

Heavy Metal Toxicity: The Silver-Mercury Dental Amalgam Issue Part 1

By David Zeiger, D.O.

Many historical scholars feel that the fall of the mighty Roman Empire was attributed to the use of lead pipes for their water system and drinking from leaden vessels for their libations. Mozart died of mercury toxicity during a course of treatment for syphilis. In his time any medical pathologist in Vienna was familiar with the well noted severe grayish discoloration of organs in those who died from such mercury poisoning. Every child who has read Alice in Wonderland will remember Alice's encounter with the Mad Hatter. This was a literal reference to the known malady of behavioral and cognitive disturbances amongst the hat makers of Lewis Carol's time who used lead powder in the finishing process of making a gentleman's top hat.

With the rise of the industrial revolution and with now more industrial waste dumping in our environment the incidence of toxic exposure to such heavy metals as mercury, lead, aluminum, arsenic, and cadmium has increased, as well as the imminent threat to our health.

Mercury exposure ranks the highest health risk amongst all the heavy metals. Major sources of mercury include air pollution from manufacturing plants using mercury, saltwater fish (especially halibut, snapper, all shellfish, and swordfish), some cosmetics, insecticides, thermometers, gauges on water meters, and electrical switching devices. By far, the greatest exposure is from **dental silver/mercury amalgams!** Dental amalgam is made up of approximately 46-56% elemental mercury with the remaining metal composite having varying amounts of silver, copper, tin, zinc, and trace minerals, depending on the manufacturing source.

Dental amalgam may contain as much as 750mg of elemental mercury. Once the silver/mercury amalgam is in place there is a persistent low level of release of elemental mercury vapor in the body over years. The amount released will vary depending on the individual composition of the amalgam in place. Food acids, amount of chewing, toothbrushing, bruxism and the electrolytic effect of other minerals in saliva promote the release of elemental mercury.

The Three Kinds of Mercury

Mercury exists in three different forms: elemental/metallic, inorganic, and organic. **Elemental mercury** is that found in dental amalgams, thermometers, gauges, etc. The only metallic element exists in liquid state at room temperature and vaporizes easily. Elemental mercury accumulates in the brain, lungs, kidneys, and fatty tissues of the body (note: fatty fish, ie: tuna, and shellfish will absorb and store high levels of mercury and a significant health risk exposure if consumed more than once or twice a month). Elemental mercury is poorly absorbed from the gastrointestinal tract. As much as 200 grams have been ingested by children without detriment. **Inorganic mercury** is the form of mercury salts, ie: mercurous chloride.

This form of mercury was used by allopathic physicians several hundred years ago as the medicine called Calomel. Its was used as a purgative for "evil humors" to induce violent vomiting and diarrhea simultane-

ously. This medicine causes severe injury to the mucosal lining of the gastrointestinal tract, ulcerations of the mouth, esophagus, and rectum, producing marked nausea, abdominal pain, vomiting, and bloody diarrhea. Mercurous salts also damage the kidneys leading to kidney failure. The real problem arises as inorganic and elemental mercury vaporizes and is converted by gut microorganisms and blood enzymes into methyl mercury. **Organic mercury** or methyl mercury is lipophilic ("fat loving") and will easily cross the blood brain barrier and into all the different tissues of the body, especially the brain, lung, kidneys, liver, blood, skin, hair, and even breast milk.

Health Risks of Mercury

Methyl mercury attacks cellular function at three levels: 1) it will alter cell membrane structure and mitochondrial function (the "energy power plant" of each cell) by increasing your body's production of free radicals and lipid peroxidases (special enzymes that breakdown the fats that make up cells). 2) inhibits antioxidants from working, especially glutathione. 3) breaks up normal structure of proteins being made that are important to many metabolic processes in the body.

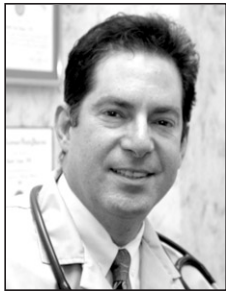
Chronic exposure to methyl mercury will inhibit the manufacture of neurotransmitters like acetylcholine so important for memory, concentration, coordination, vision, and hearing, ie: tremors in hands and feet, slurred speech, blindness, deafness, and fatigue — many of the symptoms often described for multiple sclerosis. The immune system is not spared either. Poor resistance to viruses, bacteria, fungi, and parasites as well as an increased incidence of cancer and birth defects has also been reported.

The U.S. Government risk assessment studies prepared by the Public Health Service in 1994, established standard minimum risk levels (MRL) for acute and chronic mercury exposure for the general population. The acute MRL is 0.02mcg per cubic meter of air, which is equivalent to 0.4mcg per day. The chronic exposure MRL is 0.0014mcg per cubic meter of air that translates to 0.28mcg per day. The USPHS has concluded that the average daily intake of amalgam mercury vapor exceeds the established MRL in the USPHS publication "Toxicological Profile for Mercury Update," TP-93/10 p.125, "the chronic exposure to mercury from dental amalgams is not without risk to the general population."

The World Health Organization in 1991 declared that dental amalgam is the greatest source of mercury vapor in the non-industrialized exposed population, significantly exceeding that from food or air! The American Dental Association (ADA) and the U.S. Food and Drug Administration (FDA) have demonstrated gross negligence in providing, if not covertly covering up the hazard of mercury, silver/mercury dental amalgams.

Despite the wealth of scientific research demonstrating the connection between dental silver/mercury amalgams and increased morbidity, the ADA has gone to great lengths at even prosecuting dentists who refuse to use such amalgams in their practice much less educating their patients about the potential health risks.

Historically it is interesting to note that the use of mercury amalgams was initially introduced into American dentistry in 1833 by two Frenchmen, the Crawcour brothers. Surprisingly, it was opposed by many Amer-



Are you 'Mad as a Hatter'...?

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Have you been plagued by vague muscle aches and pains?
Do you have a funny metallic taste in your mouth at times?

You may be Mercury Toxic !



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ican Dentists, and so strong was the opposition that the American Society of Dental Surgeons in 1840 required its members to sign pledges promising not to use silver/mercury amalgams. The term in those days for mercury was 'quicksilver.' The German pronunciation for quick is 'quack.' Those dentists who used mercury were called "quacks." Ironically, today that term is used to denote anyone who is an "ignorant pretender to medical skills!"

Next month I will discuss more of the clinical symptoms of mercury toxicity, available laboratory testing, and options for treatment.

To life and good health,

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