

# The Tuesday Minute

Nutritional information.... one byte at a time

## *This Week's Topic*

### **Even A Little Mercury Is A Big Deal**

Are you up in the air about the testing and treatment for mercury? Join the crowd. Even the experts after spending days in seminars still often disagree on the best ways to test and treat mercury body burden. Imagine how confused the average American feels when they read that the American Heart Association and the Mayo Clinic recommend fish twice a week, yet the EPA warns them about excess mercury in fish.

Mercury is one of the most toxic substances on the planet and has numerous effects on immune, reproductive, neurological, and cardiovascular health. We are exposed to mercury every day. Mercury is released from the earth's crust at the rate of 25,000 to 150,000 tons per year. It has been estimated that as much as 5,000 tons are released into the earth's atmosphere every year from coal burning, hydroelectric plants, natural gas, and refining petroleum products. For most of us, other than seafood, our greatest exposure comes from amalgam fillings, vaccines, industrial exposure, pesticides, herbicides, beauty creams, mirrors, and other industrial by-products.

The mercury we are exposed to appears in the inorganic and organic forms. The inorganic forms are less biologically active but can be vaporized with heat or pH changes, like the dental amalgams in our mouths. The organic forms are easily absorbed via our GI system and then transported to the brain, kidneys, or other storage areas.

An interesting side note: Our healthy flora turn the organic highly absorbable methylmercury into a less toxic, less bioavailable form as they

demethylate the mercury. One more reason to keep the good bacteria populated. Because it has such a profound effect on the nervous system, both in the brain and cell mitochondrial function, mercury has been implicated in Parkinson's, Alzheimer's, ALS, and multiple sclerosis. But think for a second, if mercury reduces cellular energy, what effects will it have on the immune and cardiovascular systems?

In relation to cancer, we know mercury damages chromosomes. In fact, the binding of mercury to DNA is so intense that it occurs at concentrations below that necessary to cause damage to other cellular proteins, such as glutathione, and SOD.

Dr. Russell Blaylock, a nationally respected neurologist, summarizes the neurological effects of mercury in his excellent book, "Health and Nutrition, Secrets that can Save Your Life."

He writes, "We have seen that mercury even in concentrations too low to cause cell death can affect multiple neuron cell functions such as membrane transport, calcium regulation, energy production, neurotransmitter control, free-radical production, excitotoxicity, enzyme function, DNA stability and repair, as well as antioxidant defenses." You get the picture. Even a little mercury is a big deal.

Glutathione is recycled by the body and is one of our major antioxidants. Glutathione levels have been associated with longevity in chronically ill patients, especially HIV patients. Yet one molecule of mercury binds and permanently removes two molecules of glutathione from the body.

Diagnosis of mercury toxicity is difficult due to the fact that mercury will hide in the tissue. The body in its wisdom will try to park or store mercury or any other heavy metal in areas of the body where it can do the least amount of damage. Testing can be difficult. Hair tissue analysis will only indicate current exposure. A 24 hour urine collection after taking a chelating agent like DMSA (dimercaptosuccinic acid) will give you stored body burden levels.

The reality is that we are all exposed to mercury in small amounts. The question is do we have natural chelators that will push the metals out of our cells and membranes? The sicker the patient and the more unusual the symptoms, the greater chance you will find mercury as a body burden.

So what can we do to daily reduce body burdens of mercury and other heavy metals? Eat foods that are high in sulfur that are natural chelating agents; this includes the cruciferous vegetables like cabbage, broccoli, brussels sprouts, cauliflower, mizuna, mustard greens, horseradish, kale, collards, cilantro, watercress, radishes, and turnips.

Other foods like red peppers, oats, chicken, turkey and duck provide cysteine which is valuable to make another natural chelator called metallothionein. Metallothionein can hold up to dozen molecules of mercury. Also remember Chlorophyll is one of nature's true chelators. So anything green will be an asset to minimize metal exposure.

Another class of natural foods is the flavonoids: blueberries, spinach, garlic, onions, organic strawberries, are excellent sources. Flavonoids reduce heavy metals and have a powerful effect on iron and copper which can be a major factor in increasing oxidation and free radical production.

It is interesting. The more we look at the biological, almost pharmacological effects of fruits

and vegetables, the better they look. The suggestion to eat 7-10 servings of fruits and vegetables is more like a prescription than a casual suggestion if we want to maintain optimal health.

In terms of supplementation: Lipoic Acid, Selenium, Zinc, Mixed Ascorbates, Vitamin E and N-Acetyl-L-Cysteine are important considerations. Years ago, Biotics Research developed a product called Porphyra-Zyme that has been a steady, consistent clinical asset to reduce heavy metals. Their research department isolated the porphyrin ring as a major natural chelator over 20 years ago.

I have a link below that shows the effects of Porphyra-Zyme on various metals. Some of the specialty labs are now using the porphyrin ring structure to help identify metals in the urine.

Dr. David Quig, a nationally known expert in heavy metals, likes using functional foods as well. One of his favorites is "un-denatured partially hydrolyzed whey protein." Taken as a protein smoothie or added to food, this inexpensive convenient tasteless protein source contains amino acids necessary to rebuild and restore natural glutathione. He shared how hydrolyzed whey increased glutathione in "intracellular red blood cells", liver, heart, and lymphocytes. Obviously, that's a good thing. There's also a link here that will summarize the dosages.

So it all boils down to this, "Exposure to mercury and other heavy metals is a real problem. We should eat natural chelators and supply nutrients daily that can keep our body burden to a minimum."

Thanks for reading this week. I'll see you next Tuesday.