

My Experience With Mercury Toxicity

*by Chuck Balzer, MS, RD of Lincroft, New Jersey
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After dissolving yet again into tears of frustration, pain, and perplexity, I went to a local Emergency Room (ER) in March of 2002. Approximately six months prior to my ER visit I had begun feeling slowly progressing lower leg pains and discomfort that grew to searing pain upon standing still for greater than a few minutes. At first I had self-diagnosed this pain as achilles tendonitis and accepted it as an inevitable fact of life that accompanies an active lifestyle in an aging body. As it progressed and was joined by other symptoms, I became concerned and frightened.

My primary complaints upon ER admission included bilateral lower leg pain, exacerbating arthritis, fatigue, and a feeling that I can only describe as my legs feeling unstable under me. I was greeted with the same perplexity I had been receiving over recent months from various physicians across the medical discipline spectrum. These opinions varied from a Rheumatologist's demoralizing diagnosis of depression induced fibromyalgia, to an ER physician questioning me about the use of "hard street drugs". One kind ER physician recommended that I be evaluated by the hospital's Chief of Neurology. I again felt a swell of tears building as I had recently been evaluated by a Neurologist whose treatment plan was to give me a prescription for Darvocet, along with a pat on the back. As she was leaving the room, I mentioned to the ER physician that "for what it's worth, I'm also having strange bodily twitching". An inquisitive look came over her face and she stated that she wanted to test my mercury level. I did not think much of it and was released on advice to rest, medicate for pain as needed, and follow up with a Neurologist. Three days later an ER nurse phoned me and stated that my serum mercury level was elevated. I called poison control and was met with a curt response that if I had consumed seafood within 72 hours prior to testing, the result was meaningless. My General Practitioner (GP) also assumed lab error, or recent ingestion of seafood and had the test repeated. This time I had been seafood-free for ten days - again the results were an elevated level of mercury. My life, knowledge, and perspective on many issues ranging from medicine to the environment would never be the same.

Mercury - The Toxic Metal

Mercury (Hg) is an extremely toxic metal, second only to cadmium as the most poisonous on earth.(1) This toxin has an affinity for the human nervous system, with deleterious neurological effects extremely well documented in medical history. (1,2,3,4) In fact, the term, "mad as a hatter" comes from the psychosis associated with 19th century English Hatters who used Hg to stiffen cloth. Mercury has also been called "the great mimicker", because toxicity can effect so many bodily systems, giving birth to multiple and diverse pathology symptoms. A partial explanation for this is that its damage is incurred by interfering with metabolic processes at the cellular level. Mercury's multiple physiological capabilities include:

- Interference with enzyme functions (2,5)
- Elevating oxidative stress and depleting / disrupting antioxidant protection (2,4,5,6,12,25)
- Altering and damaging the cardiac, renal, and immune system (7,8,9,10,12,32)
- Peripheral nerve damage (3,11)
- Altering calcium homeostasis (2,4,12)

How Does One Become Mercury Toxic?

Our environment is relatively replete with mercury, thus making minute exposure unavoidable. Coal burning power plants dump approximately 40 tons of mercury into the atmosphere per year.(13,14) This vaporized Hg eventually finds its way into lakes, rivers, and oceans. Bacteria in water and soil convert mercury to its most toxic methylated form.(13,14) Contaminated food sources are then ingested by aqueous creatures, thus increasing their bodily mercury levels in accordance with their place on the food chain.(14) This modern biological fact has recently prompted the Food and Drug Administration (FDA) to advise the general public to limit their intake of specific species of fish.(14) In addition, pregnant women have been advised not only to limit, but avoid consuming fish high on the food chain. The species of fish included in this warning are swordfish, shark, mackerel, and tuna. (14,15)

As a Nutritionist and Registered Dietitian I've been a life-long advocate of a healthy lifestyle. I was rightly taught that seafood is a "healthy" food choice - rich in omega-3 essential fatty acids. Even as a child, while my brother was eating hamburgers, I was eating swordfish. This preference and habit carried over into my adulthood, with the addition of copious portion sizes of canned tuna at least twice a week.

A controversial source of mercury is from dental amalgams. "Amalgam" is a generic term for "silver" dental fillings that contain up to 50% liquid metallic mercury. The scientific research is clear that the more amalgam fillings one has in their mouth, the higher their level of systemic mercury. (6,8,16,17,18) In fact mercury amalgams are the primary source of systemic mercury in the human population. (see figure below)

Source	Average Human Daily Dose of Mercury
Dental Amalgam	3.0 - 17.0 ug/day (hg vapor)
Fish and Seafood	2.3 ug/day (methylmercury)
Other Food	0.3 ug/day (inorganic hg)
Air & Water	Negligible traces

NOTE: ug=mcg or micrograms

(World Health Organization, Environmental Health Criteria 118: Inorganic Mercury, Geneva, 1991.)

Actions and habits such as chewing, brushing, and inordinate mouth breathing, increase both the vapor release of mercury from amalgam and subsequent inhalation.(19,20) Scientific research supports the connection between amalgam placement and pathological alterations.(6,8,9,24)

I had 22 amalgam fillings placed in my lifetime, along with being an habitual mouth breather with an abrasive diet.

Another controversial source of mercury is from the preservative Thimerosal (TMS) found in many vaccines. Thimerosal contains 49.6% ethylmercury by weight.(31) Add to this the fact that thimerosal is directly injected as opposed to ingested. The use of TMS containing vaccines was greatly increased in the early 1990's. (32) Statistics from the U.S. Department of Education on autism in children aged 6 - 21 years showed an increase from 11,956 cases in 1992-93 to 97,329 in 2001-02. (33) An increase of 714 percent! Citing these staggering statistics, many researchers and epidemiologists have begun to look at the possible correlation between mercury containing vaccinations and the explosion of neurodevelopment disorders, including autism. (31,32,34)

The Environmental Protection Agency (EPA) has set a safe limit of 0.1 mcg of methylmercury / kg /day.(14) Other toxicology authorities maintain that there is no threshold level of mercury exposure that can be considered totally harmless. (14,22)

Approximately one month prior to the onset my progressive symptoms, I received my first ever influenza vaccine. This vaccine contained 25 mcg of ethylmercury.

The Road To Detoxification

My options were multiple, but my goal clear - detoxification. My GP, who is for the most part conventional in his medical approach, surprised me by saying that he felt that my 22 amalgams should be removed. Along with removal of my amalgam fillings, a seafood free diet, an array of self-researched nutrition supplements, I was treated with chelation therapy for systemic mercury removal.

Initially I was treated by my GP with, 2,3- Dimercaptosuccinic Acid (DMSA) or "Chemet", a prescription medication commonly used for lead poisoning in children.(23) After three weeks and slight clinical improvement, I consulted with an integrative physician whose approach is, 2,3-Dimercapto-1-Propanesulfonic Acid (DMPS) intravenously, followed by a vitamin and glutathione drip. He tested my mercury body burden with what is called a "DMPS challenge test".(23) The results had me excreting urinary mercury at a level five times the upper range of normal. This was after three weeks of the first line treatment with DMSA!

Mercury is a tenacious poison, thus making the process of detoxification long and arduous - one that I can only analogize as a roller-coaster of good and bad days. I knew this to be the case prior to initiation through my own research and from the healthcare practitioners treating me. Although expected, it was nonetheless challenging and frustrating.

Today

As of this writing, I have been symptom free for over two months. I am very active - alternating between biking 10 miles, walking 3 miles on the beach, ocean kayaking, and playing beach volleyball. I have had days where I've done all four in one day. This is an unimaginable progression from being unable to stand for three minutes without burning pain.

One of my primary concerns is the deleterious effect that Hg poisoning has had on my cardiovascular health. With my sub-par genetic history in this area, I make a special effort at strictly controlling my cholesterol and blood pressure. I have chosen a diet that is virtually seafood-free - supplementing with omega-3 fatty acids, rather than the generally advised intake of 2-3 servings of fish per week. Recent research is citing that not only is Hg toxicity deleterious to cardiovascular wellness, but the mercury content of many species of fish may negate the natural cardio- protective components contained therein. (7,25,26,32) In addition I take broad spectrum antioxidants to aid in the healing and maintenance of systems that were likely altered by mercury toxicity. (2,4,5,6,12,21,25)

Conclusion

As for those reading this, I would recommend that you take caution in your seafood intake - both amount and species. In addition, ask your dental practitioner why the second most toxic metal on the planet has been implanted into the body of most reading this piece. Don't gently succumb to intimidating responses such as that the mercury is rendered harmless when amalgamated with other materials, or that questioning equals conspiratorial quackery. After reviewing the American Dental Association's (ADA) position statement on the safety of amalgam, and reviewing the medical literature, it is my opinion that the ADA has been far

from unbiased, balanced, and forthcoming in their position on this issue. This stance has put both the professionals within this organization and the public whom they serve at risk of ill health. At the very least, it should be mandatory that patients be informed about the content of the material being implanted in their mouths. Dental professionals are strongly advised by the ADA to carefully discard of unused or removed amalgam as to protect the environment.(27) Intriguing that, according to the ADA, amalgam is safe when placed in the mouth, but not into ordinary garbage.

On the political and environmental front, I would advise self-education and activism on this issue. Much legislation is presently underway and needed to protect the general public from both environmental and medically induced risks of mercury poisoning. (28,29,30)

Lastly I would like to thank the open-minded, proactive medical practitioners who have informed and treated me. To those brilliant professionals who were - and are - not afraid to think "outside of the box", I owe more gratitude than these words could ever express.

About the Author

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