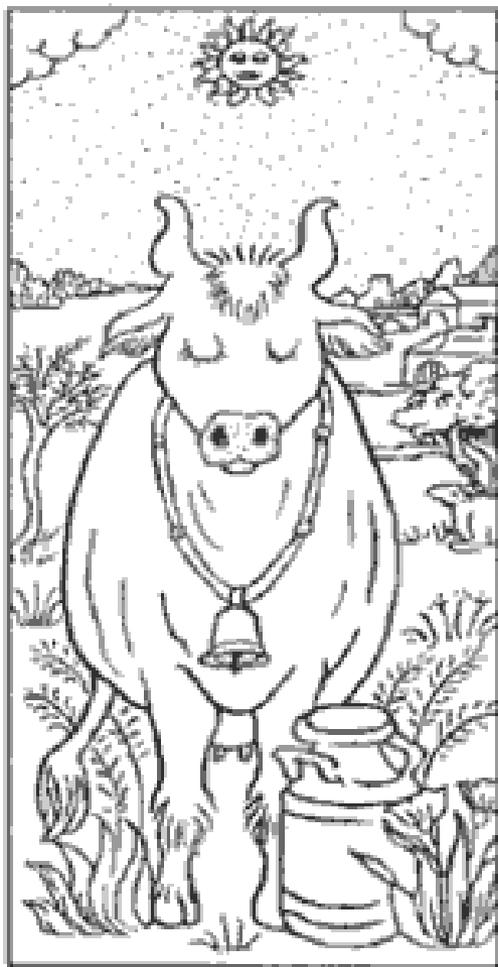


A Campaign for *Real Milk*



**FULL-FAT
PASTURE-FED
UNPROCESSED**

The Health Benefits of Real Milk

By Sally Fallon Morell, President
The Weston A. Price Foundation
A Campaign for Real Milk Is a Project of
The Weston A. Price Foundation
westonaprice.org

“Research has shown that there is no significant difference in the nutritional value of pasteurized and unpasteurized milk.”

*John F. Sheehan, Director,
US Food and Drug Administration, Division of Dairy and Egg Safety
FDA Consumer, Sept/Oct 2004*

“Pasteurization of milk is one of the most important public health initiatives in history.”

The Milk Cure, 1910

- **ANCIENT:** Since ancient times, an exclusive raw milk diet has been used to cure many diseases.
- **MAYO CLINIC:** In the early 1900s, the “Milk Cure” was used at the Mayo clinic to successfully treat cancer, weight loss, kidney disease, allergies, skin problems, urinary tract problems, prostate problems, chronic fatigue and many other chronic conditions.
- **ONLY WITH RAW MILK:** The Milk Cure only works with raw milk; pasteurized milk does not have these curative powers.

Crewe, JR. “The Milk Cure,” <http://www.realmilk.com/milkcure.html>

Raw Milk and Children - 1926

STUDY: 224 Children at the Boston Dispensary were fed either:

- Raw Certified Milk, or
- Grade A pasteurized milk, or
- Grade A pasteurized milk plus cod liver oil, or
- Raw Certified Milk plus cod liver oil and orange juice

CONCLUSION: “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. . . A larger use of certified milk in infant feeding should be encouraged by the medical profession.

Arch Ped 1926 JUN; 43:380

Raw Milk and Calcium Assimilation - 1928

COMPARISON: Investigators compared calcium and phosphorus utilization from raw, pasteurized, evaporated and dried milks.

LESS FAVORABLE BALANCES: Researchers obtained “less favorable calcium balances” in adults with pasteurized milk than with “fresh milk.”

GRASS FED SUPERIOR: Milk from cows kept in the barn for five months gave less favorable calcium balances than did “fresh milk.”

Raw Milk and Children - 1929

- COMPARISON of 2 groups of babies.
 - Group I (122 babies) received raw milk
 - Group II (112 babies) received pasteurized milk.
- WEIGHT GAIN was much better in group receiving raw milk
- RICKETS occurred more frequently in the group receiving pasteurized milk; cases of rickets in the raw milk group were milder.
- DIARRHEA
 - 24 cases with 9 deaths in raw milk group
 - 36 cases with 15 deaths in pasteurized milk group
- MORTALITY

Group I Raw Milk	10%
Group II Pasteurized Milk	16%

Raw Milk and Children – 1931

Bias in Reporting Health Benefits

STUDY: 20,000 poor children (ages 5-12) in Lanarkshire schools in Scotland, funded in part by individuals in the dairy industry.

THREE GROUPS: 5,000 given $\frac{3}{4}$ pint raw milk per day; 5,000 given $\frac{3}{4}$ pint pasteurized milk per day; 10,000 received nothing.

“NO DIFFERENCE”: Published final report (*Nature, March 21, 1931*) stated that those receiving milk had increase in rate of growth and 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.”

“RAW MILK BETTER”: Bias caught by two scientists (Fisher and Bartlett) who published a critical evaluation of the original authors’ conclusions (*Nature, April 18, 1931*). Growth, especially in boys, was actually better in those receiving raw milk. “Pasteurized milk was only 66 percent as effective 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.”

Studies of Mattick and Golding - 1931

“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.”

Mattick EC and Golding J. *The Lancet*. Mar 22, 1931, p 667.

Rat Studies of Scott & Erf - 1931

By Dr. Ernest Scott and Professor Lowell Erf,
Ohio State University, 1931

Whole Raw Milk	Good growth; sleek coats; clear eyes; excellent dispositions; enjoyed being petted.
Whole Pasteurized Milk	Rough coats; slow growth; eyes lacked luster; anemia; loss of vitality and weight; very irritable, often showing a tendency to bite when handled.

Jersey Bulletin 1931 50:210-211;224-226, 237

Studies of Mattick and Golding - 1935

- Rats fed sterilized milk had hair loss; those fed raw milk did not.
- Lowered reproductive capacity in rats fed sterilized milk.
- “Two females which had received sterilized 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 attempted with does and bucks both reared on sterilized milk, and no signs of pregnancy were shown on any one of these occasions.”

Mattick EC and Golding J. *The Lancet*. Sep 19, 1936, 703-704.

British Orphanage Study - 1937

TWO GROUPS:

Group I: 750 boys got pasteurized milk for 5 years.

Group II: 750 boys got raw milk for 5 years.

RESULTS FOR TB:

Group I had 14 cases of TB

Group II had 1 case.

OTHER BENEFITS: “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.”

Lancet, May 8, 1937:1142

Randleigh Farm Rat Studies – 1935-1940

HISTORY OF RANDLEIGH FARM



Rat fed only raw milk from cows fed dry ice grass silage and grain. Notice absence of acrodynia.



Rats fed only pasteurized milk from cows fed dry ice grass silage. Hairless areas (acrodynia) are due to a deficiency of vitamin B₆.

Raw vs. Pasteurized Milk at Randleigh Farm, 1935-1940

Above: Rat fed only raw milk. Good development, healthy fur.

Below: Rats fed only pasteurized milk. Poor development. Hairless areas (acrodynia) due to deficiency of vitamin B-6.

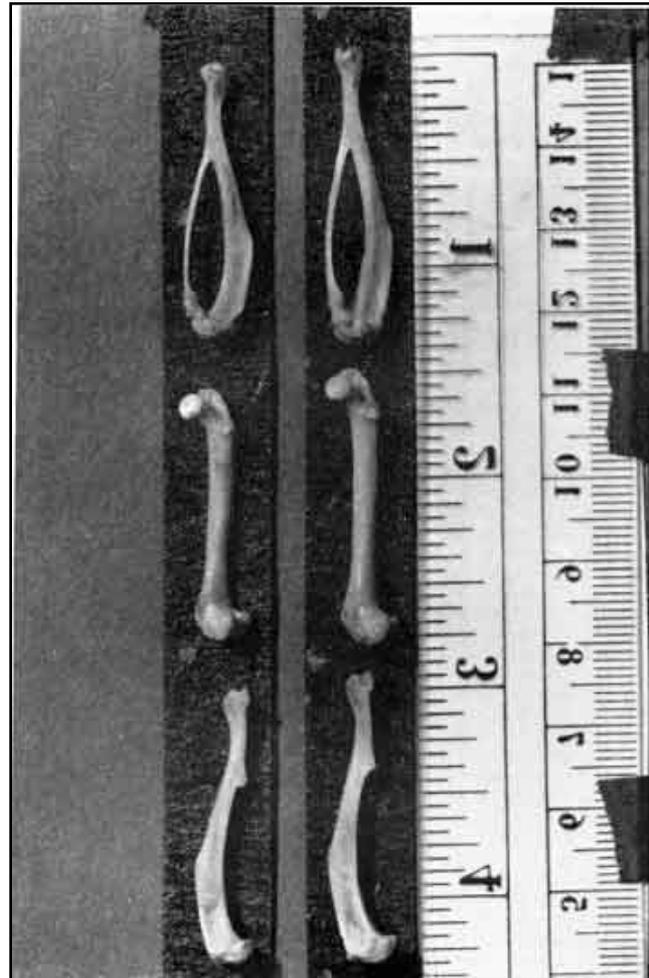
Bone Development

Randleigh Farm Study

**PASTEURIZED-
Milk-Fed Rat**

**Weighed 146
grams**

**Bones shorter
and less dense**



**RAW-Milk-Fed
Rat**

**Weighed 206
grams**

**Bones longer
and more dense**

One-to-One Exposure of Femur, Tibia and Fibula

Internal Development

Randleigh Farm Study

Rat fed pasteurized milk had poor color and compromised integrity of internal organs.



Guinea Pig Studies of Wulzen & Bahrs - 1941

By Dr. Rosalind Wulzen and Alice Bahrs, Department of Zoology, Oregon State College 1941

Whole Raw Milk	Excellent growth; no abnormalities
Whole Pasteurized Milk	Poor growth; muscle stiffness; emaciation and weakness; death within one year. Autopsy revealed atrophied muscles streaked with calcification; tricalcium deposits under skin, in joints, heart and other organs.

Am J Physiology 1941, 133, 500

Study on Calves

1941 STUDY carried out at the West of Scotland Agricultural College at Auchincruive.

TWO GROUPS, each of eight calves, were fed, one group on raw milk, the other on pasteurized milk for 90 days

NO DEATHS IN RAW MILK GROUP: All the animals in the raw milk group finished the trial without mortality.

THREE DEATHS IN PASTEURIZED MILK GROUP: 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.

ILL HEALTH IN PASTEURIZED MILK GROUP: 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 ilk group were in excellent health.

JM Mercer. An Experiment in Milk Pasteurization. *Nature's Path*, March 1941. In Bryant CP. *The Truth About Pasteurization*, National Nutrition League, Seattle, Washington, 1943.

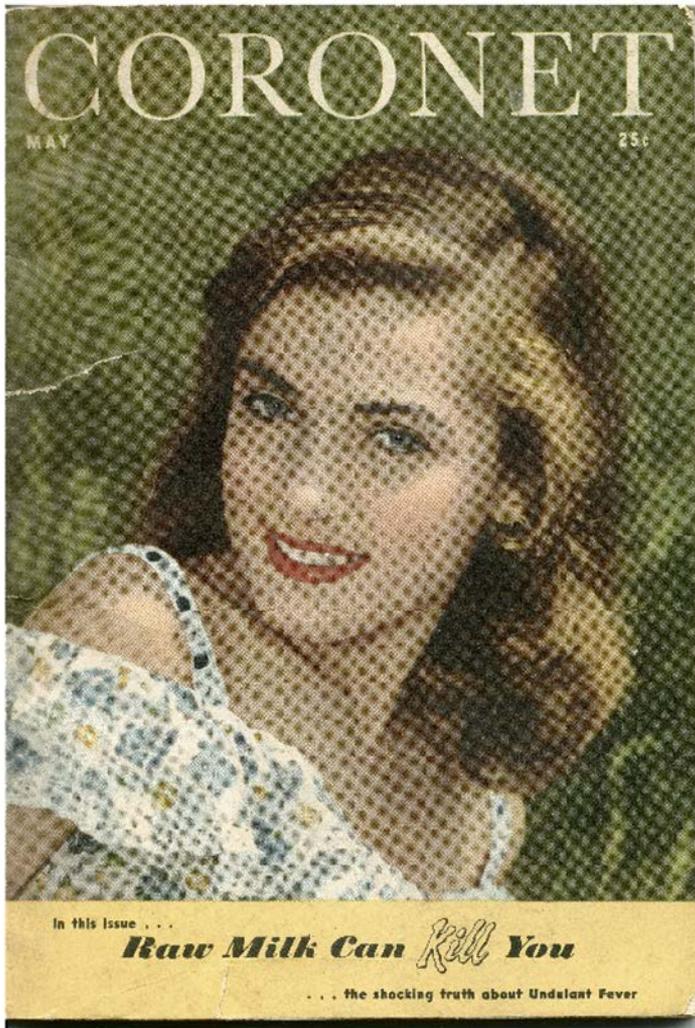
Raw Milk and Tooth Decay - 1943

Dr. Evelyn Sprawson of the London Hospital:
“. . . In certain institutions, children who were brought up on raw 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.”

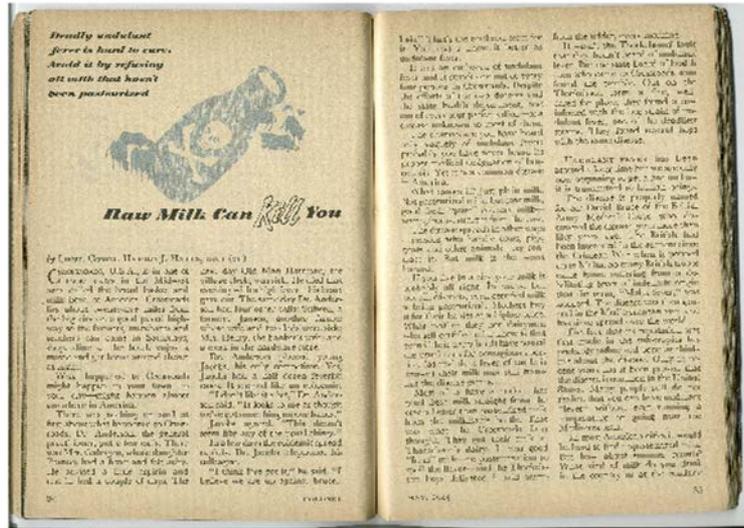
James C. Thomson,
Pasteurized Milk, A National Menace.
The Kingston Chronicle. Edinburgh, Scotland, 1943,5.

The Campaign Against Raw Milk II

Coronet Magazine, May 1945

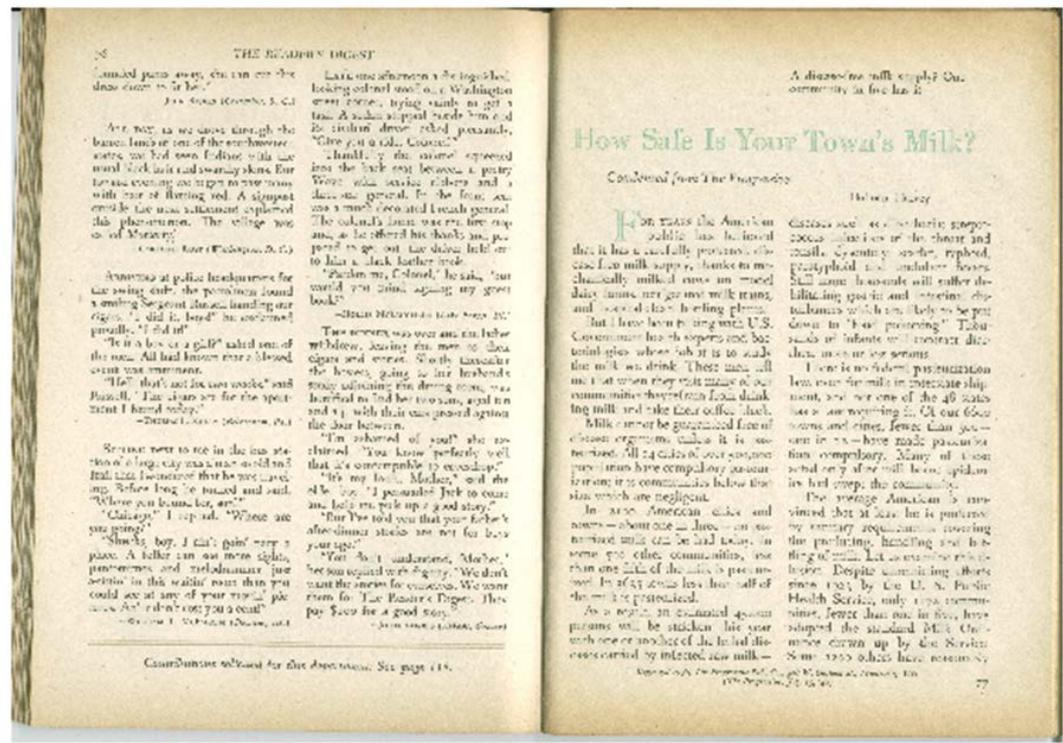


- Article in *Coronet Magazine*, May, 1945
- Seemingly factual article about a town called Crossroads, USA, where many died from undulant fever, contracted from raw milk
- One small problem: the whole story was made up, there was no Crossroads, USA, and no outbreak of undulant fever!



The Campaign Against Raw Milk III

August, 1946, *Reader's Digest* repeated false story about Crossroads, USA



Lies about raw milk continue to this day!

CDC Raw Milk “Outbreaks,” 1998-2005

Sloppy table consisting of reports, news items, press releases. Report summary claims “831 illnesses, 66 hospitalizations, one death.” (foodsafety.ksu.edu/articles/384/RawMilkOutbreakTable.pdf)

None of the reports mentions any death!

Either no valid positive milk sample or no valid statistical association	31/33 (94%)
No valid positive milk sample	27/33 (82%)
No valid statistical association with raw milk	26/33 (78%)
Neither association nor milk sample	21/33 (64%)
Did not provide evidence that pasteurization would have prevented outbreak	32/33 (97%)
Evidence that pasteurization would not have prevented outbreak	32/33 (97%)
Outbreak traced to pasteurized milk	1 (2 reports)
Outbreak traced to pasteurization failure	1 (cited twice)
Source of Information unpublished or not verifiable	3

Techniques for Blaming Raw Milk

- When testing raw milk, use cultures to promote pathogen multiplication and highly sensitive milk testing techniques that find pathogens in extremely small numbers, levels that would not cause illness. (Any substance you test will show pathogens if the test is sensitive enough.)
- Use new rapid testing techniques developed for the food industry that err on the side of finding false positives.
- When there is an outbreak, use food questionnaires that leave out likely vectors of disease but ALWAYS include raw milk.
- When there is an outbreak, test raw milk products first, and test open containers in the home setting rather than from the shelf. If a person is infected and has handled a raw milk product, the product may test positive for the organism. Omit testing other foods or raw milk products on the shelf (not handled by the consumer) but report a positive lab result for the opened container of raw milk product.
- Omit subjects who got sick but did not drink raw milk.
- Ignore equally likely or more likely sources of infection, such as visit to a farm or petting zoo, tap water or other foods.
- Assume that statistical association constitutes proof. It is easy to create a statistical association with raw milk using the above techniques.
- Issue inflammatory press releases accusing raw milk, which are not retracted when the dairy is exonerated.

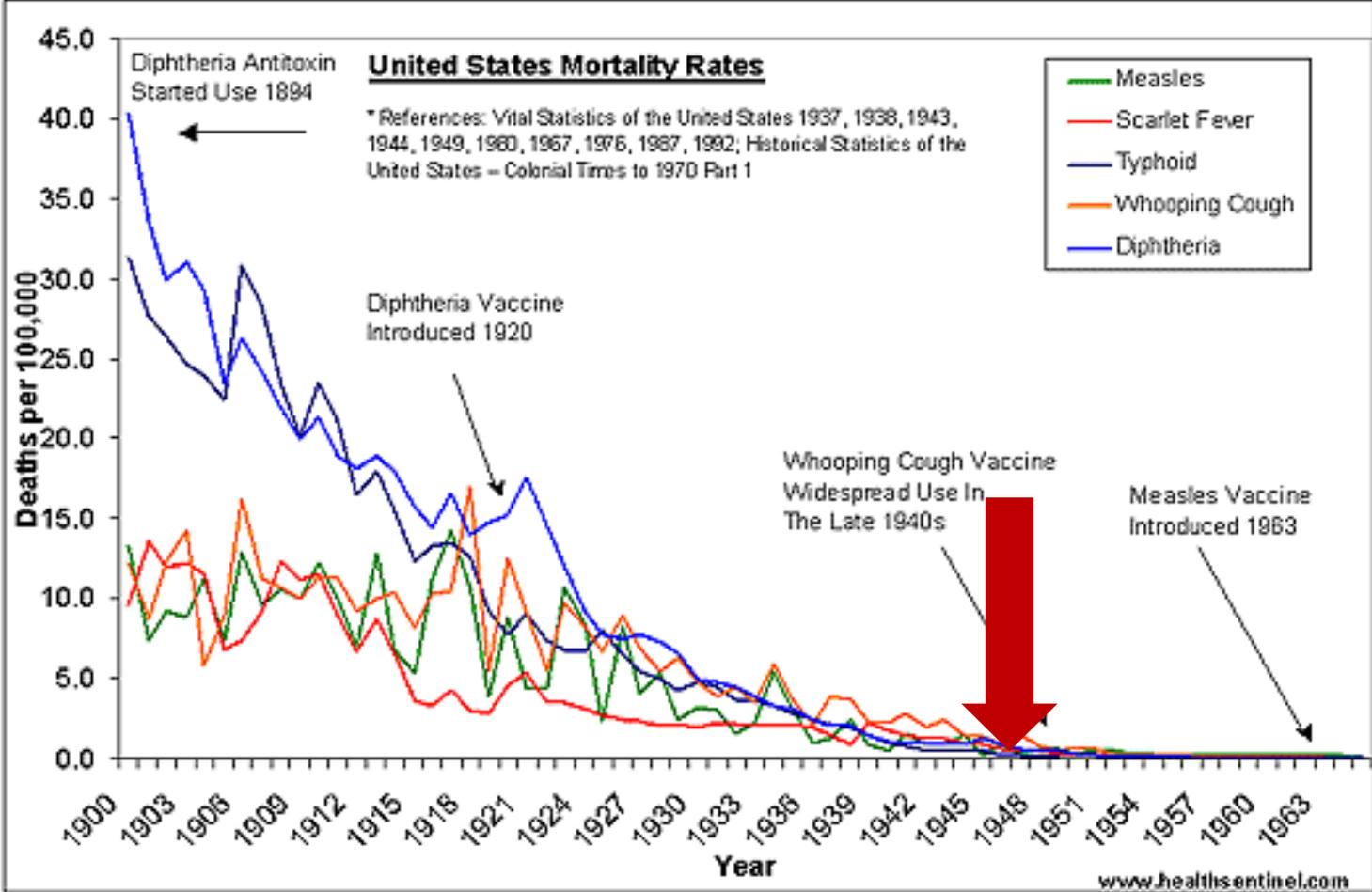
Solution to the “Milk Problem”

The “Milk Problem” was solved by:

- Outlawing inner city swill dairies
- Improved hygiene
- Improved water treatment
- Replacement of the horse with the car
- The Certified Raw Milk movement
- Increased consumer access to refrigeration

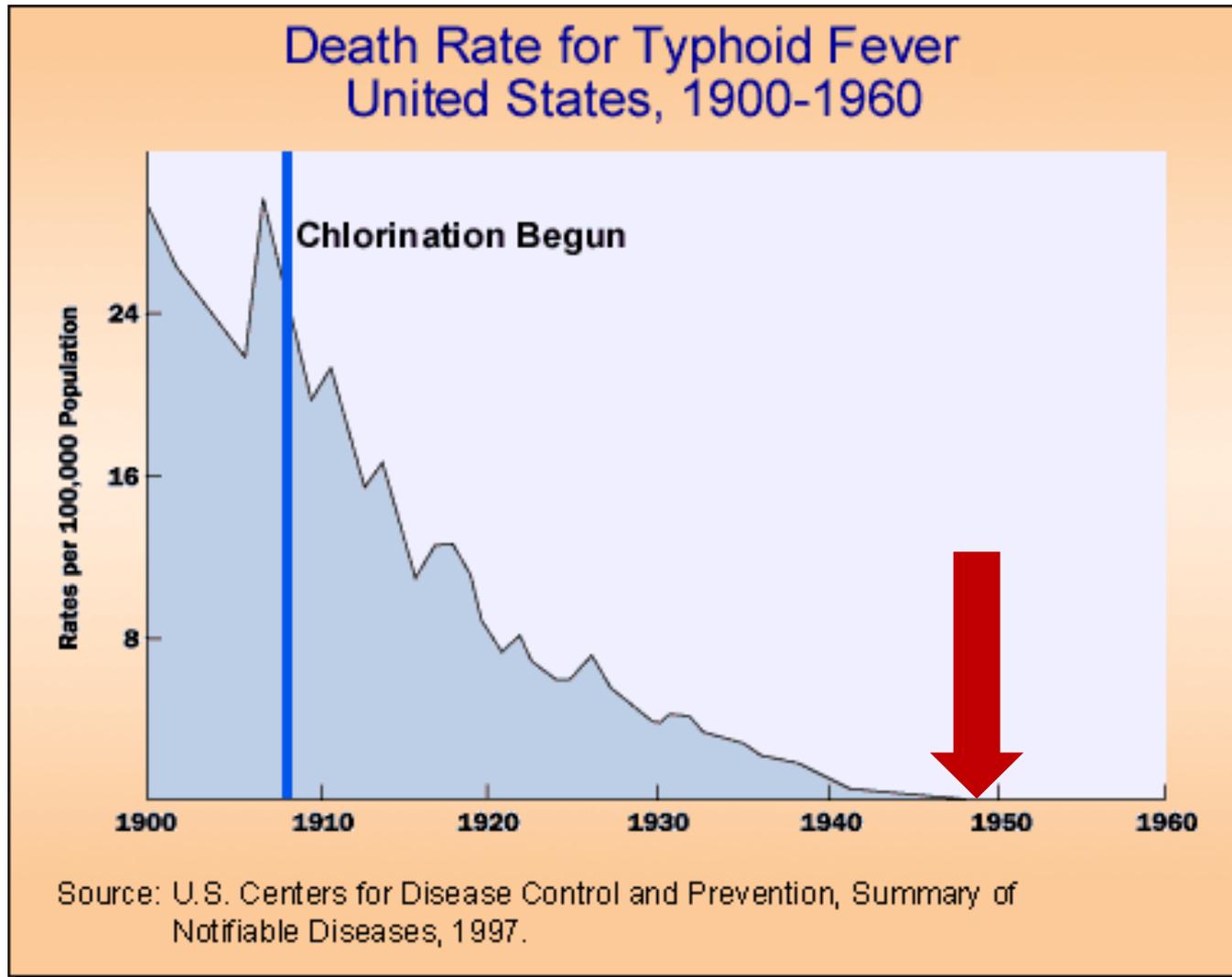
...NOT by milk pasteurization laws

Decline of Infectious Disease Not Related to Mandatory Pasteurization



1948: First State Mandatory Pasteurization Laws

Raw Milk or Bad Water??



1948: First State Mandatory
Pasteurization Laws

Proteins in Milk

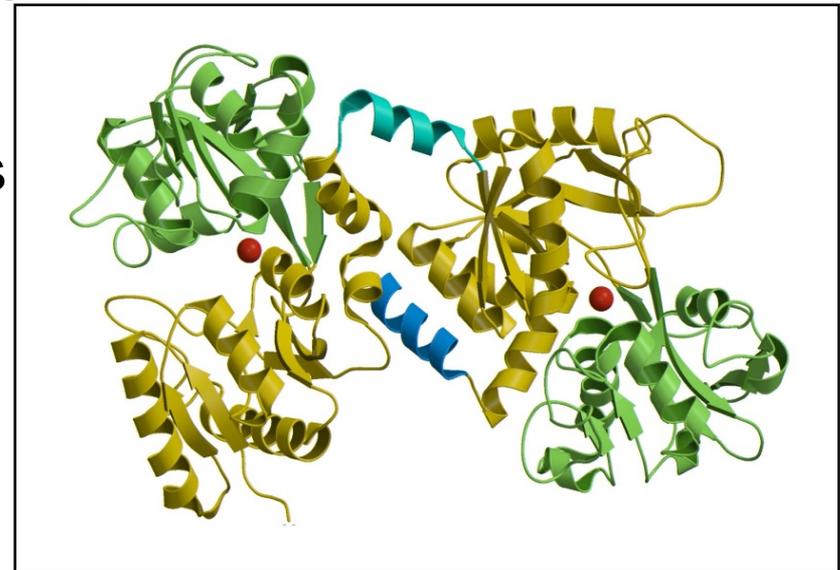
MILK PROTEINS: Three dimensional, like tinker toys, very fragile

CARRIERS: Carry vitamins and minerals through the gut into the blood stream; comprise enzymes; enhance the immune system; protect against disease

IMMUNE DEFENSE: Pasteurization and ultra-pasteurization flatten (de-nature) the three-dimensional proteins, destroying their biological activity; the body thinks they are foreign proteins and mounts an immune defense.

DISEASES: Immune attacks lead to juvenile diabetes, asthma, allergies and other disorders later in life.

ALLERGIES: More and more people unable to tolerate pasteurized milk; one of the top eight allergies; some have violent reactions to it.



Lactoferrin Molecule

Lowered Nutrient Availability in Pasteurized Milk

Vitamin C	Raw milk but not pasteurized can resolve scurvy. “. . . Without doubt. . . the explosive increase in infantile scurvy during the latter part of the 19 th century coincided with the advent of use of heated milks. . .” Rajakumar, <i>Pediatrics</i> . 2001;108(4):E76
Calcium	Longer and denser bones on raw milk. Studies from Randleigh Farms.
Folate	Carrier protein inactivated during pasteurization. Gregory. <i>J. Nutr.</i> 1982, 1329-1338.
Vitamin B12	Binding protein inactivated by pasteurization.
Vitamin B6	Animal studies indicate B6 poorly absorbed from pasteurized milk. Studies from Randleigh Farms.
Vitamin A	Beta-lactoglobulin, a heat-sensitive protein in milk, increases intestinal absorption of vitamin A. Heat degrades vitamin A. Said and others. <i>Am J Clin Nutr.</i> 1989;49:690-694. Runge and Heger. <i>J Agric Food Chem.</i> 2000 Jan;48(1):47-55.
Vitamin D	Present in milk bound to lactoglobulins, pasteurization cuts assimilation in half. Hollis and others. <i>J Nutr.</i> 1981;111:1240-1248; <i>FEBS Journal</i> 2009 2251-2265.
Iron	Lactoferrin, which contributes to iron assimilation, destroyed during pasteurization.
Iodine	Lower in pasteurized milk. Wheeler and others. <i>J Dairy Sci.</i> 1983;66(2):187-95.
Minerals	Bound to proteins, inactivated by pasteurization; Lactobacilli, destroyed by pasteurization, enhance mineral absorption. <i>BJN</i> 2000 84:S91-S98; MacDonald and others. 1985.

Anemia and Behavior

- “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, development testing and at home.”
- Anemic infants who did not receive iron supplementation “never smiled, never interacted socially, and never showed social referencing.”

Lozoff B and others. *Journal of Nutrition* 137:683-689.

Infants on Pasteurized Human Milk - 1986

- Did not gain weight as quickly compared to those fed raw human milk. *J Pediatr Gastroenterol Nutr.* 1986 Mar-Apr;5(2):248-53.
- More rapid weight gain in premature babies given raw human milk compared to pasteurized human milk. Problems attributed to destruction of lipase. *J Pediatr Gastroenterol Nutr.* 1986 Mar-Apr;5(2):242-7.
- CDC website notes that breast milk is best protection to infants “against salmonellosis and many other health problems.” Yet the agency warns against raw milk as a cause of salmonellosis. Cdc.gov/ncidod/dbmd/diseaseinfo/salmonellosis_g.htm.

Pasteurized Milk=Increasing Health Problems in Children

- Allergies
- Asthma
- Frequent Ear Infections
- Gastro-Intestinal Problems
- Diabetes
- Auto-Immune Disease
- Attention Deficit Disorder
- Constipation

During a period of rapid population growth, the market for fluid pasteurized milk has declined at 1% per year for the past 20 years. Fewer and fewer consumers can tolerate pasteurized (and ultrapasteurized) milk.

Asthma Crisis

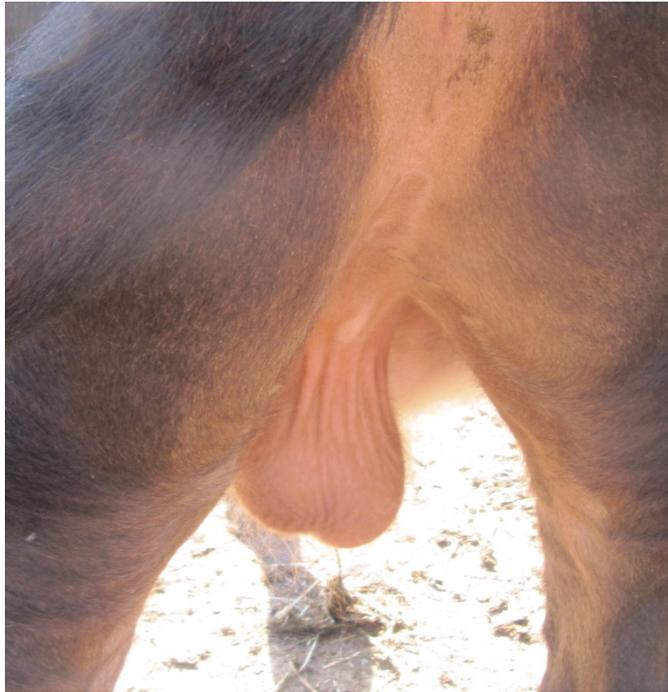
- According to the CDC, asthma is the second most prevalent chronic condition among children. It results in approximately **14 million days of missed school** each year. Asthma in children increased from 3.6% in 1980 to 7.5% in 1995, or approximately 5 million children.
- What if we could prevent most of these cases through something as simple as offering raw milk in childhood?

Asthma & Raw Milk – 2007

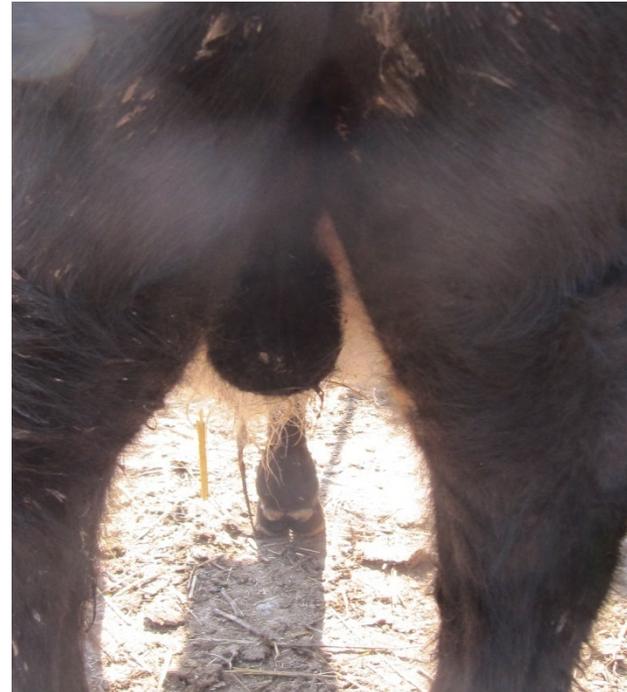
- In a study of 14,893 children aged 5-13, consumption of raw milk was the strongest factor in reducing the risk of asthma and allergy, whether the children lived on a farm or not.
- The benefits were greatest when consumption of farm milk began during the first year of life.

Clinical & Experimental Allergy. 2007 May; 35(5) 627-630.

TALE OF TWO CALVES



- Calf brought up
- on raw milk



- Calf brought up
- on pasteurized milk

Lactose Intolerance

- Results from a survey by Opinion Research Corporation (commissioned by the Weston A. Price Foundation) indicate that about 29 million Americans are diagnosed lactose intolerant.
- Results from a private survey carried out in Michigan indicate that 82 percent of those diagnosed as lactose intolerant can drink raw milk without problem.
- Thus, almost 24 million Americans diagnosed as lactose intolerant could benefit from raw milk.

Raw Milk and Casein Intolerance

- Milk allergy is usually attributed to casein intolerance.
- Pasteurization destroys *L. lactis* and other lactic-acid bacteria indigenous to milk.
- These bacteria produce enzymes that break down the casein molecule.
- These findings suggest that raw milk could be consumed by those with milk allergy, including autistic children.
- We have received testimonials indicating that raw milk can be used to treat and even completely reverse symptoms of autism.

Meisel and others. *Antonie Van Leeuwenhoek*. 1999;76(1-4):207-15

Protective Components in Milk Fat

- Short and Medium Chain Fatty Acids: Disrupt cell walls of bad bacteria.
- Spingolipids: Bind to intestinal cells, prevent absorption of pathogens and toxins.
- Arachidonic acid: Helps build gut wall, skin and brain
- Fat-soluble vitamins A and D strengthen the immune system.
- Pasteurized reduced-fat milk 3-5 times more likely to cause diarrhea in children and the elderly than pasteurized whole milk (Koopman, J S, et al, *AJPH*, 1984, 74:12:1371-1373).
- People on lowfat diets tend to have weakened immune systems.
- Drink only raw **WHOLE** milk!!

Health Benefits of Raw Milk: Other Bioactive Components III

- **Enzymes, e.g. Complement & Lysozyme**—Disrupt bacterial cell walls. Complement destroyed at 56C; Lysozyme at 90C.^{1,2}
- **Hormones & Growth Factors** – Stimulate maturation of gut cells; prevent “leaky” gut.²
- **Mucins** – Adhere to bacteria and viruses, preventing those organisms from attaching to the mucosa and causing disease.^{1,2}
- **Fibronectin** – Increases anti-microbial activity of macrophages and helps to repair damaged tissues.¹
- **Glycomacropeptide** – Inhibits bacterial/viral adhesion, suppresses gastric secretion, and promotes bifido-bacterial growth; supports immune system.³

1. *British J Nutrition*, 2000:84(Suppl. 1):S3-S10.

2. *Scientific American*, December 1995.

3. *British J Nutrition*, 2000:84(Suppl. 1):S3-S10, S39-S46

Health Benefits of Raw Milk:

Components of Blood

- **Leukocytes**—Eat all foreign bacteria, yeast and molds (phagocytosis). Destroyed at 56C and by pumping milk. Produce H_2O_2 to activate the lacto-peroxidase system. Produce anaerobic CO_2 that blocks all aerobic microbes. Basis of immunity.
- **B-lymphocytes** – Kill foreign bacteria; call in other parts of the immune system^{1,2}
- **Macrophages** – Engulf foreign proteins and bacteria²
- **Neutrophils** – Kill infected cells; mobilize other parts of the immune system¹
- **T-lymphocytes** – Multiply if bad bacteria are present; produce immune-strengthening compounds¹
- **Immunoglobulins (IgM, IgA, IgG1, IgG2)**--Transfer of immunity from cow to calf/person in milk and especially colostrum; provides “passive immunization”²
- **Antibodies**—Bind to foreign microbes and prevent them from migrating outside the gut; initiate immune response.

1. *Scientific American*, December 1995.

2. *British J of Nutrition*, 2000:84(Suppl. 1):S3-S10, S75-S80, S81-S89, S135-136.

Fivefold Health Benefit System in Raw Milk

1. Destroys pathogens in the milk.
2. Stimulates the Immune system.
3. Builds healthy gut wall.
4. Prevents absorption of pathogens and toxins in the gut.
5. Ensures assimilation of all the nutrients.

Destruction of Built-In Safety Systems by Pasteurization

Component	Breast Milk	Raw Milk	Pasteurized Milk	UHT Milk	Infant Formula
B-lymphocytes	active	active	inactivated	inactivated	inactivated
Macrophages	active	active	inactivated	inactivated	inactivated
Neutrophils	active	active	inactivated	inactivated	inactivated
Lymphocytes	active	active	inactivated	inactivated	inactivated
IgA/IgG Antibodies	active	active	inactivated	inactivated	inactivated
B ₁₂ Binding Protein	active	active	inactivated	inactivated	inactivated
Bifidus Factor	active	active	inactivated	inactivated	inactivated
Medium-Chain Fatty Acids	active	active	reduced	reduced	reduced
Fibronectin	active	active	inactivated	inactivated	inactivated
Gamma-Interferon	active	active	inactivated	inactivated	inactivated
Lactoferrin	active	active	reduced	inactivated	inactivated
Lactoperoxidase	active	active	reduced	inactivated	inactivated
Lysozyme	active	active	reduced	Inactivated	inactivated
Mucin A/Oligosaccharides	active	active	reduced	reduced	inactivated
Hormones & Growth Factors	active	active	reduced	reduced	Inactivated

1. *Scientific American*, December 1995.
2. *The Lancet*, 17 NOV 1984;2(8412):1111-1113.

Raw Milk Digests Itself!

- **ACTIVATED ENZYMES:** The enzymes in raw milk, when activated by the appropriate pH of the digestive tract, become activated and digest all the components in the milk.
- **NO WORK:** The body's digestive apparatus does not need to do any work to digest raw milk.
- **CURATIVE, ENERGIZING:** This is a major reason raw milk has such extraordinary healing and energizing powers.
- **OVERBURDEN:** Pasteurized milk puts a huge burden on the digestive apparatus and for many is impossible to digest.

SUMMARY

Research has shown that there is a very significant difference in the nutritional value of unpasteurized milk versus pasteurized milk.

Pasteurization of milk is one of the greatest public health disasters in history.

What's at stake: The health of millions of children worldwide. Raw milk can mean the difference between a healthy productive life and a miserable life.



RAW MILK RESOURCES

- Website: www.realmilk.com
- Detailed scientific information about raw milk
- Raw milk regulations by state
- Sources of raw milk at realmilk.com or through local chapters of the Weston A. Price Foundation (at www.westonaprice.org)



THE FARM-TO-CONSUMER LEGAL DEFENSE FUND

Legal Defense for Small Farmers

- Raw Milk Protection
- Right to On-Farm Processing and Direct Sales
- Resistance to NAIS

Website: farmtoconsumer.org

Phone: (703) 208-FARM

