



# Studies Reveal Evidence Of Staggering Nutritional Deficiencies

*Think you can achieve good health by eating a healthy diet? The information contained in this article, some of it shocking, will convince you otherwise.*

According to a US Senate Report (Document 264) published in 1936, most of the farmland in America had by that time become seriously depleted of minerals. The report went on to suggest that 99 percent of the population who were then dependent on American-grown foodstuffs were suffering from significant mineral deficiencies.

Since that time, things have gotten worse, much worse. In 1992, the Earth Summit in Rio De Janeiro presented conclusive evidence that on average, American farmland was 85 percent depleted of minerals, compared to 75 percent worldwide.

Study after study is now concluding that the soil on which almost all food in America (and in much of Europe) is grown today contains very little of what humans need to maintain healthy, functioning bodies. The vitamins and minerals essential to health are simply not in the food we eat.

Destructive soil management practices and many of the farming methods employed by agribusiness to increase yields and profits have resulted in foods of such low nutrient content that Americans now need to

supplement to remain healthy. Taking vitamin and mineral supplements is no longer a luxury; it's a necessity.

## **If it's not in the dirt, it's not in your dinner.**

How did the richest farmland in the world become the depleted wasteland of poor nutrition that it is today? Modern commercial practices are only part of the

answer. The problem began a long time ago.

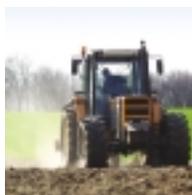
The 19th Century settlers who migrated to the vast breadbasket of the American Middle West often farmed the soil with-

out crop rotation, without letting the land lie fallow, and without putting anything back. When the soil was played out after seven or eight years of continual production, and could no longer support any crops at all, they simply picked up stakes, moved further west, and started all over again.

Then, late in the century, a German chemist named Justus von Liebig discovered that the ash of burned vegetation was primarily made up of nitrates (N), phosphorous (P) and potassium (K). He reasoned that if these three substances were put back into depleted soil, the soil would grow abundant crops once again.

It worked. And thus the practice of modern

*Disastrous mismanagement of our soil and intensive farming methods have created such poor food quality that nutritional supplements are not a luxury but the bread and butter of robust good health.*



chemical fertilization was born.

The problem however was this: N, P and K are only three of the many mineral substances that humans and animals need for health. So, while NPK fertilizers resulted in healthy *looking* crops, no one stopped to consider that those crops might be missing some very essential nutrients.

Von Liebig himself soon refuted his own theory in a long, scientifically detailed recantation, but by then no one was listening. The economic boom in agriculture created by the use of NPK fertilizers blinded many to the long term repercussions of this practice.



### **The long term repercussions are frightening.**

NPK fertilizer is highly acidic. The microorganisms whose job it is to chemically change soil minerals into a form that plants can use only thrive in neutral or alkaline soil. Acidic soil kills them. Without these microbes, minerals are unavailable to plants. One study showed that more than a third of soil in the midwest has a soil pH of less than 5.5, whereas soils should have a pH above 7 to be alkaline.

To counteract over-acidity, many farmers use dolomite limestone to add calcium and magnesium to the soil, change its pH, and greatly increase plant yield. But this also severely depletes the soil of manganese and other trace minerals. Manganese is further depleted by insecticides, which inactivates choline-containing enzymes, in turn preventing uptake of manganese and other minerals by the plants.

*Soil that has been depleted of the 50 plus minerals people and animals need, produces food that lacks them too. Magnesium chromium, vanadium and others that are equally essential to disease avoidance and to robust good health are much more deficient in our food*

*The story of modern agriculture is largely one of destructive practices that have resulted in superficial abundance but nutritional poverty.*

supply than most vitamins.

Plants can manufacture proteins, essential fatty acids and vitamins. But they can't make minerals. And minerals are absolutely essential for other nutrients – vitamins, proteins, enzymes and amino-acids, as well as fats and carbohydrates – to do their jobs.

That's why people develop mineral-deficiency diseases. Most Americans are deficient in chromium, magnesium and manganese,

especially teenage girls and the elderly. (Amer J Clin Nutr, 1969; 22: 1332-39).

A study of vegetarians who eat nothing but plants found that their food contained well above the RDA of various vitamins. But some minerals were dangerously low. The percentages of zinc in food was at a desperately low 46 percent of its already low RDA (Bland JS, Prev Med Update, 1996). Even copious amounts of plant foods aren't enough to prevent deficiency diseases of a variety of minerals.

Low selenium increases the risk for both cancer and heart attacks. Selenium levels are also critically important in HIV/AIDS. (Funct Med Update, April 1997; Funct Med Update May 1997).

### **Where has all the protein gone?**

The protein content of wheat and other grains is a reliable index of declining soil fertility (Price, Weston, DDS, Nutrition and Physical Degeneration, New Canaan, CT: Keats Publ, Sixth Edition, 1997, Price-Pottenger Nutrition Foundation).



*In 1900, wheat was 90 percent protein; now it is down to 9 percent. One would have to eat 10 slices of bread to gain the nutrients formerly available in one slice.*

In 1948, there were 158 milligrams of iron in 100 grams of spinach.

By 1965, 100 grams of spinach contained only 27 mg of iron; in 1973, this has fallen to 2.2 mg. The level is now suspected not to exceed 1mg. So Popeye would have to eat some 200 cans of spinach to get the same rejuvenating effect he had 50 years ago from a single can. (Gemmer E. "Who stole America's health?" Lecture 1995).



## Nitrosamines: when nitrogen turns toxic

Nitrogen based fertilizers can affect plants in other ways. Conventionally managed soils present nitrogen to plants in large doses, which affects the overall protein quality of the plant. But too much nitrogen in the soil also produces other problems.

When nitrogen levels exceed what plants can use for photosynthesis, the excess gets stored away in the form of nitrates. When these nitrates are eaten, they can be converted to carcinogenic nitrosamines (the same carcinogens found in cigarette smoke and cured meats) during digestion. (National Research Council, *'The health effects of nitrate, nitrite and N-nitroso compounds'* Washington DC: National Academy Press, 1981).

Conventional fertilizers may increase nitrosamines in another way. There is evidence that they increase the number of bacteria on plants, which in turn facilitates the conversion of nitrate into nitrite – a nitrosamine precursor. (See Ahrens, E et al, *'Significance of fertilization for the post-harvest condition of vegetables, specially spinach,'* in Lockeretz, W. ed. Environmentally Sound Agriculture, New York: Praeger, 1983).

## Vitamin-free fruits & vegetables?

Not quite, but almost: evidence now suggests that, not only mineral content, but the vitamin content of fruits, vegetables and grains has also seriously declined over the last 50 years.

Nutrient values published in the Department of Agriculture (USDA) handbook in 1999 compared with those published in 1975 show a 40 percent decline in vitamin C in cauliflower.



In March 2001, Life Extension Magazine did a USDA statistical comparison to 1963 and found the vitamin C content of peppers has plummeted from 128 mg. to 89 mg. The pro-vitamin A in apples has dropped from 90 to 53 mg. Broccoli and collards (greens) have lost half their pro-vitamin A and cauliflower's vitamin C content has also declined by 50 percent.

Depleted soil isn't the only culprit. Most of today's fruit, vegetables and grains are stored for long periods of time before being sold, and may be stored for an even longer time after purchase before being eaten. Many vitamins break down over time. (Br Food J,1997; 99:207-11).

## The effects of pesticides

The use of pesticides also affects nutrients in food, either directly or indirectly. For example, the application of herbicides, pesticides and fungicides during growth and storage allows farmers, retailers and consumers to continue poor practices such as storing produce for long periods of time.

And many herbicides alter plant metabolism and thus nutrient composition. For example, herbicides that inhibit photosynthesis (e.g., triazine or phenoyacetics) produce

effects similar to low light conditions. Under these conditions the carbohydrate, a-tocopherol and beta-carotene content of a plant is reduced, and protein,

free amino acid and nitrate levels are increased (Z Naturforsch, 1979; 34C: 932-935).

Vitamin C, beta-carotene and vitamin E are of course, important antioxidants and the implications of this decline are profound. For instance, both nutrients are protective against the free radicals generated in our bodies, not only by normal metabolism but also by the wide range of toxins we encounter in our everyday environments.

## The promise of remineralization

Remineralization, or treating soil with rock dust, is currently being explored as a solution to the widespread problem of dietary mineral deficiencies. Early experi-

*Studies show that, without supplementing, even massive vegetable food intake is insufficient to prevent some mineral deficiency diseases.*

ments have shown that it results in a phenomenal growth of microorganisms in the soil and increases the nutrient intake of plants.

It counters the effects of soil acidity, prevents soil erosion, increases the water-storage capacity of the soil, contributes to the building of precious humus complexes, has anti-fungal properties, and repels insects as well. (World Research Institute Bulletin, March 1995; Acres-USA, January, 2001: 22-23).



Zinc is now regularly added to fertilizer in Middle Eastern countries and selenium to fertilizer in Finland and China. American walnut farmers use a special fertilizer rich in manganese since walnut trees will not grow without it. In California, trace elements are added to the irrigation water for rice paddies, leading to extremely rich harvests.

However, these efforts are not widespread; and even where they are practiced, it takes time for the resulting foodstuffs to show higher mineral and vitamin content. This is a practice that must be continually practiced to be effective.

## **The best solution today? Supplementation.**

Clearly, the best solution for individuals today is to supplement with vitamins and minerals. **Recently, the Journal of the American Medical Association reversed its long-standing position against vitamin supplements and declared that doctors should now recommend that all patients, even healthy ones, routinely take vitamins and mineral supplements** (JAMA, 2002; 287:3127-9).

This means that vitamins and mineral supplements aren't a luxury for the hypochondriac few or those in need of therapeutic doses. They are no longer a just-in-case insurance policy; but are essential to maintain basic levels of human health.

**Food supplements are no longer a just-in-case insurance policy. They are quite literally tomorrow's bread and butter.**

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