safe and easy solution to the problem of asthma: give children raw milk and give it to them early in life. It is difficult to find words to describe the character of those who proclaim that raw milk provides no benefit to children.

#### THE PROTEINS IN MILK

Milk proteins are very fragile, three-dimensional objects with complicated precise folding, and even precise variations in surface electric charge. The rapid heating of pasteurization warps and distorts these proteins so that the body no longer recognizes them; instead it is forced to mount an immune response. Pasteurization affects not only the two main proteins in milk, casein and whey proteins, but also the various enzymes, because enzymes are basically proteins. A growing child, let alone a mature adult, must expend a lot of energy dealing with this assault on the immune system—such an effort explains the irritable behavior of the rats studied by Scott and Erf—and of children on pasteurized milk. Very frequently, parents report an improvement in behavior in children after a switch to raw milk from pasteurized. (By contrast, meat proteins are very tough and bundled into tight coils, and they survive various forms of heat treatment fairly well.<sup>31</sup>)

The distortion of milk proteins by pasteurization also provides a partial explanation for the growing list of disorders associated with pasteurized milk—gastrointestinal problems, frequent ear infections, aller-

gies and rashes, early onset diabetes, auto-immune disease, attention deficit disorder and autism. As the destruction of proteins by pasteurization means the destruction of raw milk's whole system of immune support, the child drinking pasteurized milk is subject to a double whammy—a large burden on the immune system coupled with lack of immune system support.

#### NUTRIENT LOSSES

During the early days of pasteurization, researchers showed that scurvy often resulted when pasteurized milk replaced raw milk in the diet of infants. “Pasteurized milk gradually induces infantile scurvy, unless antiscorbutic diet is given in addition,” wrote Alfred Hess in a 1916 issue of the *American Journal of Diseases of Children*. “This disorder quickly yielded to the substitution of raw for pasteurized milk.”<sup>32</sup>

The following year, Hess wrote of the situation in Berlin, “A large dairy in that city established a pasteurizing plant in which all milk was raised to a temperature of about 60 degrees C. After an interval of some months, infantile scurvy was reported from various sources throughout the city.”<sup>33</sup>

Thus from the earliest days of pasteurization scientists demonstrated that heat treatment had a profound effect on the health-giving properties of milk. A loss of nutrients other than vitamin C was demonstrated in subsequent studies. One article, “The effect of heat on the solubility of the calcium and phosphorus compounds in milk,” was published in 1925 in the *Journal of Biological Chemistry*.

The author's conclusion was unequivocal: “There is a loss in the soluble calcium and phosphorus contents of the milk due to heat and the amount of the loss depends upon the temperature to which the milk has been heated.”<sup>34</sup> Other studies showed that pasteurization caused the loss of significant percentages of many of the B vitamins and nearly all of the enzymes in milk.<sup>35</sup>

One study, published in the *Journal of Dairy Science* in 1934, documented the loss of thirty-eight percent of the B-complex vitamins.<sup>36(41)</sup> Similar findings were published in a 1979 master's thesis at the University of Georgia—the losses from pasteurization of vitamin B<sub>6</sub>, thiamin

(vitamin B<sub>1</sub>) and folic acid were determined to be 34.4 percent, 33.8 percent and 24.1 percent, respectively.<sup>37(42)</sup>

High-quality raw milk contains significant amounts of vitamin C, estimated in 1936 to be twenty to twenty-five milligrams per liter.<sup>38(43)</sup> Hess wrote in 1932 that the amount of vitamin C in raw milk was “dependent entirely on the vitamin content of the food or fodder of the animal” and that pasteurization destroyed at least fifty percent of the vitamin C in milk.<sup>39(44)</sup> Researchers in the Department of Chemistry at the University of Wisconsin confirmed these findings several years later: “Commercial raw milks contained an anti-scorbutic potency which was only slightly less than fresh raw milks. Pasteurized milks on the average contained only one-half the latter potency.”<sup>40(45)</sup>

Others estimated much higher rates of destruction. In a 1938 report titled “Infantile Scurvy,” one expert wrote, “The vitamin is present in varying concentration in cow’s milk and, since it is a fragile substance, is largely destroyed by pasteurization.”<sup>41(46)</sup> In 1941, the U.S. Government Printing Office published the *Proceedings of the National Nutrition Conference for Defense*. That document stated that “. . . the cows of the country produce as much vitamin C as does the entire citrus crop, but most of it is lost as a result of pasteurization.”<sup>42(47)</sup> In an article published in *Pediatrics*, 2001, we read, “. . . without doubt. . . the explosive increase in infantile scurvy during the latter part of the 19th century coincided with the advent of use of heated milks. . .”<sup>43</sup>

Proponents of pasteurization admit the loss of vitamin C but claim that “infants can get it from other sources.” But what other sources of vitamin C are there for the infant—sugar-laden orange juice? Raw milk can resolve scurvy without putting other burdens on the growing infant, both the full blown condition and the subclinical variety, with its surreptitious damage to the blood vessels and the organs, especially the eyes; pasteurized milk cannot.

Pasteurized milk contains similar levels of minerals as raw milk, but these minerals are not as well absorbed after milk has been heat treated. We saw how pasteurization inhibits proper calcium and iron assimilation—and it is a good working hypothesis that pasteurization inhibits the assimilation of other minerals as well. Pasteurization destroys

the beneficial bacteria in raw milk, which enhance mineral absorption.<sup>44</sup> Iodine, critical to thyroid function, is lower in pasteurized milk.<sup>45</sup>

The Randleigh Farm studies demonstrated that animals on pasteurized milk develop vitamin B<sub>6</sub> deficiency. This nutrient is absolutely critical to hundreds of biochemical processes, necessary for the production of red blood cells, hydrochloric acid, receptors and feel good chemicals. It supports the heart, liver, brain, kidneys and nervous system and can alleviate symptoms as diverse as epilepsy, skin problems, multiple sclerosis, asthma, tooth decay, celiac disease and proneness to sunburn. Shouldn't all children be given the best possible source of vitamin B<sub>6</sub>, raw milk?

Pasteurization inactivates the carrier protein for folate<sup>46</sup> and vitamin B<sub>12</sub>.<sup>47</sup> It destroys lipases, enzymes needed for fat utilization.<sup>48</sup> Vitamin D is present in milk in protein-bound form; thus pasteurization is likely to inhibit utilization of the sunshine vitamin.<sup>49</sup> Heat degrades vitamin A and also beta-lactoglobulin,<sup>50</sup> a protein that increases absorption of this nutrient, which is needed for growth, mineral metabolism, hormone protection and protection against infection, among numerous other roles.

## RAW MILK AND BONE STRUCTURE

Author Joann Grohman tells the following family story about raw milk and bone structure in *Keeping A Family Cow*:

"I have a large family. Pictures of my descendants are all over the house. These young people, eight children and nine grandchildren, all have something in common besides a mother and a grandmother. They have excellent bone structure.

"I'm a painter and also a farmer. As an artist I'm trained to see bone structure. It's the foundation of beauty. Straight legs, an erect carriage with well-set shoulders, well proportioned facial bones with straight teeth, these are the basics and they can't be picked up at spas or beauty salons. You develop them in childhood.

"As a farmer I know that good bone structure is no accident. The quality of the diet is the main determinant. Ethnic (we farmers call them breed) differences exist, but we (and our animal friends) are born with

the birthright of excellent bone structure whether it's a stocky or elongated bone. This is our genetic potential.<sup>47(18)</sup>

“The teeth of children raised on the milk from their family cow are always straight. I'm making this rather sweeping statement because I have never run into any exceptions. I have had letters from my readers also describing the freedom from decay their family enjoys now that they keep a cow.”<sup>51(19)</sup>

### RAW MILK FOR AUTISTIC CHILDREN

Autism is a heartbreaking condition in which the child is unable to engage in normal social and emotional reactions with those around him. Once extremely rare, today it afflicts as many as one in one hundred fifty children, causing untold suffering and misery—a kind of living death—for both the victims and their families. Autistic children suffer not only from neurological impairment but also severe digestive disorders. Removal of casein and gluten (in milk and wheat) is the prescribed treatment. One theory holds that opiates in milk induce autistic behavior.

A recent interesting discovery is the fact that autistic children have higher-than-normal levels of blood ammonia and that treatment with lactic-acid bacteria can lower these levels. Ammonia is produced by certain gram-negative bacteria inhabiting the gut; these types of bacteria exist in very high levels in the autistic child. Lactobacilli produce very little ammonia and will displace these pathogenic bacteria in the intestinal tract.

A fascinating paper by Linda Carlton and Mary Brauning, both parents of autistic children, presents the theory that exposure to heat-killed bacteria can induce an innate immune response resulting in autism. They note that the first known cases of autism were reported during the 1940s, at the time when pasteurization of milk became nearly universal and immunization programs were instituted. Pasteurized milk introduces heat-killed bacteria into the gut, and vaccinations introduce heat-killed bacteria directly into the bloodstream.<sup>52(96)</sup> They suggest a diet containing raw milk, raw fermented milk and other fermented foods for autistic children.

Mrs. Carlton reports: “My colleague. . . and myself have been feeding our children daily raw milk—either the raw cow’s milk, or the raw goat’s milk. In addition to raw milk, we also have been fermenting the raw milk with kefir grains. The changes in our children are incredible!

“However, we cannot spark any interest among other parents with autistic children, because they are deadly afraid of milk’s theorized opioid effect.

“In August 2002, we began to research opioids and their behavioral effects. It is almost a tragedy that this fallacious theory as the explanation for autism’s symptoms had to be challenged by two mothers and not some research scientist. . . .

“If you have never tried the real kefir grains, then you are in for a treat. Actually, the first time we tried them, we all experienced an elevated temperature and cleansing, presumably due to real detoxification. In any event, our families have greatly benefited from raw fermented milk products. . .

“The pasteurization of milk has damaged the gift of life and health. Even heating milk above 100 degrees to make [modern] yogurt causes protein cross-linking where amino acids become fused together. Poor lysine really goes through a beating!

“You will never heat milk again after studying heat treatments, nor will you want to consume pasteurized beer, pasteurized soy sauce, pasteurized fruit juices or pasteurized eggs.”<sup>53(97)</sup>

## PASSIONATE MOMS

Raw milk is a perfect food, and an especially perfect food for growing children. If you have read this far and still think that raw milk is a bad idea, put yourself in the shoes of a mother with small children. Every instinct, every fiber of her being desires good health for her growing child. Yet she is surrounded by forces that work toward the detriment of her children’s health—processed and highly sweetened foods that are advertised to children, sold to children, pushed on children. Even if she prepares all the family meals—and many mothers lack the time, energy or skills to do so—she still worries about getting proper nutrition into her youngsters.

And many children are picky eaters—milk is often the one food that picky children will actually consume.

And if she can't or won't breastfeed, or if her infant isn't thriving on breastmilk, what are her choices? Artificial, processed infant formula full of high fructose corn syrup, mono- and di-glycerides, vegetable oils, powdered protein and synthetic vitamins? Or a homemade formula based on raw milk, the closest thing in nature to human milk and the only food designed to kickstart the immature immune system?

Thousands and thousands of mothers have discovered that raw milk is the one food that allows them to give a sigh of relief, a food that helps their children grow normally, puts color in their cheeks, calms their behavior, gives them energy and focus, protects them against infection, cures allergies and asthma, and offers them the promise of a normal life. We call these passionate moms, and passionate moms are the strongest force on earth.

Yes, Mr. Sheehan, raw milk is a miraculous food, and there is a host of passionate moms out there who are determined to get it for their families, whether you like it or not.

