



Healthy Earth, Healthy Eating

Why Human Wellness Depends on the Health of the Earth

BY CANDICE CHASE, PhD

Strawberries are too delicate to be picked by machine. The perfectly ripe ones even bruise at too heavy a human touch. It hit her then that every strawberry she had ever eaten—every piece of fruit—had been picked by calloused human hands. Every piece of toast with jelly represented someone's knees, someone's aching back and hips, someone with a bandanna on her wrist to wipe away the sweat. Why had no one told her about this before?

— Alison Luterman, "What They Came for," *SUN* magazine

PART 1

The Origins of Natural Food and Health

The topic of food, diets, and health is certain to stimulate intense discussion, frequently inspiring what may seem like religious fervor. What is the best diet? Why are there so many competing opinions about what we should eat? Is it important to take supplements because agricultural practices have removed many nutrients and minerals from our soils? Do food additives and pollutants cause cancer? Even empirical research studies on such questions sometimes can be contradictory. The public often becomes frustrated in the search for a healthy and satisfying way to eat, and health care practitioners struggle with how best to advise their patients.

In Part 1 of this article we will explore some of the issues in the complex ecology of food and health, including food in the context of ecologically whole living systems, the origins of human diets, and how our modern diets differ from traditional hominin diets.

In Part 2, which will be presented in December, we'll look at how the health of our water, soils, and forests affect the food we eat, some favorite foods that may be implicated in the process of global warming, and genetically modified foods.

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While there are serious causes for concerns about dietary habits in the U.S., a strong and growing movement in organic agriculture offers reason for hope. The awareness of increasing numbers of people that a primarily plant-based, organic diet is good for humans is also good news for the Earth.

An Ecological Approach to Food, Health, and Illness

Given all we have learned in recent decades about ecology and living systems, it is clear that the functioning of the human body is affected by many factors, both internal and external, such as food, exercise, emotions, stress, relationships with humans and other living creatures, the health of our soils, air, and water, the interactions of cultures and subcultures, and so on. Health and disease are a reflection of the condition of the organism as a whole. The parts of our bodies comprise an integrated physical being that exists in social, emotional, and spiritual contexts. Colbin (1986) notes, "In terms of illness, a weakness in the heart expresses a weakness of the other organs . . . improved nutrition and tonifying of the whole body will automatically lead to the healing of many different symptoms" (pp. 25-26). She continues, "Much as holism can fail to be useful because of a lack of attention to detail, so materialism has its dangers of nearsightedness, of missing the forest for the trees" (p. 26).

Western medicine acts as though the body is a machine that breaks down due either to external factors (toxic substances or microorganisms) or to unexplained internal malfunctions. A holistic approach to the body offers a multilayered approach that seeks to alter the conditions that created the disturbance in the first place. Poor functioning may stem from physical, psychological, or spiritual events—or some combination of these. The physical and nonphysical are equally real and valid. In contrast to the biomedical approach, which focuses on suppressing the symptoms of disease, in holistic medicine, healing is effected by finding the underlying cause/s of disturbance or imbalance and correcting it; this allows the immune system to do its healing work.

To understand this from an ecological perspective, we have to look at human health and disease *in context*—the individual is embedded within multiple, larger contexts of family, human community, and natural systems. One definition of a whole living organism, or system, is that is an aggregate of physical elements and parts, combined with an organizing energy field that allows the parts cohere as a system. In a health system, the elements are more or less balanced in a dynamic, constantly changing interaction. Symptoms offer information about the state of the body as a whole—both how internal bodily systems are interacting among themselves and how the person may be in or out of balance with the larger systems she is a part of. To heal, rather than isolating specific substances from their natural context (as we do with drugs and even particular vitamins), the person, along with her health care providers, considers how best to support the healing powers of the internal and intrinsically related 'external' systems. Health in a holistic, ecological context is understood as an integration of our various levels of functioning of the individual both internally and in relationship with the environment. From an ecological standpoint, it



Nearly half the water consumed in this country is used for livestock, mostly cattle.

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is clear that the Earth and living systems on which we depend for our very lives must also be in good health.

Food is a direct cause of the proper or improper functioning of the organism. The quality, quantity, stored energy, taste, color, aroma, and texture of food all have physiological and psychological effects. Food—living organisms that provide us with our very life energy—is one of the critical elements that links our inner bodily systems to our outer environment. In addition to its physical elements, food also has an energy field, and the more time that elapses from cutting (or death), the more the field of the cut plant (or animal) changes. Corbin says, “Whole foods provide not only certain amounts of basic nutrients in the natural proportion to each other; the nutrients in them are also bound together by that subtle energy that animates all living systems” (1986, p. 39). Assuming that we derive some of our nourishment from the energy of food, we must consider what we are doing to our own health when we eat foods that are farther and farther from their original sources of life energy.

What Does our Biology and Ancestry Tell Us about Healthy Eating?

While there are many factors that contribute to good health, unarguably what we eat and drink are crucial elements. In determining what kinds of foods are most healthful, the most basic place to begin is with a consideration of how our bodies function; our bodies—mouth, teeth, digestive and elimination systems, and so on—are shaped to interact directly with and ingest those elements in our natural environment that offer sustenance. Over the centuries, human beings have genetically adapted to the environment, places our ancestors lived and survived in. One way to approach the question of what foods are most healthful for the human body is to look at our ancestral history of foods and health. What was the health of people in traditional and so-called “primitive” cultures, and of people who, even into the early 20th century, ate only their traditional foods? Do the approximately 300,000 remaining hunter-gather-





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ers still living and eating primitively have more robust health than we do? And if in fact their health is superior, what role might food have to play? What foods do they eat? Do these foods differ from foods that we consume? And, given that most indigenous cultures had or have spiritual beliefs and rituals associated with certain foods, what can we learn from them about the relationship between our health and a sense of “sacred food”?

In contrast to the healing traditions of some other world cultures, Western allopathic medicine has not, until quite recently, paid a great deal of attention to the role of food in creating health and disease. Yet anthropological and medical research and literature indicate that there is a very strong connection between our health and the food we eat. Anthropologists generally agree that traditional peoples did not suffer from most of our modern diseases. Studies during recent years are attributing many of our chronic health problems today to diet: “In the U.S., chronic illnesses and health problems either wholly or partially attributable to diet represent by far the most serious threat to public health” (Cordain, et al., 2005, p. 341). These problems include some of the most deadly and intractable diseases—obesity, cardiovascular disease (CVD), diabetes, high-risk cholesterol concentrations, osteoporosis, and cancer.

In the 1930s, Dr. Weston Price, a dentist, noticed that the condition of teeth reflect overall health. He conducted extensive studies of ‘primitive’ cultures and found cultures that had no tooth decay; in addition, children did not have misshapen dental arches and crowded teeth—problems that are widespread today (Schmid, 1997, p. 7). Although his book *Nutritional and Physical Degeneration* was not widely read, he reported these findings, along with evidence that the particular diets of these people played a major role in their excellent health. Writing in the January 31, 1985, issue of the *New England Journal of Medicine* under the title “Paleolithic Nutrition,” Boyd Eaton, M.D., and Melvin Konner, Ph.D., reported that heart disease, high blood pressure, diabetes, chronic intestinal disease, and most types of cancer have been reported by medical authorities to be virtually unknown in hunter-gather cultures surviving today—the Hadza of Tanzania, the !Kung and Kade San (Bushmen) of the Kalahari, the Phillipine Tasaday, the Ache’ of Paraguay, the Australian Aborigines of Amhem Land, and the Arctic aboriginal Eskimos, among others” (Schmid, 1997, p. 46). This journal, like most Western medical journals, has tended not to credit the importance of food in health; for such a statement to be published in this specific conservative medical journal was significant. The U.S. Department of Health and Human Services [National Vital Statistics Reports, 2000] has also acknowledged that our health depends in significant part on the foods we eat—or don’t eat: “nutrition plays a significant role in the onset and progression of 6 of the 10 leading causes of death.”

Researchers have found that over the five-to seven million years since the emergence of hominins, diet for various groups may have varied by locale, but that:

There are universal characteristics of preagricultural hominin diets that are useful in understanding how the current Western diet may predispose modern populations to chronic disease. Increasingly, clinical trials and interventions that use dietary treatments with nutritional characteristics similar to those found in preindustrial and preagricultural diets have confirmed the beneficial health consequences predicted by the template of evolutionary discordance theory. (Cordain, et al, 2005, p. 342)



PHOTO: ELLI ALEECE SMITH

Improved nutrition and tonifying of the whole body will automatically lead to the healing of many different symptoms.

What are the common characteristics of these preagricultural diets? Hominin diets were by necessity limited to minimally processed, wild plant and animal foods. Before the development of agriculture and animal husbandry, the healthiest, strongest, and most disease-resistant cultures ever known lived on whole, natural foods—fresh, wild, or cultivated vegetables and fruits; fish, wild game or healthy, well-exercised domestic animals; and in some cases grains and raw, unprocessed dairy products.

Food was local, seasonal, naturally grown, and cooked by traditional methods. It was either fresh or preserved by natural means (traditional techniques of food preservation include cold storage, drying, salting, fermenting, pickling, and smoking, which often result in increased nutrient density). Foods were appropriate to an individual's condition, i.e., the particular place, the conditions of or time of life (pregnancy, old age, infancy, requirements for stamina or mental concentration, etc.) were considered. Flexibility was key.

In his book *Traditional Foods Are Your Best Medicine*, Schmid (1997) discusses what he calls the protective characteristics of native nutrition, noting that these “immune groups” had a number of characteristics in common. Nearly all foods were whole, unrefined, and unconcentrated, with very few exceptions.

The foods of each immune group had been used by the group for centuries or longer and were indigenous to the group's region. No imported foods were used. Customs dictated the importance of eating certain foods at specified times in life. Specific foods were known to prevent specific problems. . . . None of the diets contained large amounts of fruit, which was used when available, though in limited quantities. (p. 67)

These groups used none of many foods commonly used today, including sugar, white flour, canned goods, vegetable oils, fruit juices, and refined foods in general. Alcohol was used moderately if at all, in the form of raw, fermented beverages rich in enzymes and minerals. People living near the sea ate fish and shellfish—supplemented by sea mammals or land animals or both. Animals used for food were lean, healthy, and free of pesticide residue, antibiotics, and added hormones—as were fish. Organs of animals or fish or both were a vital food. Seaweed was used by every immune group living near the sea. Freshwater fish, animals, and sometimes milk and cheese were the most important protein foods for inland groups. For all groups, wild green vegetables and plants—which grew on rich soils free of pesticides—were staples. Immune groups also ate more raw foods, which retain more protein and enzymes—life energy or the life force—than processed or cooked foods.



Long-term consumption of high glycemic load carbohydrates can adversely affect metabolism.

Differences between Traditional and Modern Diets

Analyses of ancestral and contemporary native diets present a dramatic contrast to modern foods. Whether more vegetables or more game and fish were eaten, ancestral diets included more fiber, less vegetable fat and saturated animal fat, and more polyunsaturated animal fat (especially EPA) than modern diets. Although post-agricultural revolution diets changed considerably, many immune groups maintained many elements of hunter-gatherer diets until quite recently. According to Schmid (1997),

Analysis of hunter-gatherer diets shows an average fiber content of forty-six grams, eight to ten times that of the modern diet. The calcium content of sixteen hundred milligrams is at least twice as great; this figure is calculated from plant foods and animal flesh consumed, and does not reflect bones eaten. The sodium intake was only one-sixth that of ours, while protein intake was at least twice today's average. Trace-mineral content was high.

Less fat is consumed on a hunter-fisher-gatherer diet. Concentrated vegetable oils were unknown. Wild grazing animals contain little fat; fifteen African herbivores assayed had an average fat content of 3.9 percent. Today's beef cattle are from 25 to 50 percent fat or more. (p. 51)

Cordain et al. (2005) state that "the profound changes in the environment (e.g., in diet and other lifestyle conditions) that began with the introduction of agriculture and animal husbandry 10,000 years ago occurred too recently on an evolutionary time scale for the human genome to adjust. In conjunction with this discordance . . . many of the so-called diseases of civilization have emerged" (p. 341). The authors identify six specific areas in which key nutritional elements ancestral hominin diets that have been adversely affected by modern diets: glycemic load, fatty acid composition, macronutrient composition, micronutrient density, acid-base balance, and sodium-potassium ratio. The glycemic index is a relative comparison of the blood glucose-raising potential of various foods or combs of foods based on equal amts of carbohydrates in the food. There is substantial evidence that long-term consumption of high glycemic load carbohydrates can adversely affect metabolism and health; it may in fact elicit a number of hormonal and physiologic changes that promote insulin resistance (p. 346). Diseases associated with insulin resistance (such as obesity, coronary heart disease (CHD), type 2 diabetes, hypertension, and dyslipidemia [elevated serum triacylglycerol, small-dense, LDL cholesterol and reduced HDL cholesterol]) may also be involved in such chronic illnesses and conditions as myopia, acne, gout, epithelial cell cancers (breast, colon, and prostate), and skin tags. Diseases of insulin resistance are rare or absent in hunter-gatherer and other less Westernized societies that live and eat in a traditional manner (p. 346).

There are also significant differences between ancestral and modern diets in micronutrient density. Wild plant foods consumed by hunter-gatherers generally contain higher micronutrient concentrations than domesticated plant foods, as does the



The number one factor in elimination of Latin America's tropical rainforests is cattle-grazing.

muscle meat of wild animals (p. 348). Further, when more nutrient-dense foods (e.g., fruit, vegetables, lean meats, and seafood) are replaced by less-dense foods (refined sugars, grains, vegetable oils, and dairy products, dietary vitamin and mineral density declines, and this has far-reaching health implications. Not only may vitamin-deficiency diseases increase, but various infectious and chronic diseases may do so as well (p. 349).

The typical Western diet results in a net acid load. A net base-producing diet was typical throughout most of hominin evolution. This is important because over-acidity (an imbalance in the body's delicate acid-alkaline ratio or pH) can result in a dangerous condition that weakens all body systems. The known health benefits of a net base-yielding diet include preventing and treating osteoporosis, age-related muscle wasting, calcium kidney stones, hypertension, and exercise-induced asthma, and slowing the progression of age- and disease-related chronic renal insufficiency. Preagrarian diets had a net base yield (Cordain, et al., 2005, p. 349).

Regarding sodium-potassium ratio, there has been a 400% increase in the switch from ancestral to modern diets. Diets that are low in potassium and high in sodium—our current situation—may “underlie or exacerbate a variety of maladies and chronic illnesses, including hypertension, stroke, kidney stones, osteoporosis, gastrointestinal tract cancers, asthma, exercise-induced asthma, insomnia, air sickness, high-altitude sickness, and Meniere's Syndrome (ear ringing)” (p. 350).


Insufficient fiber may “underlie or exacerbate constipation, appendicitis, hemorrhoids, deep vein thrombosis, varicose veins, diverticulitis, hiatal hernia, and gastroesophageal reflux” (p. 350). The authors conclude, “Studies indicate how multiple interrelated qualities of Western diets and recently introduced Neolithic and Industrial Era foods may drive a variety of mechanisms that promote the development of chronic diseases” (p. 347).

According to Cordain et al.,

In the United States and most Western countries, diet-related chronic diseases represent the single largest cause of morbidity and mortality. These diseases are epidemic in contemporary Westernized populations and typically afflict 50-65% of the adult population, yet they are rare or nonexistent in hunter-gatherers and other less Westernized people. . . . evidence gleaned over the past 3 decades now indicates that virtually all the so-called diseases of civilization have multifactorial dietary elements that underlie their etiology, along with other environmental agents and genetic susceptibility. Coronary heart disease, for instance, does not arise simply from excessive saturated fat in the diet but rather from a complex interaction of multiple nutritional factors directly linked to the excessive consumption of novel Neolithic and Industrial era foods (dairy products, cereals, refined cereals, refined sugars, refined vegetable oils, fatty meats, salt, and combinations of these foods). These foods, in turn, adversely influence proximate nutritional factors, which universally underlie or exacerbate virtually all chronic diseases of civilization. (2005, p. 354)

Beef requires the burning of 54 fossil fuel calories for the production of a calorie of protein, and soybeans require only 2.

Given this conclusion, it is sobering to realize that dairy products, cereals, refined sugars, refined vegetable oils, and alcohol make up 72.1% of total daily energy consumed by all people in the U.S.

To repeat: "These foods, in turn, adversely influence proximate nutritional factors, which universally underlie or exacerbate virtually all chronic diseases of civilization." Even if one argues about the specific degree to which this statement is true, there is overwhelming and growing evidence that what we eat plays a major role in our health. And healthy foods depend on clean soil, water, and air, and on sustainable farming practices. 

In December's Part 2 of this article, we will explore the health of our water, soils, and foods, food production and global warming, the implications of genetically modified foods, and the increasing demand for organic food.

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