



A PLANT-BASED DIET —HEALTH CONSIDERATIONS

If we eat a green diet, can we be healthy doing so? Yes, much healthier than if we eat a traditional diet.

INTRODUCING THE EXPERTS

I am neither physician nor nutritionist. See the disclaimer at the beginning of this book. Do not make health decisions based on what you read here. This chapter and other parts of this book which deal with health issues constitute a general orientation only. Other writers of other books have covered health and diet issues in great depth, and so I will only highlight the most important issues and tell you where you can go for more information. I highly recommend the following books and web sites:

Charles Attwood, M.D., *Dr. Attwood's Low-Fat Prescription for Kids*,
www.vegsources.com/attwood.

Balch & Balch, *Nutritional Healing*.

Neal Bernard, M.D., *Eat Right Live Longer*, www.pcrm.org.

Dr. T. Colin Campbell and Christine Cox, *The China Project*.

Udo Erasmus, Ph.D., *Fats that Heal; Fats that Kill*, www.udoerasmus.com.

William Harris, M.D., *The Scientific Basis of Vegetarianism*, www.vegsources.com/harris.

Michael Klaper, M.D., *Vegan Nutrition: Pure and Simple*, and *Pregnancy, Children, and the Vegan Diet*, www.vegsources.com/klaper.

Robert M. Kradjian, M.D., *Save Yourself From Breast Cancer*.

Gill Langley, M.A. PhD., *Vegan Nutrition*.

John A. McDougall, *The McDougall Program for Women*, www.drmcDougall.com.

Vesanto Melina, *Becoming Vegan*, and *Healthy Eating for Life to Prevent and Treat Cancer*, www.nutrispeak.com.

Virginia Messina, M.P.H, R.D., and Mark Messina, Ph.D., *The Vegetarian Way*.

Jack Norris, “Vitamin B-12: Are You Getting It?,” director of Vegan Outreach, www.veganoutreach.org, www.veganoutreach.org/health/B122002.pdf.

Dean Ornish, M.D., *Program for Reversing Heart Disease*, www.Ornish.com.

Joanne Stepaniak, *The Vegan Sourcebook & Being Vegan*, www.vegsource.com/jo.

I will cite to these writers frequently in this section. Their books contain citations to scholarly journals, so I will omit them here for the most part.

HUMAN ANATOMY AND PRIMATE DIET

Humans can tolerate the eating of small amounts of meat on a regular basis, preferably if it is lean meat and preferably if it is grown wild or fed the plants that animals eat in the wild. Chinese peasants living outside urban areas eat very little meat, not out of principle, because the Chinese generally love meat, but because they cannot afford it. When they do eat meat, they slice it thin and use it for flavoring. Their quasi-vegetarian diet provides them around ten percent of their calories from fat and provides pretty much the same health benefits as a strictly vegetarian diet.

[A]n Asian carnivore shares more in common with an American vegetarian than with an American carnivore. Most Europeans eat flesh frequently but not heavily, sprinkling small pieces into their grains and into their vegetables; but Americans, Australians and Argentinians—the people of the three great cattle countries—eat grains and vegetables mostly as side dishes. (Mark Mathew Braunstein, *Radical Vegetarianism*, p. 7.)

The Chinese diet may closely resemble that of pre-historic humans.

Our closest primate relatives, chimpanzees, gorillas, and orangutans eat small amounts of meat on a regular basis—insects, grubs, and worms. Chimps hunt monkeys.

Humans evolved to endure long periods of food deprivation and then to feast and store fat for the next period of deprivation. We tolerate the eating of large amounts of animal-based foods on an occasional basis with no health problems. The ability to eat meat occasionally, particularly during winter when there is little else to eat, is a survival skill. Hunted meat, particularly organ meat, provided the fat that lessened cold weather weight loss. (Marvin Harris, *Our Kind*, p. 146 ff.)

It seems likely that humans are now a genetically fat-addicted species. Eating fat in lean times was such a lifesaver that the pre-humans who had a strong taste for it were most



likely to survive to become our ancestors. They graciously passed along their fat-craving genes without knowing there would come a time of plenty in which those genes would be a disaster. (William Harris, M.D., *The Scientific Basis of Vegetarianism*, p. 24.)

For most of us, the days of feast and famine are past. The fact that we can handle small amounts of animal-based foods on a regular basis and large amounts on an occasional basis does not mean that we can handle large amounts of modern feedlot-fattened meat on a regular basis for life without developing degenerative diseases.

Vegan evangelists sometimes make the argument that humans are not built to eat meat: They point out correctly that carnivores evolved sharp fangs to puncture and rip meat, while humans evolved flat front teeth better adapted to stripping the skin off roots. We evolved molars in back, like the herbivores, better adapted to grinding vegetation. Humans evolved fine nails appropriate for harvesting, storing, opening, cracking, breaking, and cooking many kinds of food.

They point out correctly that the human digestive system more closely resembles that of the true herbivores than that of the true carnivores or omnivores. While the saliva of carnivores is highly acidic, the saliva of herbivores and humans is highly alkaline. The stomach acid of carnivores is strongly acid; the stomach acid of herbivores and humans is much weaker. The intestinal tract of the carnivore is around three times the length of an animal's body; in herbivores and in humans the intestinal tract is around 12 times the length of the body.

However, we should not take this point too far, for we are also very different from the true herbivores: We cannot digest cellulose, for example, and we only have one stomach.

Vegan evangelists point out correctly that the colon of true carnivores is straight and smooth so that meat can slide through cleanly, while the human colon, like the colon of true herbivores, has thousands of curves and wrinkles. Animal-based fat is solid at body temperature; think of shortening or the fat on a pork chop. In the colon it becomes fatty, gooey fecal matter. It hardens and gets stuck in the walls of the colon for years. A person on a high-fat, low-fiber diet will carry around several pounds of hard, fatty fecal matter almost permanently trapped in small pockets throughout the colon. These pockets become enlarged, causing a condition known as diverticulosis. As fecal matter putrefies, carcinogenic chemicals develop. A fecolith can form, a bolus of hard, fatty fecal matter. A fecolith can block the opening to the appendix, resulting in—surprise!—appendicitis. On the other hand, the fecal matter of those who eat plant-based foods does not solidify at body temperatures and tends to pass on through. (See the section of this book entitled *Fiber: Eat More of the Good, Even if You Keep Eating the Bad*, p. 285.)

Carnivores can consume unlimited amounts of cholesterol and saturated fats without developing atherosclerosis, but a rabbit or human that eats this way quickly suffers fatty and waxy build up on artery walls. A hungry carnivore has only to look at its live prey or smell dead meat to begin salivating; humans do not exhibit such instinctual behavior. (John Robbins, *Diet For a New America*, p. 284 ff.; Michael Klaper, M.D., *Vegan Nutrition, Pure and Simple*, p. 21-22.)

Chimps and gorillas are our closest primate relatives, and of all primates they eat the least meat and insects and the most fruit and vegetation. Chimps and gorillas have the enzyme ptyalin in their saliva, which makes possible the digestion of starch, and so also do humans. True herbivores have this same enzyme. It protects tooth enamel against the wear and tear that comes with the mastication of hard vegetable matter. (Edwin A Azen, et al., "Evolutionary and Dietary Aspects of Salivary Basic (Pb) and Post Pb (PPb) Proteins in Anthropoid Primates, *Nature*, 1978, vol. 273, p. 775-778.) Carnivores lack this enzyme. "During 56 million years of primate evolution the predecessors of man became bigger, smarter, and increasingly vegetarian, exploiting the fruits and leaves of their arboreal habitat." (J. Fleagle, *Primate Adaptation and Evolution*, cited by William Harris, M.D., *The Scientific Basis of Vegetarianism*, p. 14.)

Our primate cousins eat meat, although usually in small amounts. Our dinosaur-era ancestor was a shrew-like creature that ate insects along with vegetation. Gorillas are often said to be strict vegetarians. They can even digest cellulose, whereas humans cannot. However, gorillas also eat snails and grubs, and they relish ants. Chimpanzees go on hunts and kill and eat monkeys and various other species. Some authorities theorize that chimps do so in imitation of man. A chimp will eat the wormy part of a fruit, worm and all, and throw the “good part” away. Baboons, more distant primate relatives of humans, are serious hunters and bag gazelles and monkeys.

Because humans did not develop spears and bows and arrows until around 30,000 years ago, we had a relatively hard time catching and killing animals. We may have eaten carrion. We ate insects and fish. Primates eat lice and ticks as they groom each other, and humans no doubt did the same before the development of modern standards of cleanliness. The expression “nit picking” referred originally to humans mutually grooming each other to remove lice and lice eggs. I presume that eating the tiny and hard-shelled critters would have been the only practical way to keep them from just jumping back on.

Humans are able to digest chitin, the horny shell of insects and crustaceans, a clear indication that insect eating is part of our evolutionary past. Many human cultures eat insect meat—grasshoppers, silkworm pupae, cicadas, giant water beetles, and cockroaches. The Yanomami of the Amazon basin in Venezuela capture tarantulas a foot across, carry them home wrapped in leaves, and kill them just before roasting them. They consider these hairy spiders to be their finest delicacy.

On the whole, primate meat consumption is light relative to the amount of meat that modern humans consume, and most of the meat that most primates eat is insect meat. It is striking that most humans have completely rejected the primate custom of eating insects. When and how this transition came about could be the subject of an interesting Ph.D. dissertation. My theory is that as we ate more of the meat of herded animals, we ate less insect meat. The more easily harvested animal protein crowds out the less easily harvested. (See Marvin Harris, *The Sacred Cow and the Abominable Pig: Riddles of Food and Culture*, p. 29 ff., p. 154 ff; Marvin Harris, *Our Kind*, New York: Harper, 1989, p. 307.)

What then should we say about the standard vegetarian arguments made above that humans are dissimilar to carnivores and more similar to herbivores and therefore that humans should be strict vegetarians? The arguments are misplaced. Vegan evangelists try to prove too much. No one says humans are exclusively carnivorous. Conversely, just because our teeth, nails, intestines, and digestive juices are not like those of cats does not prove we were exclusively herbivorous thousands or millions of years ago. We do not need fangs and claws to kill and eat animals; we have tools and cooking. We are most similar to the hominid primates, and they all eat some meat, or at least insect meat. Therefore, the vegan evangelist arguments at best would prove we should be insectivore-vegans or that we should eat only small amounts of meat.

The first tribes we can point to with certainty as having been vegetarian were the Pythagoreans communities of Sixth Century B.C.E. Italy. We are not sure whether they were vegan, because neo-Pythagorean and Neo-Platonist writers centuries later made some mention of them eating cheese. The Bible, Pythagorus, and Plato say there were vegetarian tribes, however, they would have been a tiny minority at best. The Ice Man of Italy’s Schnals Valley, who died around 3300 B.C.E. in the snows at 10,300 feet, had meat and einkorn bread in his stomach, wore skins, and possessed tools for killing and skinning animals.

We are unlike carnivores, but we are also unlike true herbivores. Unlike the ruminants, we cannot digest cellulose and we do not have multiple stomachs. Further, not even the ungulates are strict vegetarians. Cattle and deer do not take their grass to the stream and wash it. They eat the grass and whatever they find in it, including insects and perhaps snails, and slugs.

We are descended from those who ate fruit, nuts, greens, insects, fish, lean meat, and fatty organ meat, however, it is important to bear in mind that this does not prove what we should try to be in today's world, which is overpopulated with 6.5 billion humans and 15 billion (some say 40 billion) domesticated food animals. And what humans ate during the Ice Age should not determine what we should eat now. The Ice Age is over.

Most important, before the domestication of goats, horses, camels, cattle, and buffalo—which took place after the end of the last Ice Age—humans did not drink the milk of other species. Moreover, we did not drink cow's milk in large quantities until the age of refrigeration. Cow milk is a big lie, and the most committed steak lover should avoid it entirely—for health, environmental, anthropological, and ethical reasons. There is nothing natural about drinking any milk other than mother's milk during infancy. (See the section of this book entitled *Dairy Products, Osteoporosis, and Animal-Based Foods*, p. 261.)

When our gatherer-hunter ancestors ate meat, it was from wild animals which lived in a pristine environment and ate a great variety of wild vegetation. The meat of those animals was low in saturated fat and high in the super-unsaturated essential fats. Our ancestors ate the fat rich brains and organs of their kills; the brain particularly is rich in essential fatty acids, including EPA and DHA. The amount of essential fats found in today's commercial meat is so low in proportion to the non-essential fats that the essential fats are largely neutralized. Given the risk of spongiform brain disease, no one should risk eating animal brains anymore; even wild elk carry spongiform brain disease. Today's domesticated animals are fed grain and animal renderings, and their fat is mostly long-chain saturated fat and cholesterol.

Before World II, when pesticides and antibiotics were introduced, the meat of domesticated animals was much cleaner. Atomic waste had not yet been produced and dispersed worldwide. There was less mercury and other chemicals in the oceans, and fish were cleaner. After World War II, the world quickly became a very contaminated place.

We vegans should not try to prove that we are descended from vegans. We are not. Our ancestors ate a diet of organic meat, fish, eggs, and insects—and a lot of fruit, nuts, roots, and other vegetation. The question is not “Were our ancestors vegans?” The proper question is “Can and should today's humans evolve towards veganism?” In our environment, an animal-based diet is obsolete. Part of our inquiry must be whether we can find sufficient nutrients in plant-based foods to replace the nutrients found in meat.

Conversely, the vegetarian debunkers assert that we descended from meat eaters and from that jump to the conclusion that we absolutely must eat meat today. They presume that we cannot find vegetable substitutes for the nutrients found in meat. See Tom Billings' extensive web site (www.newtreatments.org/PaleolithicDiet/ga/388/BeyondVegetarianism). The debunkers say that one must eat meat in order to obtain sufficient B-12, vitamin D, taurine, and essential fatty acids EPA and DHA. They say it is unnatural not to eat meat because our ancestors ate it and derived such nutrients from meat. (See the sections of this book entitled *Could I Somehow Be Wrong About All Of This?* p. 351, and *Fish, EPA and DHA*, p. 258.)

I study the debunkers, and I do not entirely disagree with them. But they suffer from several blind spots. They almost completely omit consideration of ethics, environment, and over-population. They focus almost exclusively on anthropological and health considerations. They imply that we should be omnivores and heavy meat eaters simply because some of us have ancestors who lived in Northern Europe during the last Ice Age and were heavy meat eaters. According to them, we are limited by our past. They fail to explore the possibility that we should become vegans despite the fact that our ancestors were not. They seem completely blind to the fact that the filthy, cruelly-gotten animal-based foods available today bear little resemblance to the pristine, organic meat, fish, and eggs that our ancestors ate. They say nothing about the fact that the times have changed.

LIFE EXPECTANCY AND A VEGETARIAN DIET

Cultures with the highest meat consumption—Eskimos, Laplanders, Greenlanders, and the Russian Kurgi tribes—have the lowest life expectancies, as low as 30 years. On the other hand, cultures that eat very little animal-based food—the Vilcabambas of Ecuador, the Abkhasians of Georgia, and the Hunzas of Pakistan—have the longest life expectancies. (Alexander Leaf, M.D., “Every Day Is a Gift When You Are Over 100,” *National Geographic*, January, 1973, p. 93 ff.; John Robbins, *Healthy at 100*.)

We eat more animal-based food than we did a hundred years ago, but if animal-based food is bad for our health, why has life expectancy risen so dramatically over this same period? Life expectancy is based on many factors, and different factors can be operating simultaneously. Some factors might extend and some might reduce life expectancy. We have built sewers and water treatment facilities throughout the developed world, and so we have stopped cholera and similar bacterial illnesses that once killed so many people, especially children. We have vaccines against microbial diseases. Appendectomies are readily available. On the other hand, the degenerative diseases which result from eating animal-based foods reduce life expectancy and reduce the quality of life during old age. Life expectancy has increased, but it would have increased more if we were eating a plant-based diet, and the quality of our older years would be higher. The degenerative diseases we are most concerned about in old age—such as diabetes, cancer, heart disease, osteoporosis, impotence, arthritis—are mostly diseases of bad diet.

People easily die of starvation in cold winters. Eating meat can save lives in the short term, which can make it possible for humans to survive to the age of reproduction, but if a human eats meat continuously and in large amounts, those survivors die younger. Meat eating saves our species and contributes to its explosion in numbers but reduces the life span and the quality of our lives as we age.

I joke that vegans live healthy lives into their 90s when they die of heart failure during sexual orgasm.

VITAMINS AND MINERALS

The saturated fat industry works long and hard to convince us that meat, dairy products, and eggs contain superior nutrients and that we are in danger of getting sick and dying if we do not eat their foods. Mothers are made to fear that children who are not fed animal-based foods will be iron deficient and anemic and will not grow tall, that their minds will not develop properly, and that they will develop dread diseases. The opposite is more likely to be true.

While it is true that people enjoy the unusual flavors, the oiliness, saltiness, chewiness, and crispness of animal-based foods, and while it is true that humans have a long tradition of eating these foods, it is not true that we must eat these foods to be healthy.

So I will review the various nutrients which the pro-meat lobby say we can get only by eating animal foods.

For a wealth of information about vitamins, minerals, and nutrition see *Prescription for Nutritional Healing*, by Balch & Balch, and *The Vegetarian Way*, by Virginia and Mark Messina. I have relied on them in this section.

VITAMIN A, CAROTENOIDS

Vitamin A is a fat-soluble alcohol found in animal fat, especially in the liver, which is very fatty, particularly in cod liver. Beta-carotene is a precursor of vitamin A and is referred to as provitamin A. Intestinal enzymes split one molecule of beta-carotene into two molecules of vitamin A. Most vegetables and fruits contain beta-carotene. The body typically stores a two-year supply of vitamin A. Meat industry supporters make the unconvincing argument that some people with failing health lack the ability to convert beta-carotene into vitamin A. (See *Could I Somehow Be Wrong About All Of This?* p. 351.)

It is possible to overdose on vitamin A but not on beta-carotene, which would tend to indicate our ancestors were more reliant on plant than animal sources of vitamin A.

Never take cod liver oil. The liver is where the body stores chemicals it cannot excrete, so chicken liver, beef liver, and fish liver contain contaminants you should not consume in our polluted era. Vitamin A pills are generally made from animal liver, although Puget Consumers Coop sells a vegan vitamin A. If you eat a lot of vegetables, you will not need to take a vitamin A supplement.

THE B VITAMINS

Meat, eggs, and seafoods do contain vitamin B-1 (thiamine), but so also do legumes, peanuts, peas, whole grains, asparagus, nutritional yeast, broccoli, sea weed, kelp, nuts, oatmeal, plums, prunes, parsley, and many other plant based foods.

Meat, cheese, fish, chicken, and egg yolks do contain vitamin B-2 (riboflavin), but so also do whole grains, asparagus, avocados, broccoli, Brussels sprouts, sea weed, kelp, leafy green vegetables, mushrooms, nuts, parsley, and many other plant-based foods.

Meat, fish, milk, and eggs do contain vitamin B-3 (niacin), but so also do nutritional yeast, broccoli, carrots, corn, dates, peanuts, potatoes, tomatoes, wheat germ, parsley, and many other plant-based foods.

Meat, seafood, and eggs do contain vitamin B-5 (pantothenic acid), but so also do nutritional yeast, legumes, mushrooms, nuts, whole grains, and many other plant-based foods.

Chicken, eggs, and fish do contain vitamin B-6, but so also do nutritional yeast, peas, spinach, sunflower seeds, walnuts, wheat germ, avocado, bananas, beans, broccoli, whole grains, cabbage, corn, potatoes, and soy.

The same pattern holds true for biotin, choline, folic acid, inositol, and the vitamins and minerals listed below.

VITAMIN B-12

There are cases of B-12 deficiency among strict vegans. Permanent neurological damage can result from B-12 deficiency, and it can occur before clinical symptoms are evident, which symptoms include numbness in the fingers and toes, mental confusion, and soreness in the tongue. An estimated 34 percent of the general population is vitamin B-12 deficient, and most of these people are not vegans or vegetarians. (Udo Erasmus, *Fats that Heal, Fats that Kill*, p. 75.)

The human body needs extremely small amounts of B-12, and the body recycles and reabsorbs it and can store it for several years. B-12 is useful for breaking down saturated fatty acids. (Udo Erasmus, *Fats that Heal, Fats that Kill*, p. 173.) B-12 is produced by bacteria found in soil and in the intestines of ruminants. These bacteria normally establish themselves in the intestinal tracts of animals and humans and continue to produce B-12.

According to Dr. Klaper, if you grow your own garden and go grazing in it, occasionally eating unwashed greens, you will be eating enough dirt that you will take in an ample supply of the bacteria that will then produce B-12 in your alimentary canal. (Michael Klaper, M.D., *Pregnancy, Children, and the Vegan Diet*, p. 21; Lecture by Dr. Michael Klaper, EarthSave Retreat, Issaquah, Washington, November 6, 1994.)

However, this is not the conservative position. Most vegetarian authorities maintain that the prudent thing for a vegetarian to do is to take a B-12 supplement or eat vegetarian foods which are fortified with B-12. Even if we can produce B-12 in our small intestines, the point in the alimentary canal where we produce it is below the point where we absorb it. B-12 is found in Red Star T-6635+ nutritional yeast which has an excellent taste, in some fortified breakfast cereals, certain brands of fortified soy and rice milk, and many other foods. It is easy to get B-12 the vegan way.

The B-12 molecule is a giant among molecules. There are B-12 analogues, molecules which are similar but either don't do what B-12 does or actually interfere with what the real B-12 does. There may be significant amounts of B-12 in seaweed such as nori, however, analogues are also present. Until further research is done, one should not assume that seaweed can be relied on as a source of B-12. (Shoji Yamada, et al., "Content and Characteristics of Vitamin B-12 in Some Seaweeds," *J. Nutritional Science Vitaminology*, 42, 497, 1996; Anna-Liisa Rauma, et al., "Vitamin B-12 Status of Long-Term Adherents of a Strict Uncooked Vegan Diet ("Living Food Diet") is Compromised," *Journal of Nutrition*, 125: 2511-2515, 1995; Pieter C. Dagnelie, "Comments on the Paper by Rauma et al. (1995)," *Journal of Nutrition*, 127: 379, 1997.) Most B-12 is destroyed in digestion, and chlorinated water can kill B-12 producing bacteria, so a sure way to get B-12 is to dissolve a B-12 supplement under the tongue, bypassing the stomach. Large doses of vitamin C, on the order of 10 to 15 grams per day, can diminish B-12 reserves. Twin Laboratories produces B-12 Dots for sub-lingual absorption. Twin recently eliminated gelatin from this supplement, and it is now vegan. Also vegan are Solgar Sublingual, Veg Life Sublingual, Freeda Vitamins, and Nature's Bounty Sublingual. It more healthy and environmentally responsible to get your B-12 through supplementation than by eating animal products. Does the fact that vegans need to supplement B-12 mean that veganism is not appropriate? No, because it is more healthy and environmentally responsible to get B-12 through supplementation than by eating meat. Remember that I do not claim we should be vegan because our ancestors 10,000 or a million years ago were vegan. They were not. I say we should be vegan because it is irresponsible for us to be consuming animal products in a world which is overpopulated with humans. I say it is unhealthy to eat animal-based foods because they are polluted with our waste and pollute us with their waste. I say that our species should live up to its claims of moral superiority and for that reason not use animals for food. (For a comprehensive treatment of B-12 go to www.veganoutreach.org/health/B122002.pdf.)

VITAMIN C AND BIOFLAVONOIDS

Small amounts of vitamin C are found in the organs of animals, but there is little vitamin C in the muscle tissues which meat eaters typically consume. Probably this is why Eskimos prefer to eat animal organs and the vegetable content of animal stomachs and why they eat the tiny vegetables that grow in the Arctic during summer. All or most plant-based foods contain some vitamin C, and certain plant-based foods contain large amounts: berries, citrus fruits, and green vegetables. Serious shortages of vitamin C result in scurvy. We are healthier when we consume large quantities of vitamin C, and apparently we evolved to consume large quantities of it. This does not prove that our ancestors ate no meat, but it does prove they ate a lot of fruits and vegetables.

Bioflavonoids—important for absorption of vitamin C—are found in citrus fruits in the white skin under the peel, and in peppers, buckwheat, black currants, apricots, cherries, grapes, prunes, and rose hips—but not meat.

VITAMIN D

Vitamin D is not a vitamin but actually a very important pre-hormone. The body can produce sufficient vitamin D if we are exposed to sunlight on our face and hands for 15 minutes per day, three days per week. The human body stores vitamin D, so adults in the far north can survive sunless winters without vitamin D supplementation. However, children may not be able to store sufficient amounts of vitamin D, and vegan children living in dark winter climates probably should receive vitamin D supplements.

Vitamin D-2, calciferol or ergocalciferol, comes from vegetable sources, while D-3, cholecalciferol, comes from animal sources. Milk is supplemented with both forms. The sun on our skin produces D-3.

Milk contains vitamin D, but only because it is added as a supplement. Sometimes milk is not thoroughly mixed, so some batches can contain overdoses of vitamin D.

While it is true that vitamin D is found in seafoods and vitamin D fortified milk, it is also present in parsley, mushrooms, and herbs such as alfalfa, horsetail, and nettle. Soy milk and rice milk are usually fortified with vitamin D, and D-2 is used.

VITAMIN E

While it is true that small amounts of vitamin E are found in meat, eggs, and milk, it is found in much greater abundance in vegetable oils, dark green leafy vegetables, legumes, nuts, seeds, whole grains, soy, and flax.

VITAMIN K

While it is true that vitamin K is found in liver and egg yolks, it is also found in asparagus, broccoli, cabbage, cauliflower, dark green leafy vegetables, oats, rye, safflower oil, soy, and wheat. Bacteria in our intestines synthesize it as well.

CARNITINE

Carnitine functions as a carrier of fatty acids across the mitochondrial membrane. It is related to the B vitamins and is not one of the amino acids per se, but is usually listed with the amino acids because it is similar to them in structure. The Beef Board Web site points out that beef contains carnitine while vegetable sources do not. However, the human body, just like the body of a cow, is perfectly capable of making its own carnitine out of the amino acids lysine and methionine, which are found in soy, beans, nutritional yeast, seeds, and many other plant-based foods. Vitamins B-1, B-6, C, and iron—all present in vegetables—are also needed for its production.

CALCIUM AND MILK

Meat contains little calcium. It is true that milk products contain significant amounts of calcium, however, there are reasons why one should not rely on milk as a source of calcium. The calcium phosphate in milk is calcium phosphate, and it is only 25 percent absorbable. If you really want to drink your calcium, drink calcium-fortified orange juice, which contains calcium citrate, which is 100% absorbable. Milk contains little magnesium, and the body cannot turn calcium into bone without the presence of magnesium. When there is insufficient magnesium, calcium, instead of going into the bones, turns into kidney stones and atherosclerotic plaque and the arthritic buildup which results in gout. The recommended daily allowance for calcium in the United States is 1500 mg.; for magnesium 750 mg.

Milk contains little of the potassium our bodies crave and too much of the phosphorus we already have too much of. Milk contains little vitamin C and iron, and heavy cow milk consumption in children is associated with anemia.

Milk products are high in protein, particularly the high-sulphur proteins which tend to acidify the blood and require the body to draw calcium from our bones. Most people who consume animal products get too much protein. (See the section of this book entitled *Dairy Products, Osteoporosis, and Animal Based Foods*, p. 261.)

Milk products are also high in fats and calories. Nonfat milk is no better; while it is low in fats, it is still high in the high-sulphur proteins we do not need. Another problem with commercial milk is that it is homogenized, beaten into tiny balls of fat which contain small, undigested protein particles. These balls of fat are so small that they can pass through the walls of the intestine undigested, right into the bloodstream. You will have foreign proteins in your blood which can cause allergic reactions.

Milk is low in essential fatty acids and contains only fats we do not need. Why do calves thrive on cow's milk which is low in iron, low in magnesium, low in potassium, and low in essential fatty acids? Because calves also eat grass, which is rich in all the things milk is low in.

Good plant-based sources of calcium include leafy green vegetables, asparagus, blackstrap molasses, nutritional yeast, broccoli, cabbage, carob, sea vegetables, figs, hazelnuts, mustard greens, oats, prunes, sesame tahini, lamb's quarter, fennel, and flax. While spinach, chard, beet greens, and parsley are high in calcium, they also contain oxalic acid which, to some extent, interferes with calcium absorption. Tofu is an excellent source of calcium if it is set with calcium sulphate or calcium lactone, as most tofu is. (Read the label and look for the ingredient nagari.)

Tums contains calcium, but for a person to get calcium supplementation from eating Tums, he would be eating so many Tums that his stomach acid would be neutralized to the extent that the calcium could not be absorbed. (See Robert Cohen's Not Milk web site at www.NotMilk.Com. See Balch & Balch, *Prescription for Nutritional Healing*, p. 24.)

CALCIUM AND PHOSPHORUS BALANCE

Our bones contain half as much phosphorus as they do calcium, and 85 percent of the body's phosphorus is found in the bones. Phosphorus is found in most foods, and phosphorus deficiency is never a problem; however, phosphorus excess can be a problem. In mother's milk the calcium-phosphorus ratio is 2.3 to 1. The ideal ratio is 2 to 1 or greater. (Recommended Daily Allowance, 10th Ed.) In cow milk the ratio is only 1.3 to 1, and at this ratio the excess phosphorus, in the form of calcium phosphate, interferes with calcium absorption. The ratio in meat, chicken, and fish—excluding bone—is 1 to 15 or 1 to 20, which is far too much phosphorus in relation to calcium. Leafy green vegetables, on the other hand, contain more calcium than phosphorus. (L.L. Oenning, et. al., "Accuracy of methods Estimating Calcium and Phosphorus Intake in Daily Diets," *Journal of the American Dietetic Association*, 88:1076-1078, 1978; Sally J. Rockwell, "Dietary Management Using Non-Dairy Sources of Calcium," p. 25.)

MAGNESIUM

Magnesium is essential for calcium absorption. It is an important constituent of the synovial fluid which lubricates joints. The best sources of magnesium are nuts, legumes, whole grains containing the germ and outer layer, green vegetables, and bananas. Foods low in magnesium include dairy products, meat, fish, meat, and fruit other than bananas. (Sally J. Rockwell, *Dietary Management Using Non-Dairy Sources of Calcium*, p. 26; Udo Erasmus, *Fats that Heal, Fats that Kill*, p. 330 ff.)

IRON

The Beef Board Web site claims meat is the best source of iron and that those who do not eat it risk deficiency. This is another big lie from the saturated fat industry. Lean sirloin contains 1.9 milligrams of iron per 100 calories of food content. Chicken, pork, and fish contain less. Dairy products contain little iron. (Udo Erasmus, *Fats that Heal, Fats that Kill*, p. 330 ff.)

On the other hand, spinach contains 11.3 milligrams of iron per 100 calories. Mustard greens, cucumber, cauliflower, kale, lettuce, cabbage, mushrooms, peas, beans, tomatoes, and celery all contain more iron per 100 calories than sirloin. Soy, parsley, walnuts, hazelnuts, almonds, figs, apricots, prunes, grapes, and avocados are rich in iron. Almost all plant-based foods contain iron.

Further, meat and dairy products are very low in the vitamin C necessary for iron absorption, while vegetables are generally high in vitamin C.

Women need more iron than do men: They lose iron as they shed blood when they menstruate, although vegetarian women bleed less during their periods. Further, men tend to have too much iron in their systems, and iron is a strong oxidant. Some say men should donate blood twice each year to rid themselves of excess iron. Men who are ineligible for donating blood—for example, those who have traveled in areas within the last year where there is malaria—can call blood collection agencies and find out where they can have their blood drawn.

There is heme iron and non-heme iron. Heme iron comes from meat, while non-heme iron comes from other sources. The body has gate keepers which will prevent us from overdosing on non-heme iron but not heme iron.

Finally, bear in mind that iron is a mineral. Cattle, pigs, and chicken cannot produce it; they can only collect it by eating vegetation that contains iron. Meat is an intermediate source of iron. Why not just eat iron-rich vegetables and skip the cow? (Pol Koenig, *Basic Book of Vitamin Health*, p. 157; Balch and Balch, *Prescription for Nutritional Healing*, p. 25.)

ZINC, SELENIUM, COPPER

The Beef Board's Web site says that beef is a good source of zinc, selenium, and copper and that vegetarians tend to be deficient in these minerals.

Meat, fish, chicken, and egg yolks do contain zinc, but so also do nutritional yeast, sea weed, kelp, beans, mushrooms, pecans, soy, sunflower seeds, whole grains, parsley, and many other vegetables, beans, and nuts. Dairy products contain little zinc. (Udo Erasmus, *Fats that Heal, Fats that Kill*, p. 330 ff.)

Meat, chicken, dairy products, and seafoods do contain selenium, but so also do whole grains, wheat germ, onions, tomatoes, broccoli, parsley, sea weed, kelp, garlic, pineapple, Brazil nuts, and nutritional yeast.

Meat, chicken, dairy products, and seafoods do contain copper, but so also do almonds, avocados, grains, beans, beets, broccoli, garlic, lentils, mushrooms, and leafy green vegetables.

There is no evidence that vegetarians who eat a variety of foods suffer from deficiencies of these or any other minerals. Bear in mind that minerals are rocks. If plants or animals grow on or in soil that has been depleted of minerals, then the animals or vegetables will be deficient in minerals. If one is concerned about obtaining sufficient amounts of any of the minerals, one should take a mineral supplement, not

eat animal-based food. Sea weed can be relied on to contain a wide variety of minerals because it grows in mineral-rich oceans. I sometimes eat a Nature's Life Icelandic Kelp vitamin and mineral pill. I put arame seaweed in soups. I use sea salt—a mixture of many salts—instead of commercial salt, which is entirely sodium chloride salt.

You don't need to eat animal products to get your vitamins and minerals.

PROTEIN HYPE

According to various authorities, including the World Health Organization, humans need to consume from 2.5 to 4.5 percent of their calories in the form of protein. (D. Hegsted, "Minimum Protein Requirements of Adults," *American Journal of Clinical Nutrition*, 21 (1968):3520; "Protein Requirements," *Food and Agricultural Organization, World Health Organization Expert Group, United Nations Conference*, Rome, 1965.) The U.S. Food and Nutrition Board recommends that 6 percent of calories come from protein; the National Research Council, 8 percent. At this rate, a woman who consumes 2,000 calories per day, would eat 12.5 to 40 grams of protein.

Most Americans eat far too much protein, typically 90 to 120 grams per day. At four calories per gram of protein, the typical North American is eating 360 to 480 calories of protein instead of the 50 to 160 calories we need. (John Robbins, *Diet for a New America*, p. 170 ff.) When it comes to protein, especially the highly concentrated, sulfur-laden, acid-producing protein contained in animal-based foods, more is definitely not better. (See the *Dairy Products, Osteoporosis, and Animal Based Foods* section of this book, p. 248.)

Meat and dairy propagandists imply it is hard for those who eat a plant-based diet to get sufficient protein. To the contrary, it is hard for one who eats a strictly vegetarian diet *not* to get sufficient protein. All vegetable products—grains, vegetables, and fruits—contain some protein. The only exceptions are refined sugar, alcohol, and mushrooms. Even orange juice, raisins, bread, carrots, broccoli, bananas, and popcorn contain protein.

The best measure of protein is not the amount of protein per gram or pound but the percentage of total calories of a given food that comes from protein. By this measure soybean sprouts are 54 percent protein; spinach, 49; kale, 45; soy flour, 35; lentils, 29; split peas, 28; broccoli, 45; wheat germ, 31; celery, 21; peanuts, 18; onions, 16; lemon, 16; oatmeal, 15; and potatoes, 11 percent protein. That's right; while a lemon is mostly water and does not contain many calories, 16 percent of those calories comes from protein. ("Nutritive Value of American Foods in Common Units," *U.S.D.A. Agriculture Handbook No. 456*, cited by John Robbins, *Diet for a New America*, p. 177.)

When Francis Moore Lappe wrote *Diet for a Small Planet* in 1971, she assumed that the egg was the perfect source of protein and that a strict vegetarian would have to combine vegetable proteins in order to obtain all the amino acids contained in eggs. Thus, Lappe created the concept of the "complete" vegetable protein. She pointed out that in Latin America people combine corn or rice with beans. In the Middle East, it is customary to combine bulgur or pita bread with garbanzo; in India to combine rice or wheat chapatti with lentils; in the Far East to combine rice, wheat, or barley with tofu. All these combinations contain all the amino acids contained in meat, eggs, or dairy, except for taurine, which the body can synthesize.

Other authorities such as Nathan Pritikin disagreed with Lappe: It is not important that one consume all the amino acids contained in eggs or meat, and the so-called “incomplete” vegetable proteins are every bit as sufficient as so-called “complete” set of amino acids found in eggs or meat. When Lappe wrote her tenth edition of *Diet for a Small Planet*, she changed her approach and admitted that it was not necessary to get all the necessary amino acids in each meal.

Even if the old protein combining theory were true, it would be irrelevant, and that is because strict vegetarians who eat a well-balanced diet are constantly eating the combinations of food that add up to so-called “complete” proteins. They eat wheat, rice, and/or corn plus lentils, beans, nuts, and/or tofu. The debate about “complete” protein is a non-issue.

There is a fad, particularly among athletes, to take supplements of various amino acids. However, methionine and tyrosine can be toxic when consumed in large quantities. Taking too much of any one amino acid can create amino acid imbalances because groups of chemically similar amino acids compete with each other for absorption. (Gordon M. Wardlaw, *Perspectives in Nutrition*, 4th Ed. 1999.)

Because of meat and dairy industry lies, most people worry that their children are not eating enough protein. So parents feed their kids meat, fish, milk, and eggs three times a day. The saturated fat industry has cast a spell on them. They have a product high in protein, and they want to sell a lot of it. So they spread their “meat = protein” propaganda, and they hire congressmen to pass laws that subsidize production of animal-based foods. Their foods are high in protein, but so what? People don’t need that much protein. And there are better sources of protein than animal-based foods.

Ask someone to pick a color, and they will generally say “red.” Mention that you are a strict vegetarian, and they will immediately ask you how you get your protein. They are mouthing saturated fat industry propaganda. Patiently explain to your carnivorous friends that the problem in our well-fed culture is not getting too little protein but, rather, too much. It is going to take a lot of patience on your part, because your friends will hold tenaciously to notions like this. They have been told this all their lives—on TV and in school—and it is somewhat disturbing for them to give up such basic beliefs. I suspect that one of our inherent flaws as humans, one of our original sins, is that we become threatened when we are asked to change our belief systems. Instead of searching for truth fearlessly, we fear to search for truth.

CHILDREN FLOURISH EATING A PLANT-BASED DIET

The dietary needs of children can be met without any compromise through a plant-based diet. Dr. Charles R. Attwood (*Low-Fat Prescription for Kids*) and Michael Klaper (*Pregnancy, Children and the Vegan Diet*) point out that it is important to reduce cholesterol and fat consumption at an early age to control obesity and that a vegetarian diet is the best way to accomplish this. They say it is not at all necessary for children to eat animal-based foods to obtain sufficient vitamins and minerals. They show that children who eat a plant-based diet grow strong and tall. Not only are children not missing out on essential nutrients by eating a diet free of animal-based foods, they are also eliminating from their diet hormones and bacteria that regularly sicken them.

Children are much more susceptible to the effects of chemicals and hormones than adults. Most meat, milk, and eggs are extremely non-organic because the animals they come from are fed chemicals, hormones, and non-organic grains. These are concentrated in animals because they must eat many pounds of grain to produce one pound of flesh. Children who eat a plant-based diet have fewer problems with allergies, asthma, diabetes, and hyperactivity. (Sharon Yntema, *Vegetarian Pregnancy*, *Vegetarian Baby*, and *Vegetarian Children*—three different books.)

EATING ANIMAL-BASED FOODS: EARLIER PUBERTY, LATER MENOPAUSE

Vegetarian girls begin puberty several years later than girls who eat the standard, animal-based diet. Vegetarian women stop menstruating several years earlier than women who eat the standard, animal-based diet. This means that over the course of their lives, vegetarian girls and women will menstruate fewer times. The lower the number of menstruations, the lower is the incidence of ovarian cancer. This malady is less common among women who eat less animal-based foods.

Girls in the United States are commonly entering puberty as early as seven years of age; a few as early as three. (Susan Gilbert, “Early Puberty Onset Seems Prevalent,” *New York Times*, April 9, 1997, p. B-12; Brenda C. Coleman, “Many Girls in Puberty by Age 8, Study Finds,” Associated Press, *Seattle Post Intelligencer*, April 8, 1997, p. A-6.) Authors of these articles speculate that this is the result of “... environmental estrogens, chemicals that mimic the female hormone estrogen...” They do not even mention the possibility that the growth hormones these girls are getting by eating animal foods is another causal factor.

Before the proliferation in Japan of thousands of McDonalds outlets and the adoption of a high-fat diet, girls there entered puberty on average when they were 15.2 years old. As their consumption of animal fat has increased, the age of first menses dropped to 12.2 by 1978. (Y. Kagawa, “Impact of Westernization on the Nutrition of Japan,” *Preventative Medicine*, 1978, Vol. 7, p. 205.)

Speaking of Western diet, Udo Erasmus says: “The average age of first menstruation (menarche) in girls during the 17th century was 17 years old, on a diet containing about 20% fat. The present average age of first menstruation is 13 years old, on a diet containing 42% fat.” (Udo Erasmus, *Fats That Heal, Fats That Kill*, p. 377, 1993.)

The girl who enters puberty later has longer to focus on the joys of being a girl. The girl who enters puberty earlier must deal sooner with her instinct to mate. This consumes her attention, distracts her from her studies, and may lure her into pregnancy before she is ready for it. Consider how much easier her parents’ lives would be if their daughters and sons entered puberty at 15 instead of 12 or nine.

There is another apparent cause of early puberty and that is excessive fluoride consumption, which causes the pineal gland to produce less melatonin than it should, thus inducing early onset of puberty. See <http://www.fluoridealert.org>.

OBESITY

There is a direct correlation from country to country between the level of fat consumed and obesity. “Recent work indicates that increased fat intake is the only distinct difference in eating behavior between obese and lean adults.” (Marvin Harris, M.D., *The Scientific Basis of Vegetarianism*, p. 25, citing scholarly journals.)

In the United States people spend billions of dollars on this or that weight-loss diet program. Most of these programs are self-defeating because they do not take into account our instincts. Our species evolved to feast and fast, to eat a lot when food was available and then to live for long periods on stored reserves. When we diet we are fasting. “Fasting” can signify eating nothing or eating very little or refraining from eating certain foods. When we fast, the body reverts to an instinctual, self-protective mechanism whereby

caloric consumption drops dramatically in order to make our fat reserves last as long as possible. Weight comes off only very slowly. When we return to eating our regular diet, our metabolism continues for some time at the same efficient level, “anticipating” that the body must store fat reserves for yet another period of fasting. We quickly return to our pre-fasting obesity. (See the *Fasting* section, p. 341.)

There is a way to break out of this unfortunate feedback loop: Eat foods that rev up the metabolism but contain relatively few calories. I’m talking about bulky, high-fiber, plant-based foods. Dramatically reduce fat intake while eating ample amounts of low-fat foods.

One can consume much greater quantities of food when the diet is plant-based, including vegetables and complex carbohydrates. To digest such bulky foods the body must stoke the metabolic fire, and in so doing, more calories are burned. Plant-based foods are higher in nutrients but lower in fats, and contain fewer calories, gram-for-gram, and are more filling on a per-calorie basis. Fat delivers nine calories per gram; alcohol delivers seven; carbohydrates and protein each deliver four calories per gram. So, it is not the vegetables, bread, potatoes, and grains that make us fat but the fat we put on them, along with the fat in the animal-based foods we eat with them. The typical diet in North America derives 40 or 50 percent of its calories from fat.

Bulky, plant-based foods pass through the digestive system much more quickly than animal-based foods, and there is less time for their caloric content to be absorbed. A plant-based meal, high in bulk, moves from one end of the alimentary canal to the other in a day, the standard U.S. diet takes three days. This means that even if you are going to continue to eat animal-based foods, you should combine them with a lot of bulky, fruits and vegetables to move everything through the system more quickly.

Much of the fat we eat goes right through the walls of the stomach and intestines, directly into the blood stream, completely skipping the digestive process. Now that’s efficiency! Within an hour after we eat a burger and a milkshake, our blood serum is filled with fat, which readily attaches to already-existing fat cells and the walls of arteries.



Dr. Barnard suggests that if your target weight is 150 pounds, you should eat at least 1,500 calories per day of low-fat, high-bulk food, which means huge, very filling portions, three times a day. (Neal Barnard, *Eat Right, Live Longer*, p. 199.) Overweight people gradually lose weight on such a diet, and they maintain their lower weight level as long as they eat such food.

There are additional metabolic factors: Complex carbohydrates stimulate the thyroid gland, which secretes enzymes that increase metabolic levels. A plant-based diet is high in potassium, which also stokes the fire, whereas animal-based foods are low in potassium. Chromium, present in whole grains, increases metabolic rate. Iodine, found in kelp, increases metabolic levels as does the herb ephedra.

Some plant-based foods are high in fats, including various nuts, and vegetable oils. Reduce all fat consumption if you need to lose weight. Your body can synthesize the fats it needs. There are, however, two exceptions to this rule: The body cannot produce the essential fatty acids, linoleic acid (LA or Omega-6) and alpha-linolenic acid (ALA or Omega-3), best found in flax. They increase metabolic levels, help mitochondria burn fat, and help the kidneys excrete excess water. Dr. Erasmus recommends eating three tablespoons of these oils daily. (See the *Healthy Oils and Flax* section of this book, p. 253. See Virginia and Mark Messina, *The Vegetarian Way*, p. 125-141; Udo Erasmus, *Fats that Heal, Fats that Kill*, Chapter 40, *Why Calorie Counting Fails & What to Do to Lose Weight*, p. 192 ff., and Chapter 74, *Overweight and Constipation*, p. 343 ff.)

It is important to prevent obesity in childhood because childhood obesity increases the number of fat cells and therefore the number of places where fat can be stored. The blood vessels of children who eat a diet heavy in animal fats begin at an early age to fill in with atherosclerotic deposits. (Charles R. Attwood, M.D., *Dr. Attwood's Low-Fat Prescription for Kids*, p. 21-25.)

Typical diet articles in mainstream magazines and newspapers do not suggest cutting out meat, milk, and eggs as part of a weight-loss diet, perhaps because writers and editors presume that no one will be willing to make such a sacrifice. Perhaps they fear the loss of advertising revenues from the saturated fat industry.

Empty calories make up 58 percent of the average North American diet. People consume more than enough calories, but because what they eat is stripped of its nutrients, fundamental hungers for nutrients go unsatisfied. An unhealthy feedback loop is set up: People return to the refrigerator for more and more empty calories. "...[A] slice of white bread supplies so little nutrition that the diner is forced to consume four or five slices where one slice of whole grain would suffice. Hence obesity is itself a sickness, a sort of 'sufficiency disease.'" (Mark Mathew Braunstein, *Radical Vegetarianism*, p. 10—a poetic book I highly recommend.)

Permanent control of obesity is possible only when one eats a high-bulk, high-fiber, low-fat diet—because only such a diet can supply the high volumes of appetite-satisfying vitamins we need. (Neal Barnard, M.D., *Eat Right, Live Longer*, Chapter 10, *How to Dissolve Fat Permanently*, p. 184-203; Udo Erasmus, *Fats That Heal, Fats That Kill*, Chapter 40, *Why Calorie Counting Fails & What to Do to Lose Weight*, p. 192-198. See the *Healthy Oils and Flax* section of this book, p. 253.)

So, skip to the recipe section, and fix up a huge vegetable steam-stir-fry. Sprout some sunflower seeds, lentils, adzukis, and mung beans, and then steam them, stir fry them, or eat them raw. Fix up some whole-grain rice. Sprout some rye or kamut or wheat berries, and cook them like rice, or eat them raw. Eat fruit. Eat raw vegetables, greens, and flax seed from your own garden. Eat flax seed. Eat often and eat as much as you desire of this stuff, and you will gain control of your weight. Eat more complex carbohydrates and the healthy oils you need, and less of the empty calories you don't need.

ALA is made up of 18 carbon atoms in a chain with three double bonds and with the first double bond at the third carbon atom.

Eicosapentaenoic acid, EPA (20:5w3), is similar in structure but is 20 carbon atoms long. Docosahexaenoic acid, DHA (22:6w3), is 22 carbon atoms long. EPA has five and DHA has six double bonds. The body can convert Omega-3 ALA into EPA and DHA.

The body needs nine to 18 grams of LA each day, about a tablespoon, and two to nine grams of ALA each day, one or two teaspoons. (Udo Erasmus, *Fats that Heal, Fats that Kill*, p. 51 f.) The practical problem with essential fatty acids is maintaining this roughly 3 to 1 or 4 to 1 ratio of Omega-6 LA to Omega-3 ALA. It is a challenge to keep LA consumption down and ALA consumption up. Various oils contain various amounts of ALA and LA:

Source	% of LA	% of ALA
Hemp Oil	60	20
Flax Seed Oil	14	58
Chia	40	30
Kukui	40	29
Pumpkin Seed Oil	42-57	0-15
Walnut Oil	51	5
Wheat Germ Oil	50	5
Evening Primrose Oil	81	0
Canola Oil	30	7
Soybean Oil	50	7
Olive Oil	8	0
Peanut Oil	29	0

(Udo Erasmus, *Fats that Heal, Fats that Kill*, p. 237.)

A cup of berries contains .2 grams of LA and .2 grams of ALA; a half cup of peas .2 grams of LA and .2 grams of ALA; a half cup of legumes .05 grams of LA and .05 grams of ALA. A cup of raw or a half cup of cooked leafy green vegetables such as broccoli, kale, Chinese greens, and salad greens contain .1 grams of ALA and only a tiny amount of LA. Kale contains .2 grams of ALA per 100 grams, which is around 3.5 ounces. Purslane contains .4 grams per 100 grams. (Brenda Davis, R.D., “Essential Fatty Acids in Vegetarian Nutrition,” *Issues in Vegetarian Dietetics*, 1998, 8:5-7; www.andrews.edu/NUFS/essentialfat.htm.)

LA is also found in safflower, sunflower, grape, corn, sesame, rice bran, peanut, almond, Brazil, beech, pecan, and other oils, however, in these oils there is little or no ALA. As you can see in the above chart, ALA is harder to find than LA.

One should eat around four times as much LA as ALA. LA is easily obtained by eating the many healthy oils which contain it, however, it is hard to boost the proportion of ALA up to a fourth of LA consumption. There is some ALA in walnuts, wheat germ, canola, tofu, berries, and dark-green leafy vegetables. Sometimes pumpkin seeds contain ALA. However, the richest source of ALA is flax. Flax provides a high ratio of ALA to LA. Thus, your strategy should be to consume a couple of teaspoons full of flax seed oil or a couple of tablespoons full or freshly ground flax seeds each day along with a modest amount of the oils which contain LA. The other part of the strategy is to reduce the consumption of the fats which contain the other nonessential fatty acids.

Leafy green vegetables are very low in fat, but the fat they do contain is high in ALA—80 percent—and low in LA. (Udo Erasmus, *Fats that Heal, Fats that Kill*, p. 22; “Flaxseed—Food Sources of Alpha-Linolenic Acid (ALA),” *Flaxseed and Human Nutrition*, Flax Council of Canada, (www.flaxcouncil.ca/english/pdf/stor.pdf.) The fact that greens eaten in large quantities are rich in ALA might tend to prove

that pre-historic humans ate a lot of greens because fish is not available in some areas. However, animal brains and other organs contain ALA and were available everywhere. Berries and legumes contain equal amounts of LA and ALA, a relatively good balance. So to get your essential fatty acids, eat a lot of raw or lightly steamed green vegetables, berries, sprouted legumes, and flax oil or seed.

I put flax oil on my rice with a little soy sauce and sometimes nutritional yeast and then eat it with raw green vegetables from my garden. Do not fry foods in flax oil. Instead, use it to make salad dressing; pour it on your rice; mix it in your smoothies. So buy raw flax seeds in bulk, grind them up in a coffee grinder and add the powder to oatmeal, soup, or steam stir fry. The powder needs no cooking, only a few minutes to absorb moisture. It can be added to soup. I take a spoonful of flax seeds and chew, chew, chew them before swallowing. Or grow your own flax in your garden and eat the seed pods. Flax oil in vegi-caps is very expensive. Flax oil in a black bottle is less expensive. Whole flax seeds cost next to nothing. Flax growing in your yard and around the neighborhood is free once you broadcast some seed and get these self-seeding plants going.

Flax is not damaged by baking, as in muffins; the temperature of baked goods is moderated by the moisture which is being boiled off. (Cunnane SC, Hamadeh MJ, Liede AC, Thompson LU, Wolever TM, Jenkins DJ, “Nutritional Attributes of Traditional Flaxseed in Healthy Young Adults,” *American Journal of Clinical Nutrition*, January, 1995, 61(1):62-8; “Flaxseed—Storage and Baking, Stability”, Flax Council of Canada, *Flaxseed and Human Nutrition*, www.flaxcouncil.ca/english.) Use flax seed to thicken anything; it serves as an egg replacer. Grind it in a coffee grinder, add hot water, and it thickens quickly. (See the *Eating Well Without Eggs* section of this book, p. 360.)

Free-swimming, cold-water fish such as salmon, mackerel, tuna, eel, and sardines are rich in the super-unsaturated essential fatty acids DHA and EPA. DHA and EPA are not found in plant based foods except certain algae. Plant based foods such as flax contain ALA, which healthy bodies easily convert into DHA and EPA. DHA and EPA are the ultimate essential fatty acids we are seeking. Fish-farmed fish are deficient in DHA and EPA because they are fed corn and soy instead of the planktons and small fish which free-swimming fish eat. Some fish-farmed fish are fed anchovies and thus contain some DHA and EPA. Tropical fish are not as rich in essential fatty acids as cold-water fish. (See the *Fish, EPA and DHA* section, p. 258.) Commercial eggs contain only small amounts of LA and ALA, although eggs from barnyard chickens may contain more essential fatty acids because chickens eat a variety of plants, insects, and small animals. Cow and goat milk are very low in LA and ALA. The meat of domesticated animals, especially factory animals fed mostly corn and soy, contains very small amounts of LA and ALA. The fats found in all animal-based foods are mostly nonessential fatty acids, and these dilute whatever essential fatty acids the animal-based foods contain and render them largely ineffective.

More of these essential fatty acids are found in the muscle tissue of wild animals than in the muscle tissues of factory farm animals, because wild animals eat more of the grasses that contain essential fatty acids. Large amounts of DHA and EPA are found in the brains of wild animals. However, even wild animals now suffer from spongiform brain disease, so eating the brains of any animal is not advisable.

The animals and fish we eat do not themselves always synthesize DHA and EPA; their bodies obtain them as ours do, by eating other things such as plants and plankton. It makes more sense to get our essential fatty acids from their original, concentrated, plant-based sources than from intermediate, animal sources, because those other sources contain other fats which dilute the essential fats, and which to various extents are contaminated and disease-ridden. (Udo Erasmus, *Fats that Heal, Fats that Kill*, p. 223 ff., p. 228.)

When it comes to fats, the strategy should be to make sure that you eat the essential fats that heal and avoid the lower quality fats that kill. Generally, oils are fattening, even fats that heal, so if you have a tendency to be overweight, eat only the essential, healing fats that you need, and avoid other fats as much as possible. If you are underweight, if you live in a cold climate, if you work or exercise hard, or if you are a fast-growing child, it is reasonable to eat more of the oils which contain the essential fatty acids and also to eat more of the healthy oils that are not essential but not harmful in reasonable amounts, such as nuts and extra virgin olive oil.

It is important to avoid the unhealthy, saturated fats and trans-fatty acid fats. A daily jog around the White House did not undo the unhealthy effect of Bill Clinton's daily diet of Big Macs. After retirement he had to have an operation to bypass the clogged arteries to his heart.

It is also important to avoid refined oils. Light colored, clear oils sold in clear containers are refined using hexane and heptane as solvents. That's right, gasoline. They are distilled at high temperatures, which produces trans-fatty acids. They are refined using sodium hydroxide; that's right, Drano™. Commercial oils are degummed, bleached, deodorized, defoamed, and sometimes hydrogenated. Preservatives are added. They are even "winterized" so they will not partially solidify at cold temperatures.

Olive oil contains around 10 percent LA but only a minute amount of ALA. It is mostly oleic acid, which the body can synthesize easily out of carbohydrates. However, it contains beta carotene, chlorophyll, and dozens of other minerals and phytochemicals. Buy only the more flavorful, extra-virgin olive oil, which comes from the first pressing; any other olive oil has been refined and is unhealthy. Extra virgin olive oil is the only unrefined oil that is widely available on a commercial basis.

Peanut butter contains a reasonable amount of LA but no ALA. Read the label and buy only pure peanut butter. Most commercial peanut butter contains "partially hydrogenated fats," which are added to keep it solid at room temperature. These will gum up your arteries just as much as lard. People look at pure peanut butter and see the pool of oil sitting on top of the peanut butter, and say 'Yuck!' Stir it when it is at room temperature, and then refrigerate it. This will stabilize it and prevent separation. When you eat commercial peanut butter, you are spreading peanut-flavored shortening on your toast. Now that's yuck!

All oils are affected by light and high temperatures, and they mutate into trans-fatty acids. Therefore, all oils should be refrigerated. All oils should be purchased in dark glass bottles or stored in the dark. Olive oil is a partial exception to this rule, and one of the advantages of olive oil is that it keeps better than other oils without refrigeration and without being kept in the dark. However, it is still best to store olive oil in the refrigerator. (Udo Erasmus, *Fats that Heal, Fats that Kill*, 253 ff.)

Dr. Erasmus compares butter and margarine. He concludes that butter is marginally better but that neither is very good for us. Instead of butter or margarine, we should eat olive oil. (Udo Erasmus, *Fats that Heal, Fats that Kill*, 242 ff.)

Coconut oil has been given a bad rap. (www.coconut-info.com.) Although the oil is saturated, it tends to be short chain saturated fatty acids. Use coconut for frying. Buy cans of coconut milk and use the cream, which floats to the top, in place of butter or shortening for baking pies and cakes. (See the pie recipes in the *Goddess Recipes* section of this book, p. 365.)

When we were adolescents, we were told that oily things were bad for our pimples. Ironically, we were blind to the extreme fattiness of the animal-based foods we were eating. It was probably not the healthy oil in the salad dressing that zapped me with so many zillion zits as a teenager, but the milk, burgers, pork chops, and fried chicken I ate. To varying extents animal-based foods contain sex and growth hormones. Milk particularly produces allergic reactions, and none of this could be good for pimples.

The high heat of frying produces unsaturated trans-fatty acids, which can be even worse for us than saturated fats. As much as possible, substitute steaming for frying. Or steam vegetables first and then fry them briefly to marry the flavors. For frying for extended periods use coconut or palm oil, which are more stable at high temperatures. Olive, refined canola, sunflower, and safflower oil can be used for frying for short periods.

The best stir fry method is to maintain an oil-water mixture by adding water continuously, what I call steam stir frying. The water acts as a temperature governor: Even if the water is boiling away in a cloud of steam, the temperature is never more than 212°F, and no oils turn to trans-fatty acids at this temperature. (Udo Erasmus, *Fats that Heal, Fats that Kill*, p. 127.) Heating anything to boiling is sufficient to soften it and bring out flavors. (See the *Stir-Frying Techniques and Steam Stir Frying*, section of this book, p. 355.)

Use essential fatty acid oils for salad dressings, particularly flax seed oil (Spectrum Naturals, www.spectrumorganics.com). You will come to like the flavor. Hemp seed oil (Spectrum Naturals) has a smooth, rich taste. Essential Balance (Omegaflo, www.omeganutrition.com) is a mixture of flax, sunflower, sesame, pumpkin, and borage oils that contains both essential fatty acids. However, when you consider that you are consuming much more LA in all the other oils you consume and very little ALA, Essential Balance actually throws the balance off, meaning that you end up consuming too much LA in relation to ALA. As long as you are eating some hemp, pumpkin, walnut, wheat germ, evening primrose, canola, olive, soybean, or peanut oil or nuts, it is better to use straight flax oil instead of Essential Balance. Serve up a bowl of whole grain rice, spelt, or kamut, pour on a little flax oil. Perhaps add some nutritional yeast and maybe some soy sauce. Eat it with raw greens. Umm good!

Don't "fry" popcorn in oil because the oil gets very hot and produces trans-fatty acids. Use an air popper or buy a microwave popcorn bowl and "nuke" your popcorn. Don't use microwave packaged popcorn because it contains shortening and other saturated fats and numerous strange chemicals. When your popcorn is popped, then, add olive oil or flax oil plus nutritional yeast. Try popcorn naked, without any oil or salt. You will come to like it. I chew, chew, chew naked popcorn with flax seeds.

Any oil that is kept hot for hours, as with oil used to cook French fries in fast food restaurants, will break down into unhealthy trans-fatty acids.

FISH, EPA AND DHA

The major animal-based food source of the essential fatty acid DHA (docosahexaenoic acid) and EPA (eicosapentaenoic acid) is cold-water fish, such as salmon, sardines, mackerel, eel, and trout. Tropical fish species contain less essential fatty acids; as does fish-farmed fish. Cold-water fish contain essential fatty acids because they eat smaller fish, which have eaten smaller fish, which have eaten algae, plankton, and aquatic plants, which are rich in EPA and DHA. ("Flaxseed—Food Sources of Alpha-Linolenic Acid (ALA)", *Flaxseed and Human Nutrition*, Flax Council of Canada, www.flaxcouncil.ca/english/pdf/stor.pdf. "Unlike land plants, the marine and freshwater plants on which fish feed are rich in EPA and DHA." (Internet Britannica article on fish processing, www.britannica.com.) Fish raised in fish farms are fed corn, soy, and some wild caught fish, so their flesh contains less of the essential fatty acids than wild caught fish. The flesh and particularly the skin of cold-water fish contain little LA and ALA but a lot of DHA and EPA.

A healthy human can synthesize a significant amount of EPA and DHA out of the ALA consumed in the form of flax, hemp seeds, pumpkin seeds, walnuts, and leafy green vegetables. The body converts a significant amount of its store of ALA each day into EPA and DHA. (Udo Erasmus, *Fats That Heal, Fats That Kill*, p. 259 ff.)

Canola oil, flaxseed oil, and walnut oil contain very small amounts of EPA. (Balch and Balch, *Prescription for Nutritional Healing*, p. 51.)

The body is well able to convert ALA into EPA. Getting sufficient EPA is not a problem, in fact, getting too much EPA can be a problem. DHA is the issue. A debate continues over whether one eating a vegan diet rich in ALA converts only a minimally sufficient or an optimal amount into DHA. Studies show that vegans have lower DHA levels than omnivores and vegetarians, from a third to two-thirds as much. (www.beyondveg.com/billings-t/comp-anat/comp-anat-7i.shtml.) However, there is no conclusive evidence as to what levels of EPA and DHA are necessary.

Fish do not make DHA and EPA; they get it from the algae which they eat or from the creatures they eat, which ate the creatures, which ate the algae. Algae-based DHA is available from NuTru as Omega-Zen-3. (www.NuTru.com.) Brown and red algae can be grown in large vats. It is now possible to be a strict vegan and obtain this one nutrient which previously was impossible to obtain from vegetable sources. Algae-based DHA is free of the methyl mercury, dioxin, PCBs, and other pollutants found in fish oil. (“DHA,” www.wikipedia.org.) Unfortunately, humans under the sway of blind capitalism utilize our oceans both as a pantry and a toilet.

There are indications that those whose immune system has begun to fail and diabetics and alcoholics—those who may need DHA the most—may have lost the ability to synthesize it out of ALA. For this reason, some contend that cold-water fish—or brown and red algae, which contain DHA—may be a necessary dietary component for such people. Another alternative for these people would be for them to correct the dietary habits which made them sick in the first place.

Further, there are indications that infants who do not take mother’s milk need DHA supplementation. (L.O. Kurlak, T.J. Stephenson, “Plausible Explanations for Effects of Long Chain Polyunsaturated Fatty Acids (LCPUFA) on Neonates,” *ADC*, March, 1999, 80:F148-F154.)

Fish has become a food to be wary of in our era because all ocean fish are contaminated. Arsenic, mercury, lead, aluminum, cadmium, PCBs, farm pesticides, and other farm waste flow into rivers and oceans. Paper mills use chlorine compounds to bleach paper, and the process produces organochlorines such as dioxins that also end up in the oceans. Although ocean areas further from the sources of contamination are cleaner than others, these toxic wastes spread throughout the world. They are consumed by the plankton that form the base of the ocean food chain, which in turn is eaten by tiny fish, which are eaten by larger fish. These toxins concentrate in the tissues of seafood at the top of the food chain, such as the clams, shrimp, carp, salmon, tuna, cod and other sea animals we humans eat. Bottom feeding and filter feeding sea animals are particularly polluted. (D.B. Martin, et al., “Organochlorine Pesticides and Polychlorinated Biphenyls in Sediment and Fish from Wetlands in the North Central United States,” *Journal of the Association of Analytical Chemistry*, July-August, 1985 68 (4), p. 712-717.)

As is true of all animals, sea animals have not yet evolved a mechanism for digesting and excreting many of these pollutants, so they become more concentrated at each level of the food chain. Maybe there was a time when ocean fish was clean, but it is not clean today; the oceans are the industrial world’s final garbage dump. (“Field and Laboratory Tests on Acute Toxicity of Cadmium to Freshwater Crayfish,” *Bulletin of Environmental Contamination and Toxicology*, Sept. 37(3), 1986, p. 355-361.)

Women who eat fish have significantly higher levels of DDT, endrin, aldrin, dioxin, and PCBs in their breast milk, and according to Howard Lyman—president of EarthSave International and former farmer and feedlot operator—cow’s milk would be illegal if it contained such levels. (Lecture, American Vegan Society conference, Boulder, Colorado, July 31, 1999; Seattle; K. Noren, “Levels of Organochlorine Contaminants in Human Milk in Relation to the Dietary Habits of the Mothers,” *Acta-Paediatr-Scand.* 1983 November 72 (6), p. 811-816.)

Fish are susceptible to microbial contamination. When they are caught they have high levels of bacteria on their skin, in their intestinal tract, and in their gills. Ocean swimming fish frequently contain tape worms and other parasites. Most fish spawn and spend part of their lives in coastal waters where pollution is greatest, including bacterial contamination from fecal farm waste. When a patient has hepatitis—an inflammation of the liver—the physician asks first if the patient has shared needles for drug use, second if the patient has had contact with others with hepatitis, and third if the patient has eaten shellfish recently. That is because shellfish often harbor the pathogens which cause hepatitis. (Interview with Dr. Klaper, EarthSave Retreat, Issaquah, Washington, November 6, 1994.)

Dr. Klaper points out that:

On board the fishing ship, the weight of the fish in the hold crushes the bottommost animals, often forcing their intestinal contents out and causing contamination. In their attempt to retard the spoilage, fishermen spray the dying fish in the hold of their ships with antibiotic solutions and ice made from the polluted waters in which they have been fishing. (Michael Klaper, *Vegan Nutrition*, p. 26.)

Because fish is a very concentrated protein, and because we tend to eat too much protein already, eating fish adds to excess protein consumption and therefore contributes to osteoporosis. (Michael Klaper, *Vegan Nutrition*, p. 26; see the *Protein Hype* section of this book, p. 248.)

FISH OIL

Ocean pollutants ascend the food chain and are especially concentrated in large fish such as cod. The fatty liver is the fish’s pollution trap: Anything an animal cannot excrete tends to be stored in fat and in the especially fatty liver. Fish oil is produced by pressing the livers of cod and other fish. Thus, fish oil is the worst of the worst.

According to Dr. Ornish, fish oils “... are prone to oxidation and spoilage.” They tend to cause levels of LDL—the “bad” cholesterol—to increase. (Dean Ornish, M.D., *Program for Reversing Heart Disease*, p. 279 ff.)

Fish oil contains cholesterol which the kidneys and liver must excrete. Excretion depletes calcium stores. Where does the rest of the cholesterol go? It stays suspended in the blood in globules, and a certain amount goes onto the linings of the veins and arteries.

Fish oil inhibits the action of insulin and elevates blood glucose levels, and so diabetics should avoid eating it. Because fish oil is rich in the EPA, a potent blood thinner, eating too much fish can increase the likelihood and severity of strokes in older people. It also is causally connected with late births, high birth weight, births by Caesarian section, and stillbirths. (Michael Klaper, M.D., *Vegan Nutrition*, p. 27.) “Cod Live Oil is probably best avoided by pregnant women, asthmatics, diabetics and people taking anti-coagulants, such as Warfarin.” (<http://www.vitaminuk.com/pages/articles/codliveroil.htm>.) The body generally has enough EPA. One who eats fish oil risks getting too much EPA. Algae DHA supplements such as Omega-Zen-3 (www.NuTru.com) contain no EPA, only DHA. Dosage size for children should be based on consultation with a physician. Fish oil contains a lot of vitamin A, and we can overdose on vitamin A, unlike betacarotene, a plant-based pro-vitamin A, each molecule of which splits into two molecules of vitamin A.

It is easy to agree with Dr. Klapner (*Vegan Nutrition*, p. 27) that fish oil is one of the "... strangest substances to consider eating." However, it is no surprise that it is so heavily marketed: Fish livers can be sold for pet food or recycled into barnyard animals at a small markup or fed to humans in pill form for a huge profit.

Fish oil contains vitamin D, however, the human body can synthesize this pre-hormone (it is not really a vitamin). With our hands and faces exposed to the sun for 15 minutes, three times a week during the summer, our bodies can produce sufficient vitamin D. More time in the sun is needed in the Winter and in northern latitudes. Blacks produce vitamin D at a slower rate than Whites, and should spend more time in the sun. The body can store this hormone for months. Vitamin D is available in strictly-vegetarian vitamin pills. If you have to take pills to get your vitamin D, don't take fish oil pills. Soy and rice milk and other vegetable foods are available with vitamin D-2 added, a vegetable version of vitamin D.

Read the label on your vitamin bottle; most vitamin supplements contain fish oil. Most capsules are made of gelatin, which is made of animal bones, so select a supplement in VegiCaps capsules. Shop for a strictly plant-based vitamin supplement. Your shop keeper will generally stock a strictly vegetarian supplement if you let her know you want to buy it.

DAIRY PRODUCTS, OSTEOPOROSIS, AND ANIMAL-BASED FOODS

According to scholar Udo Erasmus:

All dairy products are low in EFAs [essential fatty acids]. They contain nothing to alleviate fat problems of human beings and, taken in excess, enhance these fat problems. They raise triglyceride and cholesterol levels. They increase platelet stickiness. Although they contain good protein and calcium, and may taste delicious, they leave a lot to be desired from the point of view of fats, oils, cholesterol, and human health. They are also low in the minerals magnesium, iron, and zinc.

The cholesterol in dairy products, combined with sticky fatty acids, creates a burden that must be carried by fat-dispersing w3s and w6s [Omega-3 ALA and Omega-6 AL essential fatty acids], which must come from another source. Although human milk contains cholesterol, it also contains the dispersing w3 and w6 oils that help keep cholesterol from oxidizing and damaging the walls of our arteries. (Udo Erasmus, *Fats that Heal, Fats that Kill*, p. 230.)

Dairy products contain proteins, enzymes, and hormones that often cause "... allergic and inflammatory reactions such as chronic runny noses, recurrent ear and bronchial infections, eczema, asthmatic bronchitis, and other inflammations of joints, skin and bowels." (Michael Klapner, M.D., *Vegan Nutrition*, p. 28, citing various medical journals.)

When it comes to such reactions, low-fat milk is no better than whole milk, because it is primarily the proteins and not the milk fats that cause such reactions. Homogenized milk is whipped into tiny fat balls containing protein fragments. These balls, according to Dr. Klapner, leak through the lining of the alimentary canal directly into the blood stream undigested and from there are carried throughout the body to do their mischief. Milk proteins are a primary causal factor in rheumatoid arthritis. (Michael Klapner, M.D., Personal conversation, EarthSave Retreat, Issaquah, Washington, November 6, 1994.)

Cow's milk is around 1.6 percent protein by gross weight. This does not sound like a lot, however, bear in mind that milk is 87 percent water by weight, and so milk solids make up the other 13 percent of milk by weight. Thus, in relation to total milk solids, milk is about 12 percent protein by weight, making it relatively high in protein. It gives a clearer picture to measure protein and fat as a percentage not of total weight but of total calories. By this measure, around 15 percent of calories derived from whole milk are derived from protein, more in the case of low-fat milk. This protein is predominantly casein, which is hard for humans to digest, and as noted above, can cause colds and allergic reactions.

Human mother's milk, on the other hand, is 0.3 percent protein by gross weight, which is around three percent protein as a percentage of total calories. This protein is predominantly albumin, a protein that human babies digest easily. Mother's milk, unlike cow's milk, contains valuable lecithin.

In mother's milk the calcium-phosphorus ratio is 2.3 to 1. It is considered that the ideal ratio is 2 to 1 or greater. (*Recommended Daily Allowance*, 10th Ed.) In cow's milk it is only 1.3 to 1, and at this ratio the excess phosphorus interferes with calcium absorption.

As an aside, note that leafy green vegetables contain more calcium than phosphorus. (L.L. Oenning, et. al., "Accuracy of methods Estimating Calcium and Phosphorus Intake in Daily Diets," *Journal of the American Dietetic Association*, 88:1076-1078, 1978; Sally J. Rockwell, *Dietary Management Using Non-Dairy Sources of Calcium*, p. 25.)

Cow's milk contains virtually no magnesium, and without magnesium, a baby's growing body cannot utilize calcium.

The nutrition committee of the American Academy of Pediatrics, gave this advice to its members regarding feeding cow's milk to children under 2:

Infants fed whole cow's milk have low intakes of iron, linoleic acid, and vitamin E, and excessive intakes of sodium, potassium [probably a typo, probably "phosphorus" is intended], and protein, illustrating the poor nutritional compatibility of solid foods and whole cow's milk. (Charles R. Attwood, M.D., *Dr. Attwood's Low-Fat Prescription for Kids*, p. 64.)

There is a connection between cow's milk and anemia.

In children, in particular, overreliance on [cow's] milk can lead to anemia. This is because [cow's] milk is very low in iron itself, and drinking too much of it can crowd iron-rich foods out of the diet. In young infants, protein from cow's milk can cause intestinal bleeding, which can lead to anemia.... Also, the calcium in milk inhibits iron absorption. (Virginia & Mark Messina, *The Vegetarian Way*, p. 49, citing medical journals.)

Why is cow's milk so different from mother's milk? Because calves start eating grass shortly after they are born. From grass they get lots of potassium, magnesium, iron, and a reasonable amount of essential fatty acids. Therefore, cow's milk is naturally lower in potassium, magnesium, iron, and essential fatty acids. Likewise, cow's milk is higher in the protein and phosphorus that is not abundant in grass. Conversely, mother's milk is higher in potassium, magnesium, iron, and essential fatty acids than is cow's milk. And mother's milk has less phosphorus and protein.

Except for skim milk, dairy products are very high in fat and cholesterol. Butter is 80 percent fat as a percentage of calories; cheese and milk chocolate are 25 to 40 percent fat as a percentage of calories.

The bovine leukemia virus infects up to 20 percent of all milk cows, and it is not destroyed in the pasteurization process. The highest rates of leukemia are found in children ages 3 through 13, who consume the most milk and dairy products. (Michael Klaper, M.D., *Pregnancy, Children, and the Vegan Diet*, p. 42, citing medical journals.)

Staphylococcus aureus bacteria commonly infects dairy cattle, and shows up particularly in swollen and ulcerated udders which drag the ground. Staph is destroyed in the pasteurization process, but the toxins produced by staph are not and remain in the milk.

Mycobacterium paratuberculosis, suspected cause of Crohn's disease, also found in raw milk, is not destroyed in the pasteurization process. (Sheryl Gay Stolberg, "After 4 Deaths, Scientists Fear Germ's Threat," *New York Times*, August 20, 1999; <http://alan.kennedy.name/crohns/welcome.htm>.)

Frequently cheese is contaminated with listeria, a bacteria which, when consumed by pregnant mothers, can cause babies to be born with meningitis. Listeria can also cause miscarriages. (Klaper, *Vegan Nutrition*, p. 2, citing medical journals.)

Jane E. Brody, *New York Times* nutrition writer, suggests that older men and women should drink four glasses of milk each day and also eat fish bones! ("Osteoporosis Can Threaten Men as Well as Women," *New York Times*, September 4, 1996, p B8.) I suspect she, like all 64,000 registered dietitians in the United States, is on the beef and dairy industry's mailing list—the same groups that fabricated the new food pyramid which calls for consumption of animal-based foods. It appears that she relies on their propaganda uncritically. I am sorry to say that Jane recently contracted breast cancer, however, this does not seem to have changed her perspective on milk and other animal-based foods. Maybe she sees no connection.

Lacto-ovo-vegetarians striving to eat a meat-free diet should be aware that cheese is not necessarily meat-free. Many cheeses are curdled with rennet, which is the ground-up stomach lining of cattle and other animals. Originally, cheese was produced by pouring milk into a stomach, where it would curdle quickly. Little rennet is needed to curdle milk, and so modern technology reverses the process, drying and powdering the rennet, and putting the stomach into the milk instead of the milk into the stomach.

Factory farmers systematically overfeed cows with protein supplements and ground-up meat to produce maximum quantities of milk that is higher in butterfat. This is because the higher the percentage of milk fat, the higher the price the milk will fetch. The natural life span of a cow living in a pasture and eating grass the old-fashioned way is 20 to 25 years. However, cows in modern dairies are generally sent to the slaughterhouse after only four years because they "burn out," which means their milk production drops dramatically. They become more profitable as hamburger than as milk producers.

Overfeeding, including the feeding of meat-based protein supplements, taxes milk cows' digestive systems and makes cows prone to infection. So virtually all dairy cattle are fed antibiotics on a daily basis. Claims are made that the FDA tests for antibiotics in milk, but the testing program is not extensive. There are only five random tests done on milk each day in the entire nation. The FDA policy is not to prohibit residues of antibiotics in milk but to keep them down to "safe levels." (C. David Coats, *Old MacDonald's Factory Farm*, p. 49 ff.; Michael Klaper, M.D., *Vegan Nutrition: Pure and Simple*, p. 28 ff. See the *Lacto-Vegetarian* section of this book, p. 323.)

Cow's milk is marketed as a source of vitamin D, however, milk contains little naturally-occurring vitamin D. The vitamin D is added. However, at times the milk is not sufficiently mixed after the vitamin D is added, and this can result in vitamin D overdoses. The human body produces its own vitamin D in response to regular exposure to sunlight. Research should be done into the effect of feeding vitamin D fortified milk to people in sunny climates who produce enough vitamin D on their own. Soy milk and rice milk are available. They are supplemented with vegetable based vitamin D-2, calciferol.

Sales of organic milk are growing rapidly, despite the fact that it costs more than regular commercial milk. Organic milk comes from cows that are not fed hormones, chemicals, or animal renderings, cows which are fed less grains than commercial cattle and more grass and hay. Organic milk is an improvement over ordinary commercial milk. However, organic milk is still too high in protein and contains only

nonessential fatty acids. It still contains almost no iron, vitamin C, or magnesium. It still contains too much phosphorus and too little potassium. It is still homogenized. Many of these cows still live in buildings and feedlots instead of pastures. Are these organic cows free of viruses such as leukemia and paratuberculosis? (Jennifer Ferrara, "Sour Milk," *In These Times*, May 26, 1997, p. 20; see the *Recombinant Bovine Growth Hormone* section of this book, p. 284.)

Osteoporosis is not the result of eating too little calcium. It is the result of eating of too much animal-based protein, which depletes calcium reserves. Most of our calcium is stored in our bones, and the bones are often referred to as the body's "calcium bank." Calcium loss results from "protein-induced hypercalciuria." Meat, dairy, and egg protein is more concentrated than vegetable protein and higher in calcium-depleting high-sulfur amino acids. (Grains also contain high-sulphur amino acids.) Those who eat animal-based foods generally eat far more protein than they need. Protein is made up of amino acids. Too much protein, particularly the high-sulfur amino acids, lowers blood pH, making it more acid. The body must restore blood pH to normality, and the way it does that is to add calcium. The calcium need is immediate. There is not sufficient available calcium in the milk being consumed to provide the calcium to restore pH to neutrality. There is virtually no calcium in meat. So the body must make the withdrawal from the "bone bank." When more calcium is being drawn from the bones than is being deposited, calcium is in "negative balance" and bone density is decreasing. The debt produced by eating too much protein is too great for it to be repaid as calcium is consumed, and osteoporosis results.

I grew up to be the same height as my father. Dad gradually shrank, year after year and by the time he died, he was three inches shorter than I am and his back was bent over, the result of osteoporosis. Over the years Dad ate a lot of meat, milk, and eggs. Do you want to grow up to grow shorter? Then keep eating the standard American diet, referred to as "SAD."

The kidneys must excrete excess protein and the by-products of protein digestion such as ammonia, urea, and amino acid fragments, and to do this, the kidneys require even more calcium, which also is drawn from the bones. Because the kidneys must work overtime to excrete these by-products, the consumption of animal-based foods is a major cause of kidney damage. (Michael Klaper, M.D., *Vegan Nutrition: Pure and Simple*, p. 26.) "No wonder kidneys are so often overworked in flesh eaters: they must cleanse not just the bodies of the eaters, but the bodies of all those eaten." (Mark Mathew Braunstein, *Radical Vegetarianism*, p. 15.)

Generally, those who eat a plant-based diet have higher bone density than those who eat animal-based foods. The best way to get calcium is to get it the way cows get it—by eating leafy green vegetables. In addition to calcium, these foods provide manganese, which helps lower blood pressure.

Osteoporosis is most common in countries such as the United States and Northern Europe, where consumption of meat, milk, and eggs is highest. People in these countries consume around 900 mg. of calcium per day. In certain African tribes, calcium intake is extremely low, but bones are very strong. A rural African woman in South Africa, who eats only small amounts of animal products, consumes only 440 mg. of calcium per day and nurses as many as ten children for several years each, nevertheless has very strong bones.

Old people often fall down and break their porous bones. Just as often, the reverse happens: Their porous bones break, and they fall down as a result. Meanwhile aged south African women easily carry 50-pound loads and suffer from no osteoporosis at all.

Inuit do not drink milk, but they do eat around 2,000 milligrams per day of calcium in the form of fish bones, a massive amount of calcium. Nevertheless, because they eat so much meat they suffer from serious osteoporosis. (Charles R. Attwood, M.D., *Dr. Attwood's Low-Fat Prescription for Kids*, p. 65-68, citing medical journals.) Dr. Neal Barnard recommends that women with porous bones take a natural progesterone product known as ProGest, which can actually help rebuild lost bone mass. (www.emerita.com.) An invasive bone biopsy is required to determine bone porosity.

Milk consumption in Japan has increased dramatically. In 1950 the average Japanese consumed 5.5 pounds of milk per year. By 1975 this had increased to 117.4 pounds per year. At the same time strokes increased 38 percent, heart disease 35 percent, breast cancer 77 percent, colon cancer 77 percent, and lung cancer 300 percent. During the same 25 year period the average twelve-year old girl went from 4'6" tall and 71 pounds in weight to 4'10" tall and 90 pounds in weight. In 1950 the average age of menarche was 15.2 years; in 1975 it was 12.2 years. (Y. Kagawa, "Impact of Westernization on the Nutrition of Japan," *Preventative Medicine*, 1978, Vol. 7, p. 205.) The Japanese have also increased their consumption of meat as they eat more like United Statesians.

Robert Cohen, the Not Milk Man (www.notmilk.com), lists some 59 different bioactive hormones in cow milk: Steroid hormones (Estradiol, Estriol, Progesterone, Testosterone, 17-Ketosteroids, Corticosterone, Vitamin D), pituitary hormones (PRL, GH, TSH, FSH, LH ACTH Oxytocin), hypothalamic hormones (TRH, LHRH, Somatostatin, PRL-inhibiting factor, PRL-releasing factor, GnRH, GRH), thyroid and Parathyroid hormones (T3, T4, rT3, Calcitonin, Parathormone, PTH peptide), gastrointestinal peptides (Vasoactive intestinal peptide, Bombesin, Cholecystokinin, Gastrin, Gastrin inhibitory peptide, Pancreatic peptide, Y peptide, Substance P and Neurotensin), growth factors (IGF-I and IGF-II, IGF binding proteins, Nerve growth factor, Epidermal growth factor and TGF alpha, TGF beta, Growth Inhibitors MDGI and MAF, and Platelet derived growth factor), and other hormones including PGE, PGF2 alpha, cAMP, cGMP, Delta sleep inducing peptide, Transferrin, Lactoferrin, Casomorphin and Erythropoietin. (Cohen, *Milk the Deadly Poison*, p. 238; quoting from Clark Grosvenor, *Journal of Endocrine Reviews*, Vol. 14, No. 6, 1992.)

We men are prone to prostate enlargement and prostate cancer, and the problem is greater among heavy milk drinkers. (Neal Barnard, *Eat Right, Live Longer*, p. 120, citing medical journals. See the *Cancer* section of this book, p. 273, for a discussion of how animal-based foods promote cancer growth.)

Cow's milk is marketed as a good source of calcium. Milk does contain a significant amount of calcium, but it is not in a form that is particularly usable. The calcium found in milk is only 25 to 28 percent bioavailable, whereas the calcium citrate in calcium fortified orange juice is 100 percent bio-available. Milk contains little magnesium, and the body cannot turn calcium into bone without the presence of magnesium. When there is insufficient magnesium, calcium, instead of going into the bones, turns into kidney stones, atherosclerotic plaque, and the arthritic buildup which results in gout. The recommended daily allowance for calcium in the United States is 1500 mg.; for magnesium 750 mg.

Dr. Attwood points out that when cow's milk is judged on the basis of milligrams of calcium per 100 calories, it turns out to be a mediocre source: Turnip, collard, and mustard greens respectively contain 650, 548, and 490 mg. of calcium per 100 calories; cow's milk only 245 mg., and cheddar cheese only 179 mg. (Charles R. Attwood, M.D., *Dr. Attwood's Low-Fat Prescription for Kids*, p. 65-68.)

Cow's milk is 15 percent protein as a percentage of caloric content. Those who eat animal-based foods eat too much calcium depleting protein already, and drinking milk adds to the excess. Drinking milk may be like walking up a down escalator. Human milk, on the other hand, is only three percent protein as a percentage of calories. A better strategy for obtaining calcium is to eat greens, beans, almonds, and the many other plant-based foods that are lower in protein and higher in calcium. (G. Bell, *Textbook of Physiology and Biochemistry*, p. 167-170; J. McDougall, *The McDougall Plan*, p. 101, cited in John Robbins, *Diet for a New America*, p. 175.)

Does cow's milk deliver more calcium to the bones than is consumed in neutralizing the acid condition that milk protein creates and in excreting the by-products of milk protein digestion? Nutritionists conclude that milk does deliver a little more calcium than the body uses up in its digestion. However, when the many other negative factors are considered, milk is not a good bargain. As mentioned above, milk is lacking in the magnesium needed to assimilate calcium; unless you pop a magnesium supplement with each glass of milk, you are wasting the calcium in milk. While milk is high in protein, it contains no fiber. It is low in iron. When we eat milk products, we consume a large part of the protein and calories we can safely eat, but in so doing we have displaced the proteins and calories that contain the fiber, iron, and magnesium we need—such as grains, legumes, and vegetables. If we consume the milk as well as the grains, legumes, and vegetables, we end up consuming too much protein and calories.

So, why do Westerners think of milk when they think of calcium? Because of the constant propaganda of dairy industry advertisers. From childhood on we hear “milk... calcium; milk... calcium; milk... calcium; milk... calcium ten thousand times. After so much brainwashing it is hard for people to believe otherwise. It is amazing that this fraud has persisted so long.

CHICKEN AND EGGS

Chicken meat contains only slightly less fat and cholesterol than beef. Don't think that you are making chicken into a low fat food by stripping off the skin and cutting off the visible fat. Most of the fat is imbedded in muscle tissue. This is true of other meats too. (M. Flynn, “Serum Lipids in Humans Fed Diets Containing Beef or Fish and Poultry, *American Journal of Clinical Nutrition*, 34:2734, 1981; “Dietary ‘Meats’ and Serum Lipids,” *American Journal of Clinical Nutrition*, 35:935, 1982.)

Eating chicken and eggs is causally linked with osteoporosis because, like red meat, fish, and dairy products, eggs and chicken contain highly concentrated, high-sulfur protein. Further, egg yolks contain the highest concentration of cholesterol of any food.

Salmonella is a bacteria that infects around 16 percent of chickens. (Marian Burrow, “More Salmonella is Reported in Chickens,” *New York Times*, March 8, 2006.) The FDA estimated that in 1985 four million people contracted salmonellosis, many of the cases being incorrectly thought to be a bad case of the flu. One can contract salmonellosis over and over again. It is believed that repeated reinfection by salmonellosis causes or exacerbates arthritis. (Klaper, *Vegan Nutrition*, p. 23.) Salmonella infection of chickens is spread by flies and as chicken manure and chicken flesh are fed back to chickens. Chicken manure is also fed to cattle and pigs, which is why beef and pork can be infected with salmonella. (“Salmonella in Slaughter Cattle,” *Journal of the American Veterinary Medical Association*, 160 (6):884, 1972; “Salmonella Contamination in a Commercial Poultry Processing operation,” *Poultry Science*, 53:814-21, 1974; H. Wellford, *Sowing the Wind*, p. 133-134.)

Chicken eggs, too, are infected with salmonellosis, and the salmonella bacteria is not just on the outside of the shell, but throughout the egg. (“Salmonella Contamination Linked to Raw Eggs—CDC Atlanta Reports,” *Nutrition Week: Community Nutrition Institute*, Vol. XVIII, No. 17, April 28, 1988, Washington, D.C.) If you cook with chicken, eggs, beef, or pork, you may contaminate your kitchen cutting board, counter top, and utensils. Thus, your salad, the vegetables, and the bread you cut on the cutting board, can all become infected with salmonella.



You cannot see these germs on your kitchen counter, but if you eat animal-based foods, you must always be on guard against them. I wonder why someone would bring food into the kitchen that will contaminate it with bacteria that can sicken us. On the other hand, I don't have to take special precautions in my kitchen. I don't have to wash my sink and countertop with chlorine and wonder if I have killed all the bacteria. I just keep animal-based foods out.

Hardy strains of salmonella continue to evolve, some of which are not even killed by cooking. (Irvin Molotsky, “Antibiotics in Animal Feed Linked to Human Ills,” *New York Times*, February 22, 1987.)

Chicken and egg producers, stung by the accusation that a large percentage of their product is infected with salmonella, have developed a method for inoculating chicks against the salmonella bacteria shortly after birth. If producers continue to raise chickens in cages with manure raining down on them and continue to feed them recycled chicken manure, it is questionable whether their efforts will succeed. Even if these unfortunate birds become immune to salmonella, they will continue to be subject to other diseases.

Dr. Michael Klaper points out that cancer of the lymph nodes is common among chickens, that chicken lymphoma is “virtually indistinguishable” from human lymphoma, and that there is evidence that lymphoma can be transferred to humans through contact with chickens and eating chicken meat. Poultry workers have a high rate of lymph cancer. (Klaper, *Vegan Nutrition*, p. 23.)

CATTLE AND PIGS

Just as dairy cattle are bred to produce high-fat milk, beef cattle and pigs are specifically bred and fed to produce fatty meat. People seem to prefer the taste of fat, and so fattier meat is graded higher according to government standards. It brings a higher price too. Domesticated animals are fattened on corn, soy, and other grains, as well as the renderings of other animals and other amazing things: In this country, beef cattle and pigs are routinely fed such delicacies as cardboard, sawdust, wood chips, pulp mill ammonia waste, common garbage, cement dust, manure, chicken feathers, henhouse droppings, and newspaper (even though the ink is often made out of petroleum). If it fattens the animal, the profiteers will feed it to them. Obviously, this is not the natural diet of cattle or pigs.

According to Dr. Udo Erasmus:

When we compare their fat content, we discover that domesticated animals contain far more fat than the wild animals our ancestors hunted... . Beef contains between 18 and 41% fat (by weight; double that for an estimate of percentage of calories from fat);... pork runs between 35 and 50% fat. In comparison, venison and moose usually carry about 2 to 3% (maximum 5%) fat... . Wild pigs carry only 1 to 3% fat... . In short, domestication

and breeding has increased the fat content of the ‘hunter’s diet’. (Udo Erasmus, *Fats that Heal, Fats that Kill*, p. 223ff.; parenthetical remarks are those of Udo.)

The muscle tissues of both wild cattle and pigs contain small amounts of the essential fatty acids, Omega-6 linoleic acid (LA) and Omega-3 alpha-linolenic acid (ALA), however, the meat of domesticated animals contains much less, and there is so much of the nonessential fats in domesticated animals that the essential fats are diluted and rendered ineffective. Other fats compete with the essential fatty acids for necessary enzymes. Brain tissues of all animals are high in DHA and EPA, which are derived from ALA, but it is unwise to eat the brains of wild or domesticated animals due to real concerns about spongiform brain disease.

The essential fatty acids contained in meat come in part from the food the animals consume. If the animals are fed corn and soy, their tissues will contain less essential fatty acids. It makes much more sense to obtain the essential fatty acids from their original vegetable sources instead of getting them indirectly through eating meat. (Udo Erasmus, *Fats That Heal, Fats That Kill*, p. 223 ff.)

Food animals are what they eat. What else would they be? There is no incinerator in the intestines of food animals that transforms what they eat into meat. Digestion does not deconstruct food completely. Factory farm animals eat trash, and therefore they are made of trash. And because there is no incinerator in our intestines, when we eat animal foods, we too are made of trash.

Until recently, cattle were fed cattle renderings, and they still are fed the renderings of other animals. This includes the meat of “downers”—animals that are injured in transit and cannot walk into the slaughterhouse—, animals that are dead on arrival, and animals infected with cancer. Pet food is usually made from such leftovers. Why are cows fed cannibalistically? It fattens them up. Recent restrictions have limited the feeding of cattle to cattle. However, cattle gelatin and blood may still be fed back to cattle. Beef may still be fed to other animals, and the meat of other animals may still be fed to cattle. (See the *Spongiform Brain Disease* section of this book, p. 280.)

Cattle in feedlots produce mountains of manure, which, in summer, dries into a powder that blows in the wind. Feedlot workers complain that it coats the inside of their mouths. Manure also breeds billions of flies. To kill them, feedlot operators spray insecticides around the feed lot and right onto the animals. However, this is only temporarily effective since new generations of flies soon hatch out of the manure. So oral larvicide is fed to cattle. This is an insecticide that cattle eat and which passes through the cattle’s alimentary canal to produce insecticide-laden manure that is toxic to flies. It is legal to feed these poisons to cattle up to the day of slaughter. So the insecticide is in the meat you eat. Drop into McDonald’s and say, “I’ll have my Big Mac with mustard, pickle, and oral larvicide.”

GROWTH HORMONES

Virtually all feedlot cattle are given growth hormones, which are known to be carcinogenic. The human breast, uterus, and prostate are especially sensitive to these hormones. Hormone pellets are implanted under the skin behind the cow’s ear and legally may remain there right up to the time of slaughter. Eat with the presumption that no amount of growth hormones is safe for human consumption. (John Robbins, *Diet For a New America*, p. 110 ff.; C. David Coats, *Old MacDonald’s Factory Farm*, p. 72.; Jeremy Rifkin, *Beyond Beef*, p. 12 f.)

IMMUNITY TO ANTIBIOTICS, DISEASES FROM ANIMALS

American farm animals—almost all of the poultry, 90 percent of the pigs, and 70 percent of the cattle—are fed daily, sub-therapeutic doses of antibiotics. In the U.S., 55 percent of all antibiotics produced are fed to farm animals. As a result strains of microbes, including the sometimes fatal salmonella and enterococcus faecium, have evolved which are resistant to antibiotics, including antibiotics of last resort such as Synercid. These resistant microbes are now common in chicken, turkey, beef, and pork. (David G. White, et al., (“The Isolation of Antibiotic-Resistant Salmonella from Retail Ground Meats,” *New England Journal of Medicine*, October 18, 2001.) In 1960, 13 percent of staphylococci strains were resistant to penicillin; in 1988, 91 percent were. (Irvin Molotsky, “Animal Antibiotics Tied to Illnesses in Humans,” *New York Times*, February 22, 1987; cited in *Our Food Our World: The Realities of an Animal-Based Diet*, p. 16.) European countries resist importation of American meat. They have banned routine feeding of antibiotics to food animals. Calls are made for the same action in the United States, but the government has not acted.

Today there is only one drug, vancomycin, that can kill certain strains of pneumococcus, which causes pneumonia. Certain strains of enterococcus, which causes wound and blood infections, are immune to absolutely all antibiotics. (Paul Raeburn, “Evolving Bacteria Pose Deadly Threat: Antibiotics Losing Control, Researcher Warns,” *Seattle Times*, Associated Press article, February 20, 1994.)

Earthsave president, Howard Lyman, citing Julie L. Gereberding, Director of the CDC, points out that “even of the last twelve emerging infectious diseases that we’re aware of in the world, that have had human health consequences, have probably arisen from animal sources,” referring to such diseases as ebola, AIDS, SARS, and bird flu. Some may come from human consumption of so-called bush meat in Africa. He continues:

We should not be surprised to learn this, as humans have a long history of falling victim to diseases that afflicted animals first. Measles and smallpox originated in cows, anthrax in wild sheep, tuberculosis in goats, whooping cough in pigs, and typhoid fever in chickens. Other diseases that humans picked up from animals include yellow fever, bubonic plague, influenza, and leprosy.” (Howard Lyman, *No More Bull!* pp. 64-65.)

Thus it would seem that animal husbandry is a huge, unhealthy experiment in exposing humans to diseases.

CHOLESTEROL, HYPERTENSION, AND CARDIOVASCULAR DISEASE

It is often said that plants contain no cholesterol. However, plants produce trace amounts of cholesterol as one of the steps in producing other substances plants need. Nevertheless, amounts are so low—less than one milligram per 100 calories of food energy—that they cannot be detected by USDA assay methods. According to USDA regulations, it is legal to report the amount of cholesterol in plant-based foods as zero. (William Harris, M.D., *The Scientific Basis of Vegetarianism*, p. 31.)

Cholesterol is important to health; with it the body builds cell membranes and numerous hormones. However, there is no need to eat it; our bodies manufacture cholesterol out of the sugars, fats, and proteins we eat. Whereas unsaturated fats make cell membranes more porous, cholesterol makes them more rigid and impervious. Alcohol makes cell membranes more permeable, and in response to excess alcohol consumption, the body produces more cholesterol.

Cholesterol melts only at high temperatures, above 149° C. In our bodies it is waxy and hard.

Drugs can be administered which reduce blood cholesterol, however, without more comprehensive treatment, these drugs do not reduce cardiovascular disease. (Dean Ornish, M.D., *Program for Reversing Heart Disease*, p. 57.) Inuit who consume their traditional fish-based diet, consume prodigious amounts of cholesterol but have relatively little cardiovascular disease. This is because the fish they eat contains essential fatty acids that help dissolve cholesterol. However, they generally suffer from other serious diseases such as osteoporosis and have short life spans.

Those of the orthomolecular nutrition school say that as long as cholesterol consumption is kept down to some reasonable level, cardiovascular disease can be reduced by administering the right vitamins and minerals, including vitamin C, vitamin B-3, calcium, zinc, copper, and chromium. They also recommend eating lots a fiber. (Udo Erasmus, *Fats That Heal, Fats That Kill*, p. 178 ff..)

Dr. Linus Pauling, Nobel Prize winner, has proposed that most people live constantly with mild scurvy because we consume insufficient amounts of vitamin C. In scurvy, the blood vessels leak blood into the body, and the gums bleed and recede. In response, the body patches the leaks with cholesterol. This saves our lives in the short run but gives us cardiovascular disease in the long run.

I hypothesize that our need for large amounts of vitamin C, indicates that we evolved eating large amounts of fruits and vegetables.

Excess refined sugars are quickly turned into triglycerides, the basic building blocks of fat, and then stored as fat or cholesterol. When refined sugars are consumed, they interfere with the work of antioxidants such as vitamin C.

Atherosclerosis occurs when cholesterol and fatty acids are oxidized, that is, combined with oxygen. Antioxidants such as vitamin C, vitamin E, beta carotene, selenium, and sulfur help prevent oxidation, and should be consumed regularly. A vegetarian diet with a lot of complex carbohydrates and green vegetables is the best source of such antioxidants.

The body can synthesize cholesterol, but it cannot break it down. When the cholesterol we make is added to the cholesterol we eat, we have a surplus of it. Although we cannot break down the excess, we can excrete it, but we can excrete it only if there is plenty of fiber in the intestines to absorb it and carry it away. Therefore, we should eat a lot of fiber and bulky green roughage to absorb the cholesterol and carry the food out of the body quickly before the cholesterol is reabsorbed.

For those who eat a high-fat diet, blood vessels become filled with cholesterol plaque, a condition called atherosclerosis. This process begins for those who eat meat, milk, and eggs when they are very young. Beginning during the Korean War, autopsies were done on soldiers who died. Coroners found that even the arteries of teenagers were streaked with yellow cholesterol. The atherosclerotic process ultimately culminates in high blood pressure and constricted and blocked arteries to the heart, brain, kidneys, prostate, and other organs.

A dear friend of mine recently learned she had a 98 percent blockage of the arteries that serve her kidneys, and so her physician ran a balloon through them in a procedure called angioplasty. She told me of her diet: eggs, bacon, sausage, hash fries, and no green vegetables for breakfast; ham or beef sandwich for lunch and no green vegetables; pot roast, ham, steak, barbecued chicken for dinner, with a salad and green beans. I was aghast. Her arteries will clog up again unless she changes her diet.

As blood vessels fill with plaque, their diameter is reduced, which increases blood pressure. In addition, they become less able to stretch and thus less able to absorb the extra pressure. Saturated fats in the bloodstream stimulate platelets to clump together; this slows down blood flow and also contributes to high blood pressure. When blood vessels in the brain clog and burst, brain cells die, a malady referred to as stroke.

Drugs typically prescribed for hypertension (high blood pressure) can have disagreeable side effects, so much so that those who are prescribed them often do not take them as directed. Beta blockers cause fatigue. Thiazide diuretics increase blood sugar levels, decrease blood levels of potassium and magnesium, and raise cholesterol levels, particularly LDL “bad” cholesterol levels. Blood vessel dilators can reduce sex drive and result in impotence. All of them treat the symptoms instead of the cause—the consumption of animal-based foods along with insufficient consumption of fruits, vegetables and fiber.

According to Dr. Ornish, 40 percent of people in the U.S. have at least moderately high blood pressure. He points out that if all these people were prescribed these very expensive drugs, the cost would be astronomical. He notes that in countries where people eat a low-fat diet, high blood pressure, high cholesterol levels and atherosclerosis are rare. He points out that a review of 17 large-scale studies of 43,000 patients who were taking these drugs found that “... decreasing blood pressure with drugs did not significantly reduce coronary heart disease mortality.” (Dean Ornish, M.D., *Program for Reversing Heart Disease*, p. 62., citing medical journals.)

Those who switch to a high-fiber, strictly vegetarian diet lose weight, which helps them lower their blood pressure. Blood pressure drops even before weight begins to come off, and blood pressure levels achieved through dietary change are even lower than those achieved by taking drugs. One of the reasons this change occurs is because plant-based foods contain the right sodium-potassium balance. Only 15 percent of the sodium in the standard United States diet comes from salt sprinkled on food or added by the cook. Most is imbedded in animal-based foods. Our bodies naturally tend to contain too much sodium, as do animal-based foods. Conversely, our bodies are naturally short of potassium, as are animal-based foods. Plant-based foods are naturally low in the sodium we don’t need and high in the potassium we do need. (Michael Klaper, M.D., *Vegan Nutrition*, p. 9; Charles R. Attwood, M.D., *Dr. Attwood’s Low-Fat Prescription for Kids*, p. 108.)

It is part of the mechanistic paradigm of our age that we favor adding some magic pill to our diets to solve our health problems instead of simply eating the foods that make us healthy and not eating the foods that make us unhealthy. You can tell by their advertising that the manufacturers of the magic pills want us to hold to this paradigm, because \$12.5 billion is spent yearly on blood pressure drugs. (Neal Barnard, *Eat Right, Live Longer*, p. 132-134.)

Heart attack is the most common cause of death in the U.S. Among men who have an “average” level of blood cholesterol, the risk of death by heart attack is 50 percent. In contrast, the risk of death by heart attack is only 4 percent for those who eat a strictly vegetarian diet. (T. Gordon, “Premature Mortality from Coronary Heart Disease: The Framingham Study,” *Journal of the American Medical Association*, 1971, 215:1617.)

According to Dr. Ornish, switching to a plant-based diet can be as helpful—in non-emergency cases—as having a coronary bypass operation, and at a savings of \$50,000. The man whose coronary arteries—those which feed the heart—are clogged has only two choices if he wants to live longer: 1) have a heart bypass operation and switch to a plant-based diet, or 2) if there is time, first switch to a plant-based diet and see if the body can clean itself out, thus avoiding the bypass operation altogether. Caveat: In all cases, one should consult with his or her physician before making treatment decisions.

Ad agencies for the meat, egg, and dairy industries claim that people who eat the standard, high cholesterol, American diet have “average” levels of cholesterol. However, they define average as 290 to 330 milligrams of cholesterol per milliliter of blood. The person who has such cholesterol levels has ten times the chance of dying of heart disease as a person with a level of 190. Strict vegetarians maintain levels this low and lower. The deception here is that the saturated fat industry equates “average” with “healthy.” Bow again to the false god Higher Profits.

The good news is that people on their way to heart attacks can actually reduce the fatty deposits on the walls of their arteries by sharply reducing their consumption of cholesterol and saturated fats and by eating a plant-based diet rich in complex carbohydrates, vegetables, and other essential vegetable oils and nutrients. Angina disappears, and people live longer and healthier lives. Each ten percent reduction in the consumption of cholesterol and saturated fats produces a twenty percent reduction in the risk of heart disease. Studies have found that strict vegetarians have total cholesterol levels that average below 180. My total cholesterol is 139; HDL is 46 and LDL is 77. My blood pressure is 115 over 72. (M. Thorogood, "Plasma Lipids and Lipoprotein Cholesterol Concentrations in People With Different Diets in Britain," *British Medical Journal*, August 8, 1987, 295(6594), p. 351-353; M. Fisher, "The Effect of Vegetarian Diets on Plasma Lipid and Platelet Levels," *Archives of Internal Medicine*, June, 1986, 146(6), p. 1193-7.)

Seventh Day Adventists eat a lacto-ovo vegetarian diet at their church, and 52 percent eat a such a diet generally. A study found that life expectancy at age 35 was 77 years for California Seventh Day Adventists compared with 71 years for California men in general. The coronary death rate for lacto-ovo vegetarian Adventist men 35 to 64 years old was 12 percent of that of California men in general. Presumably, the difference would have been even greater if these Adventists had been strict vegans. (Jorge B. Flechas, M.D., "Vegetarianism and Seventh Day Adventists," *Nutrition and Vegetarianism: Proceedings of Public Health Nutrition Update*, May, 1981, Chapel Hill, p. 53-67.)

Unfortunately, but not surprisingly, Dave Thomas, founder of Wendy's International, and writer of Wendy's clever burger commercials, had a heart attack and heart bypass surgery at age 64. (*Seattle Post-Intelligencer*, December 17, 1996.) Dave recovered but didn't learn his lesson. He went back to eating hamburgers and steak, although in moderation, and his wife got new recipes for him and broadened his diet. I had hoped that Dave would convert his entire product line to tofu burgers and tofu dogs and live a long and healthy life. ("Still Eating Burgers, Thomas Recovers from a Massive Coronary," *Seattle Times*, March 16, 1997.) But Dave died of liver cancer in January, 2002.

The best way to prevent or diminish atherosclerosis is to eat a strictly vegetarian diet that is high in complex carbohydrates and plant-based bulk. Such a diet is high in antioxidants, high in fiber and bulk, and high in vitamins and minerals. Those who eat a strictly vegetarian diet cut their level of cardiovascular disease by three-fourths. (Authorities that elaborate on the brief overview given in this section include: Udo Erasmus, *Fats That Heal, Fats That Kill*, Chapter 12, Cholesterol, p. 64 ff., Chapter 37, Orthomolecular Nutrition, p. 178 ff., and Chapter 71, Is the Cholesterol Theory Wrong, p. 331 ff.; Dean Ornish, M.D., *Program for Reversing Heart Disease*, p. 49 ff.; Neal Barnard, *Eat Right, Live Longer*, p. 135 ff.)

DIABETES

Insulin is fat soluble. Thus, a diet high in fat absorbs insulin and prevents it from doing its job. Adult-onset, Type II diabetics who switch to a low fat diet are able to reduce their intake of insulin or oral hypoglycemic agents or eliminate them entirely. Likewise, childhood-onset Type I diabetics who change their diets can dramatically reduce insulin intake. (Neal Barnard, *Eat Right, Live Longer*, p. 59 ff.)

The occurrence of childhood-onset diabetes is most frequent in countries where people eat the most milk products. (Charles R. Attwood, M.D., *Dr. Attwood's Low-Fat Prescription for Kids*, p. 63; N. Seppa, "Cows' Milk, Diabetes Connection Bolstered," *ScienceNewsOnline*, June 26, 1999, Vol. 155: No. 26.) Bovine serum albumen, a protein in cow's milk, is very similar to a naturally-occurring protein in the insulin-producing cells of the pancreas. The body's immune system perceives bovine serum albumin as an invading bacteria and attacks it, but the immature immune system often also makes the mistake

of attacking the similar protein in the pancreas as well, permanently wiping out these cells and thus the body's ability to manufacture insulin. ("Two New Studies Link Cow's Milk with Diabetes," *Seattle Post-Intelligencer*, December 23, 1994, p. A5, referring to Charles F. Verge, et al., "Environmental Factors in Childhood IDDM," *Diabetes Care*, Vol. 17:12 (December, 1994), p. 1381; Danila Fava, et al., "Relationship Between Dairy Product Consumption and Incidence of IDDM in Childhood in Italy," *Diabetes Care*, 17:12 (December, 1994), p. 1488; J. Karjalainen, J.M. Martin, M. Knip, et al., "A Bovine Albumin Peptide as a Possible Trigger of Insulin-Dependent Diabetes Mellitus," *New England Journal of Medicine*, Vol. 327 (1992), pp. 302-7; J. Kostraba, "Early Exposure to Cow's Milk and Solid Foods in Infancy: Genetic Predisposition and Risk of IDDM," *Diabetes*, Vol. 42 (1993), pp. 288-295; R. Troncone, "Increased Intestinal Sugar Permeability After Challenge in Children with Cow's Milk Allergy or Intolerance," *Allergy*, Vol. 49 (1994), pp. 142-146.)

Never, never feed cow's milk to young children.

CANCER

According to Dr. Linus Pauling, "Everyone should know the war on cancer..." initiated in 1971 by President Nixon, "... is largely a fraud." This is because fifty percent of cancers are diet related, while only one percent of the anticancer budget is allocated to diet research. (Linus Pauling, quoted in P. Chowka, "Cancer Research—The \$20 Billion Failure," *Vegetarian Times*, December, 1981, p. 32, quoted in turn by John Robbins in *Diet For a New America*, p. 248.)

John Robbins describes the irony:

The three cancer treatments most fashionable today are surgery, radiation and chemotherapy. Each is invasive; each has devastating side effects; each treats only symptoms. And their rate of success is thoroughly underwhelming. (*Diet For a New America*, p. 249.)

And, I might add, each is expensive. Physicians and drug companies could provide education and counseling in how to change one's diet, which would be much more effective than these standard treatments, but there would be little profit in it for them.

Occasionally cures are declared, however, "cure" is defined as survival for five years after treatment. The person whose cancer recurs in the sixth year and who then dies is still counted among the "cured."

Changing to a plant-based, low-fat diet that is rich in raw, green vegetables is the best way to prevent cancer. Cancer is easier to prevent than to cure. As John Robbins says, it makes much more sense to erect a fence at the top of the cliff than to park more ambulances at the bottom.

Although orthodox medicine has had relatively little success in curing cancer, there is evidence that changing to a plant-based diet—in some cases and so long as the cancer is not too far advanced—can actually reverse cancer.

Says Dr. Erasmus:

Cancer results from a combination of malnutrition and internal pollution of the cells throughout the entire body. Tumors are the last stage of poisoning that affects the entire organism, manifesting in various locations, before the poisoned body dies... . The entire body must be nutritionally enriched and detoxified if cancer is to be permanently reversed. Healers also agree that cancer usually requires months or years to develop, gradually, through consistent, long-term mistakes in living... . Cancer represents the most extreme form of

nutritional collapse. Metabolic rate is decreased. Oxygen uptake is inhibited. Cell division often remains incomplete. (Udo Erasmus, *Fats that Heal, Fats that Kill*, p. 363.)

According to Dr. Erasmus, there are cancer-causing viruses that live in us all our lives; we are constantly exposed to cancer-causing chemicals; and some of us have genetic characteristics that tend to promote or allow the development of cancer. Our immune systems can fend off cancers if we maintain a certain body chemistry; such chemistry is created by eating a plant-based diet. To illustrate his point, Dr. Erasmus says, “An asparagus medium will produce a benign form while a pork medium will transform the bug into its virulent form. . . .” (Udo Erasmus, *Fats that Heal, Fats that Kill*, p. 364.)

When body chemistry is not right, the immune system cannot carry out its defensive role: Cancer-causing organisms proliferate; or the immune system fails to resist the effect of carcinogenic chemicals; or the immune system fails to counteract the effect of genetic tendencies. In either case, cancer grows. The immune system fights. Probably we all fight many such battles. We win most of them, however, after many battles, the immune system may lose its defensive capacity.

Probably we all have cancers at various times. Usually our immune system dissolves and expels them or at least holds them at bay. We are all exposed to chemical toxins that can cause cancer, but we do not always develop cancer as long as our immune systems remain strong. And some people have genes that encourage or allow certain kinds of cancer—unless such genes are held in check by healthy body chemistry. Having “bad genes” is not a reason to abandon hope and eat anything, but all the more reason to eat a healthy, anti-cancer diet.

What foods, vitamins, and minerals help create a body chemistry hostile to cancer? Vegetables, sprouts, and raw greens, high fiber and high bulk foods, lots of clean water that is free of fluoride and chlorine; the essential fatty acids linoleic acid and alpha-linolenic acid, soy, vitamins C, B-2, B-3 and B-6, D, and E, pantothenic acid, choline, iodine, methionine, carotene, bioflavonoids, glutathione, cysteine, magnesium, potassium, selenium, zinc, manganese, copper, and selenium. (Udo Erasmus, *Fats that Heal, Fats that Kill*, p. 366 f.; Neal Barnard, *Eat Right, Live Longer*, p. 40-44.) To get chlorine out of your drinking and cooking water, let the water sit in a pan overnight. The chlorine will evaporate.

All these nutrients can be obtained from plant-based foods. The only animal-based food which might be necessary—although only for people who have weakened immune systems and cannot convert ALA into DHA—is cold-water fish. And fish or fish oil are is not even necessary now that algae based DHA supplements are available, www.NuTru.com. (See *Healthy Oils and Flax*, p. 253.)

What cancers have been reversed by switching to a plant-based diet?

“Melanoma and lung cancer. . . have been cured. Brain tumors have been taken apart molecule by molecule, leaving no scars. . . . Pancreatic, colon, breast, ovarian, uterine, liver, and bone cancers have been completely reversed. Carcinomas, sarcomas, gliomas, and skin cancers have been reversed. (Udo Erasmus, *Fats that Heal, Fats that Kill*, p. 367.)

If these cancers can be reversed in some cases, it is even easier to prevent them.

A person who eats animal-based food is much more likely to contract colon cancer than one who does not. Colon cancer is most prevalent in countries where meat and fat consumption is high. Likewise, Native Americans in the Northwest who eat a lot of smoked salmon have high rates of colon cancer. The digestion of cholesterol produces carcinogens, which linger in the human colon too long. The broiling or barbecuing of meat produces benzopyrene, another strong carcinogen. Meat, eggs, and dairy products are low in the fiber that can absorb carcinogens and sweep them out through the colon. (K. Carroll, *Journal of the National Cancer Institute*, Vol. 51, No. 5, December, 1973; E. Wynder, “Dietary Fat and Colon Cancer,” *Journal of the National Cancer Institute*, 54:7, 1975.)

Dr. Bernard, citing scholarly literature that compares the low-fat and low-meat diet of rural Asians, concludes:

Affluent [western] women who eat meat every day have nearly nine times the breast cancer risk compared to women who rarely or never eat meat... . While avoiding fatty foods in general is good advice, steering clear of animal products seems to be particularly important... . "... [S]witching from beef to turkey breast, taking the skin off the turkey, or changing from whole milk to skim, are largely a waste of time... They simply do not change the diet enough. (Neal Barnard, *Eat Right, Live Longer*, p. 106)

Dr. Robert M. Kradjian, medical doctor and breast cancer surgeon, wrote in 1994 that one in eight women will contract breast cancer; various other sources say the odds have worsened to one in seven. Of these, one in four will die. That is, around 3.6 percent of our women will die of a disease that is largely preventable. (*Save Yourself From Breast Cancer*, p. 3 f., Neal Barnard, *Eat Right Live Longer*, p. 105 ff.) "An estimated 192,200 women will be diagnosed with breast cancer in 2001, and about 40,200 will die of it... ." ("Mammograms' Worth Put To The Test," *Seattle Times*, December 27, 2001.)

In early 1997 there were dozens of articles in the newspapers about early detection of breast cancer. There was debate over whether insurance companies should pay for mammograms beginning at age 40 or at age 50. However, in not one single article was there any mention whatsoever of the possibility that cancer could be prevented. The silence reveals just how conventional science writers can be.

Dr. Kradjian highlights the absolute absurdity of the current medical paradigm as it is applied to breast cancer. The American Cancer Society and the media focus on early detection of breast cancer. It is true that mammogram x-ray tests can detect a tumor too small to detect through palpation. However, it is also true that for a cancer to be of sufficient size to be detected by mammograms—whether detected at age 40 or 50—, the cancer will already have divided 30 times, producing a tumor with billions of cells. To reach this size, the typical tumor will already have been growing for nine years! Most women who have breast cancer do not die of breast cancer itself, but of the cancer that has spread from the breast to other organs. (*Save Yourself From Breast Cancer*, p. 30 f.)

Thus, it would seem that women might be interested in knowing how to prevent breast cancer in the first place. Is it possible to prevent most breast cancers? Absolutely. Dr. Kradjian marshals overwhelming evidence from hundreds of unbiased studies that a diet that is high in vegetables and extremely low in animal fat—meaning little or no meat, milk, or eggs—dramatically reduces incidence of breast cancer and most other cancers.

The American Cancer Society actually publishes a booklet on cancer prevention that generally agrees with Dr. Kradjian, but it distributes it only upon request. (American Cancer Society, *Guidelines on Diet, Nutrition, and Cancer Prevention: Reducing the Risk of Cancer with Healthy Food Choices and Physical Activity*, 1996, 800-227-2345.)

Is it correct to presume that most women would not be willing to make the dietary "sacrifice" necessary to prevent breast cancer? Is the eating of meat, milk, and eggs so pleasurable that around 3.6 percent of our women would knowingly choose to die for it? Shouldn't women at least be provided the relevant facts so they could decide for themselves?

"Let's not politicize this issue," say various writers, and by that they mean we should not suggest that the American Cancer Society and medical authorities are covering up the prevention option. However, the issue has already been politicized by the complete blackout of information about prevention. The meat, milk, and egg industries make up a huge segment of our economy, and they exert pressure through various financial mechanisms on politicians, physicians, and the media to silence or divert any criticism

of the products they sell. “Let’s not politicize this issue” really means “Let’s not point out that the issue has already been politicized and hushed up.” In Ibsen’s *Enemy of the People*, the town fathers hushed up the fact that the city’s profitable baths were polluted. What goes on regarding diet and cancer is the same story on a much larger scale.

The media finally got up its courage and told the scandalous truth about tobacco. Will it tell the scandalous truth about the relationship between diet and cancer?

Dr. Kradjian explores the reasons why our medical profession neglects the prevention paradigm: because physicians do not study nutrition in school, because they are inclined by their training to prefer high-tech treatments, because for most physicians such a paradigm would require that they advocate a life-style which most do not themselves lead, because nutrition is boring work best left to other professions, and because medical insurance does not cover life-style education and thus there is no profit in prevention. (Robert M. Kradjian, *Save Yourself From Breast Cancer*, p. 32 f.)

Dr. Kradjian tells of his service as a surgeon aboard the S.S. Hope, a hospital ship that toured the Third World. The ship was anchored for a while in Sri Lanka, when he decided to demonstrate a breast cancer operation. Five thousands women per day were coming to Colombo’s General Hospital for checkups, but in the course of a year there was not a single case of breast cancer for him to operate on. (Robert M. Kradjian, *Save Yourself From Breast Cancer*, p. 24.) Sri Lankan women eat a mostly plant-based diet.

The average American eats 70 or more grams of animal protein each day, out of a total protein intake of 107 grams or more. In Asia, the story is far different. Out of a total of only fifty-six grams of protein, a mere eight is from animal sources. The incidence of breast cancer varies directly with the total amount of animal protein eaten. . . . (Robert M. Kradjian, *Save Yourself From Breast Cancer*, p. 104.)

Prevention is the appropriate paradigm, not early detection. We know how to prevent breast cancer—with a low-fat, high-fiber diet. The rate of breast cancer in countries where women eat such a diet is a small fraction of what it is in western countries.

It’s not just our women who are dying unnecessarily from cancer. Among men 30 to 40 years old, 30 percent have slowly-growing, latent cancer cells in their prostates, and by age 50 this rises to 40 percent. Prostate cancer waits for body chemistry to decline to the point where it can blossom into a more virulent form. It waits until the immune system is collapsing and is unable to destroy it. Men who eat a low-fat, plant-based diet harbor latent prostate cancers at a much lower rate than men in general, and their latent cancers are much less likely to become active. It is said that every man would die of prostate cancer if he could live long enough and not die of something else first. However, this clever saying is not true of those who eat a plant-based diet. (Neal Barnard, *Eat Right, Live Longer*, p. 121; P. Hill, “Environmental Factors of Breast and Prostatic Cancer,” *Cancer Research* (1981), 41:3817; Jerry Bishop, “Study Points to Another Tentative Link Between Red Meat and Prostate Cancer,” *Wall Street Journal*, February 16, 1994.)

Although most medical doctors say older men should have prostate exams on a regular basis, Dr. John A. McDougall, M.D., says that by the time such tests can detect prostate cancer it will have spread to other organs. For prostate cancer to be detectable by a PSA test, it will be six years old and contain a million cells, but it will be only the size of a pencil point. Only after ten years will it be large enough to be detectable by digital rectal examination or ultrasound. He says that prevention, through eating a strictly vegetarian diet, instead of early detection, through expensive testing, makes more sense. (*Journal of the American Medical Association* 272:773, 1994; “Ask Dr. McDougall,” *Veggie Life*, January, 1997, Vol. 4:5, Issue 23.)

The American Cancer Society's guidelines advise individuals to avoid all red meat because of its very strong link to colon and prostate cancer. They also recommend following a diet high in fruits, vegetables, and whole grains. A low-fat, strictly vegetarian diet is our best defense for preventing prostate cancer, and may actually slow its progress even after the cancer has started growing.

According to my naturopath, a man over age 45 should eat a small amount of saw palmetto berry each day for the rest of his life in order to avoid enlarged prostate and prostate cancer. Saw palmetto berry is available as "Prost-Ade" from Herbal Bio-Therapy-Enzymatic Therapy, Green Bay, Wisconsin 54305 and as "Pro-Mend" from The Herbalist, 6500 20th Ave., N.E., Seattle, WA 98115, 206-523-2600. I recommend that men buy the actual dried berries. They are hard; you have to spit out the seed; and they taste bitter and soapy; but they are cheaper than saw palmetto in capsules. Crack the husk with your teeth, spit out the seed, chew for several minutes, and swallow. The saw palmetto contained in capsules is nothing more than the ground up berries, so eating the berries is no different and maybe better because you can give the berries a good chewing before unleashing them on your stomach. You can buy berries in bulk, for \$12 per pound for whole berries or \$16 per pound for cut berries without the big heavy seeds from Saw Palmetto Harvesting Company, 800-986-6006. See www.mendosa.com/sawpalm.htm. Beta-sitosterol is the specific phytochemical in saw palmetto that has the desired effect, and in pill form it is much more concentrated. (All Natural Beta Prostate, www.sitosterol-saw-palmetto-prostatitis-treatment.com.)

Because livestock animals are fed large amounts of chemicals and corn and soybeans which have been grown with agrochemicals, their meat is heavily laced with those chemicals. Agrochemical pollution of breast milk is 35 times higher in women who eat the standard U.S. diet than in women who are vegetarians. (*The New England Journal of Medicine*, March 26, 1981; Lewis Regenstein, *How to Survive in America the Poisoned*, p. 173, cited in *Our Food Our World: The Realities of an Animal-Based Diet*, EarthSave Foundation, 1992, p. 15.)

The bovine leukemia virus infects up to 20 percent of all milk cows. Because milk is pooled, more than 20 percent of milk for sale in the stores contains the virus. The virus is not destroyed by the pasteurization process (161° F. or 72° C. for 15 seconds).

Is it a coincidence that the highest rates of leukemia are found in children ages 3 through 13, who consume the most milk and dairy products? It may also come as no surprise that the occupational group with the highest rate of leukemia is dairy farmers! These people not only drink cow's milk, but they splash it on their hands and breathe the air of the dairy barn for prolonged periods. (Michael Klaper, M.D., *Pregnancy, Children, and the Vegan Diet*, p. 42, citing medical journals.)

Dr. Klaper points out that cancer of the lymph nodes is common among chickens, that chicken lymphoma is "virtually indistinguishable" from human lymphoma, and that there is evidence that lymphoma can be transferred to humans through contact with chickens and through eating chicken meat. Poultry workers have a high rate of lymph cancer. (Michael Klaper, *Vegan Nutrition*, p. 23, citing medical journals.) Jacqueline Kennedy Onassis died of lymph cancer. Did she acquire it from some chicken salad sandwich? Ordinary cooking and digestion do not necessarily kill all the viruses we eat; and some can survive high temperatures.

For years broiler growers have been adding arsenic to chicken feed. There is arsenic in 70 percent of chicken meat. There is arsenic in chicken litter, which is dumped in massive quantities as fertilizer on lawns, backyard gardens, and farmland, including land that grows organic vegetables. From there arsenic filters down into drinking water wells. Arsenic is a "protected pollutant," a chemical which industries have to sell and cannot easily eliminate and which is tolerated at levels which are high in relation to the maximum contaminant level goal. (The same is true of fluoride.) Some broiler growers have halted the

practice, but others continue to deny there is any harm. The EPA has not banned the practice. Why feed arsenic in the form of Roxarsone to chickens? Arsenic kills the many parasites which infect commercial chickens and thus spurs growth in a big way. (“Arsenic in Chicken Production,” *Government & Policy*, April 9, 2007, Vol 85, no. 15, p. 34-35, <http://pubs.acs.org/cen/government/85/8515gov2.html>.) The Bush administration has resisted lowering allowed levels of arsenic in drinking water.

ARTHRITIS

Cholesterol deposits prevent the transfer of oxygen to joint tissues, which become inflamed as a result. A plant-based diet has been found to reduce arthritis symptoms dramatically. Meat, milk, and eggs contain cholesterol as well as other saturated fats. There is negligible cholesterol in plant-based foods, although some vegetable oils do contain saturated fats, which stimulate the body’s production of cholesterol. One who suffers from arthritis should stop eating all animal-based foods and, in addition, decrease consumption of vegetable oils except for the two essential fatty acids. (See the *Healthy Oils and Flax* section of this book.)

Milk is a common trigger of allergic reactions which can exacerbate arthritis symptoms. It is the proteins and not the fats in milk that cause the allergic reaction, so switching from whole milk to skim milk is not a solution. Other triggers are: corn, wheat, gluten, citrus fruits, eggs, red meat, sugar, fats in general, salt, caffeine, and the plants of the nightshade family such as tomatoes, potatoes, peppers, and eggplant. Not all triggers have an effect on all people, and so the method to follow to identify the triggers is first to eliminate all possible trigger foods from your diet and then gradually reintroduce them one at a time. (Neal Barnard, *Eat Right, Live Longer*, p. 176 ff.)

Up to 90 percent of all eggs and chickens are infected with salmonella. Salmonellosis is a major cause of arthritis. (See the *Chicken and Eggs* section of this book, p. 266. See Michael Klaper, M.D., *Vegan Nutrition: Pure and Simple*, p. 23; H. Wellford, *Sowing the Wind*, p. 133-134.)

ALA—alpha-linolenic acid, Omega-3—found in the oil from the seeds of hemp, flax, pumpkin, chia, kukui, and canola, reduces the pain and swelling of arthritis. (Udo Erasmus, *Fats that Heal, Fats that Kill*, p. 51, 272.)

There are reports that the herb Devils Claw, sold as Phytojoint, is effective against joint pain. (Arkopharma/Health, Newport NH, www.healthfromthesun.com, 888-655-2756.)

ULCERS

A plant-based diet can alleviate or eliminate ulcers. Animal-based foods stimulate the production of acid in the stomach because strong acid must be secreted for the digestion of the highly concentrated proteins in animal-based foods. Milk is often taken for ulcers, and it does provide temporary relief because it contains calcium, which raises stomach pH level and thus reduces acidity. However, after just a few more minutes, acidity increases because of the high protein content of milk—15 percent of available calories.

Food is medicine, and the best long-term treatment for ulcers is eating leafy green vegetables, which are very high in calcium, and cutting out the animal protein. Freshly ground flax seed buffers stomach acids and is good for ulcers. I eat the seeds straight. I chew, chew, chew, before I swallow. I also grow them and eat them raw, right out of my garden. Udo Erasmus, *Fats that Heal, Fats that Kill*, p. 284;

John Robbins' *Diet For a New America*, p. 283, citing medical journals.) Some ulcers are caused by infections of campylobacter or other bacteria, and they can be treated with common antibiotics or with naturopathic remedies such as goldenseal, echinacea, cayenne, and myrrh. Caveat: Consult a medical expert for medical advice.

MULTIPLE SCLEROSIS

M.S. occurs most frequently in cultures that consume the most fat. Children who drink cow's milk are more likely to develop M.S. Children need essential fatty acids for nerve development; they are found in sufficient quantities in mother's milk, but cow's milk contains relatively little of them. M.S. symptoms can be reduced and sometimes eliminated with a low-fat diet that includes the essential fatty acids, which are found in hemp, flax, walnut, chia, pumpkin, borage, and evening primrose. (Udo Erasmus, *Fats that Heal, Fats that Kill*, p. 272, 227; John Robbins, *Diet for a New America*, p. 279-282, citing medical journals; see the *Healthy Oils and Flax* section of this book, p. 253.) Borage and evening primrose are easy to grow and come back year after year without resowing. The flowers are tasty.

KIDNEY STONES AND GALLSTONES

Large amounts of calcium are required to digest animal protein. The kidneys must filter out and excrete this calcium. Calcium crystals precipitate in the kidneys, forming stones. Strict vegetarians almost never suffer from kidney stones.

The main ingredient in gallstones is cholesterol, and low-fat, high fiber diets can prevent the formation of new gall stones and dissolve existing stones. (John Robbins, *Diet for a New America*, p. 293, citing medical journals.)

SODIUM AND POTASSIUM

The human body generally contains more than enough sodium but too little potassium. The same is true of the animal-based foods that humans eat, and so eating animal-based foods contributes to the body's sodium excess and potassium shortage. In contrast, a plant-based diet is naturally low in the sodium we do not need and naturally high in the potassium we do need. (Michael Klaper, M.D., *Vegan Nutrition*, p. 9; Charles R. Attwood, M.D.; *Dr. Attwood's Low-Fat Prescription for Kids*, p. 108, each citing medical journals.)

SPONGIFORM BRAIN DISEASE

Spongiform brain disease is potentially an even greater threat than *E. coli* or even AIDS. There is now strong evidence that humans can acquire spongiform brain disease by eating the meat of infected animals. (Review several thousand articles on spongiform brain disease at www.mad-cow.org; see Sheldon Rampton and John Stauber, *Mad Cow U.S.A., Could the Nightmare Happen Here?* and Richard Rhodes, *Deadly Feasts, Tracking a Plague*.)

The disease is passed along by a newly-discovered particle, the “prion.” “Prion” stands for “small proteinaceous infectious particle.” Prions contain no DNA or RNA and thus are not viruses. They are crystals that rely on the host to reproduce, creating amyloid plaques and fibrils in the brain that interfere with brain function. They are impervious to the body’s immune system because they produce only the same fibrils that the brain ordinarily produces to constitute its framework, although they reproduce them in the wrong places and in inordinate quantities.

Prions resist destruction by digestion, ultraviolet radiation, antiviral drugs, formaldehyde, and nucleases—the enzymes that ordinarily “cut up” amino acids. Nor are they destroyed by heat, unless the meat containing the prions is heated to 340° F, that is burned to a black powder. (Sandra Blakeslee, “Heretical Theory on Brain Diseases Gains New Ground: Strange Maladies of Cows, Sheep and People May be Linked,” *New York Times*, October 8, 1994, p. 85; Ann Guidici Fettner, *Viruses: Agents of Change*, p. 256; Ashley Haase, “The Pathogenesis of Slow Virus Infections; Molecular Analyses,” *Journal of Infectious Diseases*, Vol. 153, No. 3, March, 1986, p. 441.) Spongiform brain disease may be passed along by a virus instead of a prion. (“The Same Prion Strain Causes vCJD and BSE,” *Nature*, October 2, 1997, p. 448.)

Spongiform brain disease in humans produces symptoms similar to those of Alzheimer’s disease, and there is speculation that 5.5 percent (according to a study done at the University of Pittsburgh) to 13 percent (according to a study done at Yale University) of all cases of Alzheimer’s are really spongiform brain disease—acquired by eating meat. Given the fact that around four million old people in the United States have Alzheimer’s disease, there could be a hidden epidemic of CJD. (Joel Bleifuss, “This Mad Pig Went to Market,” *In These Times*, May 26, 1997, p. 12.)

It is difficult to determine whether a person with Alzheimer’s symptoms has Alzheimer’s disease or spongiform brain disease until the person dies and an autopsy is done. However, an autopsy is not generally done just because a decedent had Alzheimer’s; a CAT scan is deemed sufficient proof of the presence of Alzheimer’s, and more invasive and expensive procedures are not part of standard guidelines or budgets. So we usually do not know whether a decedent with Alzheimer’s symptoms had Alzheimer’s disease or spongiform brain disease.

Areas in the brain infected by spongiform brain disease draw in water, and fluid-filled cysts develop. A Swiss cheese effect spreads across the brain, and there is an increase in pressure so that when the brain is opened for autopsy, the brain swells out of the opening. (David Stipp, “Detective Story: Brains Turn to Sponge and Scientists Find Some Bizarre Clues; Research on Deadly Disease May Bear on Alzheimer’s and Theories of Life Itself; an Outbreak in Pennsylvania (Spongiform Encephalopathy Research),” *Wall Street Journal*, January 7, 1991, p. A1; Mary Hager and Mark Hosenball, “Mad Cow Disease in the U.S.? Don’t Panic, But One Version’s Already Here,” *Newsweek*, April 8, 1996, p. 58 f.)

The British were so concerned about spongiform brain disease that many schools stopped serving beef. For a time, the Continent banned the importation of British beef. (Richard L. Holman, “Germans Snub British Beef; Mad-Cow Disease Fears Prompt Boycott,” *Wall Street Journal*, February 8, 1995, p. A10.) A quarter of the British population now claims to be vegetarian to some extent as a result of this concern. Some livestock experts say that the only way to eliminate the disease from the cattle population is to kill every bull, cow, and calf in Great Britain. This issue was under-reported in the U.S. press until 1996, probably for political reasons. News that would imply that meat is unhealthy would adversely affect agribusiness.

Unfortunately, the damage may already have been done, because the incubation period for spongiform brain disease in humans is as much as five or even twenty years. A hamburger eaten years ago may have started this “slow virus” within millions of people, with the results starting to appear in following decades.

Spongiform brain disease in cattle is referred to generally as Bovine Spongiform Encephalopathy (BSE) and is commonly called Mad Cow Disease. Spongiform brain disease in sheep is called scrapie and in humans is called Creutzfeldt-Jakob Disease or CJD.

Spongiform brain disease is common in mink. Beef and dairy cattle were routinely fed mink meat left over after these little animals are stripped of their fur, although the feeding of mink to cattle was banned under recent guidelines. Mink meat fattens beef cattle and increases the butterfat content of milk. BSE also spread into the cattle population as ground-up cattle leftovers and the remains of “downer cows,” cows who die suddenly for no known reason, were fed to other cattle to fatten them up for slaughter. This practice too has been banned, although it is still permitted to feed the blood, milk, and gelatin of cattle back to cattle. Cattle meat is routinely fed to chickens. Some chicken feed falls to the floor and is scooped up with the “chicken litter” and fed back to cattle. Through this back door, cows are still eating cows. Animals can also contract the disease by being in contact with each other. Wild animals such as mule deer and elk contract scrapie. Clearly, spongiform brain disease is contagious within species and among species. (Joel Bleifuss, “How Now Mad Cow,” *In These Times*, May 31, 1993, January 24, 1994, p. 12; Josie Clausiusz, “A Cult of Proteins,” *Discovery*, February, 1995, p. 29.)

Pigs are routinely fed the ground up meat of chickens and cattle, including downer cows. There is now evidence of a growing epidemic of downer pig disease. (Joel Bleifuss, “This Mad Pig Went to Market,” *In These Times*, May 26, 1997, p. 12.)

There are four types of CJD, the human variety of spongiform brain disease: Type 1, an inherited mutation; Type 2, acquired from taking in human tissue—as can happen in a corneal transplant; Type 3, a sporadic form, the cause of which is unknown, and Type 4, also referred to as New Variant CJD, which is derived from consuming tissues of cattle afflicted with BSE.

The first three CJD types affect older people and begin with “... dementia and movement disorders... New Variant CJD begins with depression and only later leads to problems in moving arms and legs... . It can affect children and younger people.” (Sandra Blakeslee, “New Evidence Said to Link Mad Cow Disease to Humans,” *New York Times*, September 30, 1997, p. A6.)

Cats and other mammals have become infected with spongiform brain disease by eating tissues from infected cattle and other animals. “That the glycoform ‘signature’ of new variant CJD [in humans] is seen in BSE [in cattle]... and in naturally transmitted BSE in domestic cat and experimental BSE in macaque, is consistent with the hypothesis that new variant CJD results from BSE transmission to humans.” (John Collinge, et. al., “Molecular Analysis of Prion Strain Variation and the Aetiology of ‘New Variant’ CJD,” *Nature*, Vol., 383, October 24, 1996, p. 689; Adriano Aguzzi and Charles Weissman, “A Suspicious Signature,” *Nature*, Vol. 383, October 24, 1996, p. 666 f.)

Viruses evolve rapidly, and they can produce different symptoms as they move into different animal populations; the same appears to be true of prions in the case of spongiform brain disease. According to Howard Lyman, formerly a feed lot operator and dairy farmer, there are a hundred thousand cases of sudden cattle death occurring in the United States each year, both in dairy and beef herds. This syndrome is known as Downer Cow Syndrome. Farmers find cattle dead in their pens for no apparent reason. It may be that these cattle are dying of a mutated form of spongiform brain disease that is much more lethal than its British cousin. Farmers tend not to report these deaths. It is contrary to their financial interest to do so: Cattle corpses can still be sold as pet food and as protein supplement to be fed to animals other than cattle.

A cow infected with Mad Cow Disease in Britain wobbles as it walks, acts generally disoriented, and dies slowly, while a North American cow with Downer Cow Syndrome simply falls down, is unable to get up, and dies quickly.

Research on the link between spongiform brain disease in animals and humans is only just beginning, however, there is good reason to believe that humans can acquire it by eating the meat of infected animals, just as cows, pigs, cats, and monkeys have. There are cases in Great Britain in which farmers who have worked with cattle have contracted the disease, apparently through proximity to diseased animals. The spongiform brain disease prion can jump species boundaries easily—from mink to cattle to sheep to pigs to monkeys to cats. Why should it not jump the boundary to humans? If the prion is so indestructible, why should we have any confidence that it cannot show up in dairy products, eggs, and gelatin?

A form of CJD was once common in Borneo among cannibalistic tribes. In the Fore language it is called Kuru. The Fore tribe practiced a devotional funerary custom in which children and sometimes women ate the remains of those who died, and Kuru was most common in children and women. As natives were weaned away from cannibalism, Kuru declined, with a five to ten year delay factor. (Ann Guidici Fettner, *Viruses: Agents of Change*, p. 258.)

The British banned the feeding of any mammal meat to any other mammal food animal. They also banned the use of cattle brains, livers, and other organs for human consumption. (Joel Bleifuss, “This Mad Pig Went to Market,” *In These Times*, May 26, 1997, p. 12.) Twelve years after Mad Cow Disease appeared in Great Britain, the FDA finally took action. (Lawrence K. Altman, “F.D.A. Proposal Would Ban Using Animal Tissue in Feed,” *New York Times*, January 3, 1997, p. A7.) Its rule prohibits using protein from any ruminant animal [plus mink] in the manufacture of ruminant feeds.”

Dr. David Kessler, FDA chief under the first George Bush and under Bill Clinton, said that the rule would create a “fire wall, a barrier... .” However, the barrier contains gaping holes. Although ruminant and mink meat may not be fed to ruminants, there are no restrictions on feeding any animal meat to poultry, sheep, swine and pets, because, according to Kessler, there is no evidence that such animals can contract or transmit spongiform brain disease. In 1989 the beef industry sold 800 million pounds of otherwise unusable cattle meat, including brains and spinal cords, for use as feed for beef and dairy cattle. In 1989 “... roughly 2.7 billion pounds of slaughterhouse remains were fed to poultry, and another 1.6 billion pounds went into feed for pigs.” (“Mad Cow Disease: Another Ugly Side Of Beef,” *EarthSave*, Summer, 1996, Vol. 7, No. 2, p. 2.)

There are no limits on feeding the blood, gelatin, and milk of cattle back to cattle, because allegedly these body parts never contain spongiform brain disease. There are no restrictions on the feeding of chicken meat to chickens or the feeding of pig meat to pigs, although a pig variant of spongiform brain disease has now been identified. (*PR Watch*, Vol. 4, No. 2, 2nd Quarter, 1997.) There are no restriction on the feeding of cattle meat to other animals, and there are no restrictions on the feeding of the meat of these other animals back to cattle. Sheep known to be infected with scrapie can be fed to any animal other than ruminants such as cows; sheep can be fed to chickens and pigs and even made into pet food. The rule should be that meat should not be fed to animals at all.

Why did the FDA wait 12 years to act? Why did it pass such a watered-down law? Profits. Only half of the total weight of a cow or pig can be sold as meat. Only part of the remainder is useful for the manufacture of glue or other products. What can be done with the remainder? The solution is to make it into feed for cattle, pigs, and chickens. Let’s assume that the slaughterhouse companies sell 4.3 billion pounds of leftovers each year for \$.10 a pound—just a guess. Not to sell this stuff for animal feed would mean a \$430 million impact on the bottom line each year, year after year.

Most shocking is the fact that there are no restrictions in the United States on the sale of any cattle tissues for human food. BSE is found in the brains and organs of infected cattle, including the livers, and in Great Britain these may not be used for human food. Meanwhile, in the United States, the FDA rule does not stop the routine practice of using cattle brains and organs in hamburger. (“Mad Cows and Englishmen: Worries Over a Deadly Ailment Butcher British Beef Sales,” *Business Week*, December 25, 1995, p. 44.) Bon appetit.

The FDA rule prohibited use of animal tissues in the manufacture of drugs for humans if the tissues come from Britain and any other countries where cattle have been found to be infected with BSE. There are no restrictions under the FDA rule on the use of tissues from United States beef or any other animals to manufacture drugs.

Dr. David Kessler, former FDA chief, said there was no proof that BSE could jump species boundaries from cattle to humans. Apparently, Kessler had not kept up with medical research, and he also disagreed with British Health Secretary Stephen Dorrell, who announced to the House of Commons on March 20, 1996, that Mad Cow Disease was the probable origin of an outbreak of human spongiform brain disease in that country. (Alan Cowell, “European Cover-Up Seen In Links To Cow Disease,” *New York Times*, October 17, 1996; “Mad Cows and Englishmen: Worries Over a Deadly Ailment Butcher British Beef Sales,” *Business Week*, December 25, 1995, p. 44.)

The FDA rule was designed to say that American beef has always been and always will be safe. It was designed to protect the profits of the saturated fat industry: Although it is prohibited to feed cows to cows, it is legal to feed cows to other animals and other animals to cows. The FDA left enough loopholes so that the industry will still be able to unload all its downers, renderings, and road kill. There is a lot of slaughterhouse profits at stake here, and the FDA is apparently under pressure to take minimal action. Apparently the FDA is going to wait a decade until people begin dying of spongiform brain disease before it erects a real “fire wall.” What the FDA should do is ban the feeding of all animal products to all animals. What a wise consumer would do is stop eating all animal foods.

RECOMBINANT BOVINE GROWTH HORMONE

Bovine growth hormone (BGH) is a naturally-occurring hormone which stimulates cows to put on weight and produce more milk. Monsanto scientists developed a way to clone growth hormone—recombinant bovine growth hormone (rBGH)—which when ingested makes cattle gain even more weight and give even more milk, 20 percent more. rBGH is sold under the trade name Prosilac. In 1997, some ten percent of the United States’ 9.5 million dairy cattle were being administered rBGH by such corporate giants as Land O’Lakes and Agri-Mark. (Jennifer Ferrara, “Sour Milk,” *In These Times*, May 26, 1997, p. 20.) Various estimates are made that around 60 percent of U.S. commercial milk is produced by cows injected with rBGH.

Supporters of rBGH point out that it is impossible to detect the difference between naturally occurring BGH and rBGH, also referred to as BST (bovine somatotrophine) and rBST (recombinant bovine somatotrophine). Of course it is impossible to tell the difference: rBGH is a clone of BGH. However, this does not prove that it is safe to inject dairy cows with rBGH; the cow receiving the injections has more total BGH. Injected cows produce milk that contains higher levels of insulin-like growth factor-one (IGF-1) than do cows which are not injected. The cow form of IGF-1 is identical to the human form. Increased levels of IGF-1 cause acromegaly in humans, a disease in which the hands, feet, nose, and chin are enlarged. Worse, IGF-1 not only stimulates the growth of normal cells; it also stimulates the growth of cancer cells and appears to be causally linked to breast cancer. (Neal D. Barnard, “Milk and

Breast Cancer,” *Good Medicine*, Winter, 1997, p. 12.) There is evidence it may cause colon tumors and other forms of cancer. Monsanto engineers discount this possibility, citing rat studies, however, Michael Hansen, a biologist at the Consumers Union, says these studies are flawed and that rBGH is a serious concern. (Joel Bleifuss, “Mucking With Milk,” *In These Times*, January 10, 1994, p. 12.)

The debate over rBGH in milk should include issues relating to spongiform brain disease because dairy cattle may be fed “cow chow” that is enriched with blood, milk, and gelatin from other cattle. This is done so they will produce more milk and milk that is richer in milk fat. Wholesale milk prices are based on fat levels. Dairy cows fed rBGH require more food intake to keep up with the stimulus of the growth hormone, so they are fed even more “cow chow.” While there is no evidence that humans can contract spongiform brain disease by drinking milk from an infected cow, there is no reason to doubt that this is at least a possibility.

For the sake of argument, assume that the mammary glands of cows infected with spongiform brain disease filter out the prion that passes on the disease and that it is impossible for humans to contract the disease by eating dairy products. Even if this is true, all dairy cows are eventually turned into hamburger. Even if milk is not a vector for human infection, the meat of dairy cows still might be a vector. This is another reason why we should renounce dairy products altogether.

The debate over rBGH in milk misses the point in several important ways: Not administering rBGH to dairy cows will not make cow’s milk a healthy food for us to consume. Nothing will do that. However, it will be a potentially less dangerous food if dairy cows are not fed rBGH and “cow chow” enriched with the blood, milk, and gelatin of other cattle and other animals. Further, the feeding of animals to animals, the feeding of artificial hormones to animals, and then human consumption of animal-based food is an invitation for more unexpected diseases to appear. Humans can contract leukemia, paratuberculosis, and salmonellosis from eating beef and milk. Humans can contract salmonellosis and lymph cancer from eating chicken. And we can contract spongiform brain disease from eating beef. (“The Same Prion Strain Causes vCJD and BSE,” *Nature*, October 2, 1997, p. 448.)

The debate should also highlight the power of money over public policy in this land of the false god Dollar: Attorney Michael Taylor worked for Monsanto to get the FDA to approve rBGH. He then went to work for the FDA in 1991 as its deputy commissioner, and he worked to set federal policy regarding rBGH. (Joel Bleifuss, “This Mad Pig Went to Market,” *In These Times*, May 26, 1997, p. 12.)

Opposition to Prosilac has been fierce. More and more milk vendors have refused to buy milk from cows administered Prosilac. Monsanto has gotten the message and has put its milk hormone division up for sale.

FIBER: EAT MORE OF THE GOOD, EVEN IF YOU KEEP EATING THE BAD

If you are determined to keep eating animal-based food, you should also eat a lot of raw vegetables, lightly cooked vegetables, sprouted grains and seeds, fruit, and whole grains to absorb the carcinogens and move the stuff through your gut as fast as possible to minimize the damage it will do.

If cholesterol remains in the intestines for several days, much of it will be reabsorbed back into the blood stream. But if you eat a lot of bulky vegetables, the cholesterol will be absorbed into the fiber and will pass out of you in 15 to 24 hours along with the fiber. If you eat a diet low in fiber and green roughage, food typically takes three days to make the same trip, so there is more time for cholesterol to be reabsorbed back into the bloodstream. (Udo Erasmus, *Fats That Heal, Fats That Kill*, p. 194.)

It is important to eat some of your vegetables raw or sprouted. Not only are they rich in the phytochemicals that prevent cancer, but they are also high in vitamin C and in the fiber and bulk our bodies need to “move things along.”

Excuse me if I bring up an indelicate subject: People who eat the typical American, high-fat, low-fiber diet frequently suffer from constipation. They form hard boluses of fecal matter that must be forced out with a lot of grunting and groaning over a period of fifteen minutes. If you have always eaten the typical, high-fat, low-fiber diet, you may be thinking, “Well, doesn’t everyone go to the toilet that way?” The answer is no. Those who eat a diet high in roughage wake up and after doing a little walking around or stretching sit down and deliver a soft, loose stool, not liquid, but loose, that—ka-bloop—falls out easily in ten seconds.

Fecal matter is made up of the residue of the food you eat plus a large amount of *E. coli* bacteria. For those eating a diet heavy in animal fat, boluses move slowly and get harder as the days go by. They scrape their way through the colon, causing hemorrhoids, the varicose veins of the rectum. Fecal matter gets stuck in the colon, and a person on a high-fat, low-fiber diet may carry several pounds of hard fecal matter permanently stuck in small pockets throughout the colon. These pockets become enlarged, causing a condition known as diverticulosis. Hard fecal matter can also block the opening to the appendix and result in appendicitis. The hard pushing necessary to expel these boluses can contribute to hiatal hernias and varicose veins. These problems can be avoided with a low-fat, high fiber diet. (Neal Barnard, M.D., *Eat Right, Live Longer*, p. 125-127, 130, 152; Dean Ornish, M.D., *Program for Reversing Heart Disease*, p. 280 f.)

I had the obligatory colonoscopy at age 50. I did it with out anesthetic so I would remember what was on the scope. The doctor said my colon was “as smooth as a baby’s butt.”

EXPOSING A WORLD OF LIES

It is one of life’s tragic ironies that the vendors of saturated fat have made us fear that our health and especially the health of our children will suffer if we *don’t* eat animal-based foods. The exact opposite is true: We will be less healthy and live a shorter life if we eat animal-based foods. White has been made black; black has been made white.

The saturated fat industry currently lies on a daily basis about what it sells, and that is unethical. These lies need to be exposed.

COULD I SOMEHOW BE WRONG?

See Chapter 15 of this book, entitled *Could I Somehow Be Wrong About All Of This?* p. 351, for a continuation of the themes in this chapter.

