

## Poisoned by Chlorinated Water

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Let's explore this. When chlorinated water is run through a hose or carried in a pail followed by milk as in a dairy, what happens? "Very tenacious, yellowish deposits chemically similar to arterial plaque" form; with unchlorinated water this does not happen.

CBS' "Sixty Minutes" show July 11, 1992, displayed two laboratory rats, both of them eating standard rat chow and drinking chlorinated water. One rat had clear arteries. The other was also drinking pasteurized, homogenized milk. When the animals were sacrificed and cut open, the arteries of its milk-drinking companions were clogged. A scientist in a white coat winked at the camera and said, "He [the rat he was holding] is the only one doing research on that." The researcher didn't say why, but the powerful dairy and chemical lobbies come to mind.

Dairy buckets and hoses, and rats' arteries resist the arterial-wall damage known as atherosclerosis. But what can chlorinated water and milk, particularly homogenized milk, do to the far more susceptible arteries of humans? The arteries of young chickens are about as susceptible to such damage as people's arteries. Therefore, as a first approximation, J.M. Price, MD gave cockerels (roosters less than a year old) only chlorinated water. They rapidly developed arterial plaques; and the stronger the concentration of chlorine, the faster, and worse the damage. Other cockerels given unchlorinated water developed no such damage.

The residents of the small town of Roseto, Pennsylvania, had no heart attacks despite a diet rich in saturated animal fats and milk--until they moved away from Roseto's mountain spring water and drank chlorinated water. After that, consuming the same diet, they had heart attacks. The Roseto example is dramatic enough, but the needed detailed comparisons and follow-up are not likely to be done.

What is going on here? Highly reactive chlorine is one of the industrial waste products profitably disposed of into us Americans like garbage cans, then on into the environment. Chlorine oxidizes lipid (fatty) contaminants in the water. It thus creates free radicals (highly reactive sub-atomic particles lacking an electron) and oxysterols (formed when lipid molecules combine with oxygen molecules).

We require moderate numbers of both free radicals and oxysterols. The immune system employs free radicals to kill cells that its cellular immune mechanism cannot handle. A second mechanism using free radicals initiates programmed cell death known as apoptosis. Moreover, moderate quantities of oxysterols, like cholesterol itself, serve a protective function. But excess free radicals and excess oxysterols damage arteries and initiate cancer, among many other kinds of harm.

How well does the incidence of heart attacks match the areas where, and times when water is/was chlorinated? Chlorination spread throughout America in the second and third decades of this century, about 20 years before the mushrooming of heart attacks. Light chlorination, we will recall, yielded slow growth of plaques in Price's cockerels; and so chlorination of people's drinking water at the usual low concentration would have been expected to take at least 10-20 years to produce clinical manifestations of atherosclerosis. The timing fits, and the Roseto example fits.

A physician team led by William F. Enos autopsied three hundred GIs who had died in battle in the

Korean War. These men, who had passed induction examination as healthy, averaged 22.1 years of age; the doctors wondered what they would find. To their shock and amazement, in seventy-seven percent of the 300 they found "gross evidence of arteriosclerosis in the coronary arteries." In several, one or more heart arteries were partly or completely blocked.

Although Dr. Enos did not try to explain his grisly discovery, he assumed arterial clogging had developed gradually. Seeming to support that assumption, almost 20 years later advanced arterial damage was discovered in ninety-six percent of nearly 200 consecutive babies who had died in their first month outside the womb. Two of those babies' coronary arteries were blocked, causing infantile heart attacks.

But did arterial damage in fact develop slowly? The water American soldiers had to drink in Korea was so heavily chlorinated that many could hardly tolerate it. In Vietnam too, autopsies of American soldiers found heart-artery damage. Again, water supplied to them had been heavily chlorinated. Did much of these soldiers' arterial damage develop, not gradually but quickly as in Dr. Price's cockerels? The truth—slow or rapid development of clogging—may never be known.

Industrial chemist J.P. Bercz, PhD, showed in 1992 that chlorinated water alters and destroys unsaturated essential fatty acids (EFAs), the building blocks of people's brains and central nervous systems. The compound hypochlorite, created when chlorine mixes with water, generates excess free radicals; these oxidize EFAs, turning them rancid.

**SIDEBAR:** Most Western diets already contain very little of critically needed omega-3 EFAs. These are found in fish oil, better, in flaxseed oil; also in moderate quantity in first-virgin olive oil. These EFAs (except in olive oil) go rancid quickly. Therefore, to extend their products' shelf life food processors remove all health-promoting EFAs while destroying or discarding most needed micronutrients.

Processors substitute either saturated fats or, now, partially hydrogenated trans, transformed fats. Found in all boxed and packaged foods that have long lists of hard-to-pronounce chemical names on the side, trans fatty acids consumed in large quantity can cause heart attacks and many other degenerative diseases.

Cancer-fighting nutrients become deadly when combined with chlorinated tap water. It has been discovered that some of the most valuable nutrients and essential anti-disease phytochemicals form cancer-causing substances when combined with chlorinated tap water. This includes familiar foods like soy, fruits, vegetables, tea, many health products, and even some vitamins.

In addition, chlorine reacts with organic compounds in water to produce trihalomethanes (THMs) such as carcinogenic (cancer originating) chloroform and carbon tetrachloride. It is the combination of chlorine and organic materials already in the water that produces cancer-causing byproducts. The more organic matter in the water, the greater is the accumulation of THMs.

In a study of more than 5,000 pregnant women in the Fontana, Walnut Creek and Santa Clara areas of California, researchers from the state health department found that women who drank more than five glasses a day of tap water that contained over 75 parts per billion of THMs had a 9.5 percent risk of spontaneous abortions, i.e. miscarriage. Women with lower exposure to the contaminants showed 5.7 percent risk. No comparison was given for women who ingested no THMs.

Taking a warm shower or lounging in a hot tub filled with chlorinated water, one inhales chloroform. And worse, warm water opens the pores, causing the skin to act like a sponge, and so one will absorb and inhale more chlorine in a 10-minute shower than by drinking eight glasses of

the same water. This irritates the eyes, the sinuses, throat, skin and lungs, makes the hair and scalp dry, worsening dandruff. It can weaken immunity.

A window from the shower room open to the outdoors removes chloroform from the shower room air. But to prevent absorption of chlorine through the skin, a shower-head that removes chlorine from shower water is a must.

**SIDEBAR:** Chlorine in swimming pools reacts with organic matter such as sweat, urine, blood, feces, mucus, and skin cells to form chloramines. Chloroform risk can be 70 to 240 times higher in the air over indoor pools than over outdoor pools. If the pool smells very much of chlorine, do not go into it.

Canadian researchers found that after swimming for an hour in a chlorinated pool, chloroform concentrations in the swimmers' blood ranged from 100 to 1,093 parts per billion (ppb). Researchers even recorded increases in chloroform concentration in bathers' lungs of about 2.7 ppb after a 10-minute shower in chlorinated water. For many people the intake through those routes is much greater than in water taken orally.

Another issue: There is evidence that adding chlorine, a common process in conventional drinking water treatment plants, makes some pharmaceuticals more toxic.

Studies in Belgium have related development of deadly malignant melanoma to consumption of chlorinated water. Franz H. Rampen, et al., of the Netherlands, state that the worldwide pollution of rivers and oceans and the chlorination of swimming pool water have led to an increase in melanoma. That disease is not associated with exposure to ultraviolet light. People who work indoors all the time, exposed to fluorescent lights, have the highest incidence of melanoma.

Long-term risks of consuming chlorinated water include excessive free radical formation, which accelerates aging, increases vulnerability to genetic mutation and cancer development, causes difficulty metabolizing cholesterol, and promotes hardening of arteries.

Excess free radicals created by chlorinated water also create dangerous toxins in the body. These have been directly linked to liver malfunction, weakening of the immune system and pre-arteriosclerotic changes in arteries (which, as we saw, struck Dr. Price's cockerels and may have happened to American soldiers in Korea and Vietnam). Excess free radicals have been linked also to alterations of cellular DNA, the stuff of inheritance.

Chlorine also destroys antioxidant vitamin E, which is needed to counteract excess oxysterols/free radicals for cardiac and anti-cancer protection.

Other harm from chlorination. A study in the late 1970s found that chlorinated water appears to increase the risk of gastrointestinal cancer over a person's lifetime by 50 to 100 percent. This study analyzed thousands of cancer deaths in North Carolina, Illinois, Wisconsin and Louisiana. Risk of such cancers results from use of water containing chlorine at or below the E.P.A. (Environmental Protection Agency) standard and "is going to make the E.P.A. standard look ridiculous," stated Dr. Robert Harris, lead scientist in the study.

Later, a meta-analysis found chlorinated water is associated each year in America with about 4,200 cases of bladder cancer and 6,500 cases of rectal cancer. Chlorine is estimated to account for 9 percent of bladder cancer cases and 18% of rectal cancers. Those cancers develop because the bladder and rectum store waste products for periods of time. (Keeping the bowels moving regularly will minimize such risk.) Chlorinated water is also associated with higher total risk of combined

cancers. Chlorine in treated water can cause allergic symptoms ranging from skin rash to intestinal symptoms to arthritis, headaches, and on and on.

Why does chlorine in water cause these problems? It destroys protective acidophilus, which nourishes and cooperates with the immunity-strengthening "friendly" organisms lining the colon. In addition, as mentioned earlier, chlorine combines with organic impurities in the water to make trihalomethanes (THMs), or chloramines. The more organic matter, the more THMs; and like excess oxysterols they are carcinogens.

Recently, a joint study was undertaken in Japan by research scientists at the National Institute of Health Sciences and Shizuoka Prefectural University. They determined that natural substances originating from these foods react with chlorinated tap water, forming dangerous compounds, named MX, which stands for "unknown mutagen". They are similar to well-known and more easily detected cancer-causing THMs (trihalomethanes).

In 1997, scientists in Finland determined that MX was 170 times more deadly than other known toxic byproducts of chlorination, and was shown in laboratory studies to damage the thyroid gland as well as to cause cancerous tumors.

The Japanese scientists specifically mentioned that MX is created by the reaction of chlorine with plant phytochemicals such as catechins, which are contained in tea and flavonoids (found in fruit). To make things worse, it is certain that the fresh plant foods we eat react even with the chlorinated tap water we drink with our meals. This means that fresh fruits, cooked and raw vegetables, green tea, black tea, herb teas, soy products, vitamin pills, various health supplements, and even some pharmaceutical drugs, in combination with chlorinated water can all be implicated in cancer. These foods contain a significant amount of phytochemicals including hormones, sterols, fatty acids, polyphenols, and ketones 葉 he subgroups that include flavins, flavonoids, flavones, tannins, catechins, quinones, isoflavones and tocopherols.

These compounds are some of the most valuable and promising anti-cancer nutrients found in our foods and health supplements. Coenzyme Q10 is a quinone, vitamin B-2 is a flavin, vitamin E is a tocopherol, citrus fruit bioflavonoids like hesperidin, quercetin, and rutin are all flavonoids. Green tea contains catechins, phenols, tannins, and isoflavones. Potentially all of these substances, and many more, are subverted by chlorination.

The deadly cancer-causing agents that are produced are extremely toxic in infinitesimal amounts, so small and obscure that they are extremely difficult to detect. Very little chlorine is required. When the concentrations of phytochemicals are high, such as in health supplements or even fruits and vegetables coming from more fertile soil, the deadly combination with chlorination intensifies.

As this message spreads, it will no doubt shake the very foundations of the chlorine and water treatment industries, let alone the government agencies that are implicated along with them. There certainly should be cause for serious alarm within the nutritional supplement and food industries, as well as those segments of the medical industry that might awaken to the problem.

This message is of utmost importance to the public, because chlorine, acid rain, hard water, heavy metals, chemicals, fertilizers, and depleted dead soil will be exposed as major causes and contributors to cancer and degenerative disease; they will also be found to be responsible for damaging the body 痴 immune and hormonal systems by mutating the food-based plant estrogens and phytochemicals that support those systems.

Cancer is the second leading cause of death in the US, exceeded only by heart disease. According to

the National Cancer Institute, about 1,228,600 new cancer cases were expected to be diagnosed in the year 2000. Since 1990, approximately 11 million new cancer cases have been diagnosed, and about 564,000 Americans were expected to die of cancer in 2,000, more than 1,500 people a day.

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Breast cancer is epidemic in this country. One in every nine American women will face breast cancer. Every three minutes, a woman is diagnosed, and every 13 minutes, a woman dies from the disease. The American Cancer Society estimated more than 200,000 women would be diagnosed with breast cancer in 2006, and more than 40,000 would die from the disease. In addition to invasive breast cancer, 61,980 new cases of in situ breast cancer were expected to occur among women during 2006.

It has been known by the water treatment and chemical industries for many years that chlorine reacts negatively with natural organic compounds. These industries call the compounds DBPs (disinfection by-products) and they are known to cause cancer in populations whose drinking water contains them. THM, the most commonly known DBP, causes a high incidence of bladder cancer and causes spontaneous abortion of fetuses.

Chlorine, fluorine, and fluoride are chemically related to iodine and compete with it for assimilation, blocking iodine receptors in the thyroid gland. Dioxin, a dangerous chlorine-related compound found throughout the food chain, is one cause of low thyroid. Rather than feeding the body 癩 endocrine glands, including the thyroid, as nature intended, the hormone-like nutrients found in food are altered by chlorine and turned into mutagens that do permanent damage to the glands. Also, the serious deficiency of valuable phytochemicals in modern diets may be responsible for undernourished hormonal functions in those with otherwise healthy glands.

To help rid yourself of the chlorine in your system and get the intended benefit from your food and nutritional supplements, you may want to try humic extracts (especially fulvic acids), that are said to provide natural chelation properties. Chelation means that the chemicals actually bond with or "pick up" the toxins. They detoxify the liver and the digestive tract by attaching to toxic build-up, including heavy metals and chlorination byproducts, and then disarm, neutralize, and remove these toxins as waste products. Fulvic acids also work as nature 癩 most powerful antioxidants, neutralizing dangerous free radicals, and supplying hormone-stimulating micronutrients.

The chlorine issue should come as no real surprise to any biochemist. Chlorine has been combined with many other normally safe organic substances to form some of the most powerful deadly toxins known, such as dioxin, DDT, and PCBs. The bottom line is that chlorine is the one of the major culprits in disintegrating health, not the substances with which it reacts.

Is there a better substitute for chlorine in water treatment: Yes. Hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) destroys infectious organisms and impurities in water 4,000 times better than chlorine. Ozone (O<sub>3</sub>) treatment is equally effective. Eleven hundred cities, worldwide, treat their drinking water with ozone; many have done so since as early as 1901.

To generate ozone, dry air or oxygen is passed through a high-voltage electrical field. Ozone drinking-water treatment in Andover, Massachusetts successfully controlled the effects of algae blooms and eliminated water quality problems. Potential THM formation was reduced by an average of 75 percent.

But H<sub>2</sub>O<sub>2</sub> and O<sub>3</sub> are relatively cheap; moreover, the only byproducts are pure oxygen and

hydrogen, so no one can make a big immediate profit on them. (Hydrogen is a potential major energy source for electricity generation and for zero-emission vehicles, and so it could be important in future years.) France and Germany, wiser and less controlled by the chemical industry, chlorinate water only in emergencies.

The chemical companies pulled off a huge coup when they bamboozled America and Canada into chlorination. They make big profits disposing of excess chlorine into our drinking water; otherwise, they would have to pay to destroy it. So now, we know why American water is not treated with safe, cheaper, more effective ozone. Now, we know why Dr. Price's revealing studies with cockerels were never followed up.

SIDEBAR: Swimming in chlorinated water. Drinking and swimming in chlorinated water can cause malignant melanoma. Sodium hypochlorite, used in chlorination of water for swimming pools, is mutagenic in the Ames test and other mutagenicity tests. Redheads and blonds are disproportionately melanoma-prone; their skin contains a relative excess of pheomelanins compared to darker people.

Environmental Protection Administration (EPA) tests have shown that "in the water we drink, over 2,100 organic and inorganic chemicals [including pesticides, heavy metals, radon, radioactive particles] and parasitic organisms including cryptosporidium have been identified; 156 of them are pure carcinogens. (In 1993, cryptosporidium killed more than 100 and infected over 400,000.) Of those, 26 are tumor promoting [they can make an existing tumor grow]. Exposure to cryptosporidium in people with lowered gastrointestinal immune function could lead to chronic GI infection. Other examples include recurring cases of Legionnaire's disease, a pneumonia caused by *Legionella pneumophila*, which may lurk in hot water supplies.

A public notice recently issued in Washington, D.C. warned that a high level of bacteria in the [chlorinated, fluoridated city system] water made it unsafe for dialysis patients, AIDS patients, organ transplant patients, the elderly, and infants. Water contamination is the worst in small communities that cannot afford proper treatment; the EPA has not released this information.

And hearings before the House Committee on Government Reform and Oversight discussed Pfiesteria outbreaks among people drinking chlorinated water. The organism, which kills fish, sickens some people; they get sick from drinking the water, not from eating infected seafood. The EPA's Robert Perciasepe said, in written testimony that "Any new public health policy on this issue needs to consider reduction of nitrogen and phosphorus pollution in our waters." A bill passed by the U.S. House of Representatives would require managers of municipal water systems to tell customers what contaminants have been found in local drinking water. But with present crude test methods, that would offer little help.

Sherry Rogers, MD, pioneer in and authority on environmental medicine (EM), raises the number of chemicals in drinking water to 5,000. And 85 percent of American aquifers supplying wells below 8,000 feet altitude are contaminated with heavy metals; a recent federal report says the water you drink may have been recycled from sewage waste back to drinking water five times. As the late Kevin Treacy, MD of Australia said, "If municipal water were introduced now, it would not be allowed."

SIDEBAR: Plants do not thrive as well on chlorinated as on unchlorinated water; wild animals do not develop atherosclerosis until they drink chlorinated water in American zoos. Although their food, selected by people, is not the same as what they caught, plucked or dug up in the wilds, evidence suggests chlorinated water, together with its thousands of other chemicals, is the worst culprit in their arterial clogging.

Scientists in Minnesota grew embryos from healthy frogs in plain tap water. Some of the frogs had no legs or other had six legs or an eye in the middle of the throat. Earlier, deformed frogs were found in the U.S., Canada and Japan. And we are drinking and growing our food in it.

The EPA called 129 of the contaminants found in water supplies "dangerous" singly, let alone in combination. Pesticides and other toxic wastes run off farmlands and pastures or are dumped by factories, pollute rivers and seep into underground aquifers. Aptly called "biocides" by Russell Jaffe, MD, PhD, pesticides are designed to end life; few have been shown to be safe. The EPA depends on producers of pesticides to test their safety: the wolf guards the hen house. It should be no surprise that the tests take a long time, and many have been fraudulent.

Further, one poison is tested at a time; synergistic effects of combinations, potentially far worse, are ignored. Besides, many of the so-called "inert" substances in pesticide combinations are more toxic than the "active;" one of the "inerts" is DDT, prohibited for American farm use since 1973.

Are these contaminants dangerous in such minute quantities? Yes! In a laboratory, healthy living cells weakened, malfunctioned and some died within seconds or minutes when exposed to toxins commonly detected in American drinking water such as mercury, nickel, cadmium and lead at the extremely low concentration of only one part per billion (ppb).

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<http://www.youarebeingpoisoned.com/chlorine.html>