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**Heavy Metals:
*Not Music to Your Ears***

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While some may argue that heavy metal music is potentially damaging to one's hearing, heavy metal toxicity may lead to a wide array of diseases and symptoms, including tinnitus, or ringing of the ears. Contamination of the air we breathe, the water we drink and the food we eat by heavy metals is an increasingly serious health concern. Arsenic, mercury, cadmium and lead are all byproducts of a high-tech, industrialized society.

Heavy metal toxicity can be divided into acute poisoning and chronic low-level exposure. While severe acute poisoning is relatively rare, chronic low-level exposure is very common.

Sources of Heavy Metals

Humans have been exposed to mercury for centuries. In the 18th century medical doctors used mercury poisoning to treat a wide array of illnesses. Mercury in hat felt caused several cases of severe behavioral and cognitive changes, hence the term "mad hatters". Today, mercury, lead and other heavy metals are ubiquitous in our environment. Mercury for instance is found in dental amalgams, seafood, some pesticides, fungicides and many vaccines. Lead may be found in lead based paint (in stripping, peeling and household), vinyl miniblinds, glass painting, welding, home auto restoration, and alcohol stored in lead crystal. Leaded gasoline has been banned for several years due to its negative effects on children's physical and mental development.

Several industries including mines are sources for many heavy metals in our environment. Many of these metals bioaccumulate in the food chain. Plankton and algae in the oceans absorb Mercury. Small fish feed on these plants. Larger fish will eat these small fish and incorporate the mercury in the tissues. The mercury will bioaccumulate in larger fish such as tuna. As little as 1.5 ounces of tuna may contain mercury that reaches the maximum "safe" dose as established by the US environmental protection agency.

Accumulation of these metals also occurs in the human body. Heavy metals may be stored in not only fat cells, but also in the bones, organs (i.e. thyroid) and also the brain and spinal cord.

Symptoms/Conditions Associated with Heavy Metals

The resultant accumulation of heavy metals can negatively affect most systems of the body. Since these metals can interfere with enzymes in the body it is conceivable that most physiologic and biochemical processes may be adversely affected. Some of the documented symptoms of heavy metal toxicity include:

- ❑ Mental/emotional changes: reduced intelligence, ADD, Autism, behavior and cognitive changes, learning deficits, depression, memory loss, irritability, hallucination
- ❑ Neurological symptoms: tremor, loss of balance, MS and Parkinson-like symptoms
- ❑ Anemia, gingivitis, high blood pressure, cancer, fatigue, increased blood uric acid and gout, male infertility, Alzheimer's disease, anorexia and insomnia

Dental Mercury Amalgams

Many individuals have read about the dangers of mercury in dental amalgams. Indiscriminately removing mercury without engaging in an adequate chelation program can do more harm than good. Also finding a dentist that has been trained in the Hal Higgins, DDS system of removal is strongly recommended. Removing mercury from the dental amalgams can release large amounts of mercury vapors that can be deposited in the brain. Some individuals in an attempt to improve their health with removal of their amalgams feel worse if a properly designed program does not accompany the removal.

Diagnosis

There are several ways to diagnose heavy metal toxicity. With acute exposures, a Medical or Naturopathic doctor can conduct a blood test to determine high levels. With chronic low volume accumulative exposure, two tests (hair analysis or urine) may be reliable to determine elevated levels. The Environmental Protection Agency in the US has deemed hair analysis to be a reliable means of measuring heavy metals. A high level of heavy metal is an adequate indicator of tissue levels. Heavy metals however can also accumulate in the bones and nervous system. If this occurs, then hair analysis may not be the most accurate means of diagnosing heavy metal toxicity. The preferred diagnostic test to determine if heavy metals are elevated is a urine test using the provoking agents DMSA or DMPS. DMSA and DMPS chelate (binds) heavy metals and eliminate them via the urine.

Treating Heavy Metals

Excretions of heavy metals are primarily through the intestines (via the liver) and kidneys. These organs of elimination must be functioning optimally before commencing treatment to optimize efficient elimination of these metals. Once these organs have been “primed” through diet, botanical and nutritional supplementation the second phase can begin. The second phase is a more intensive treatment of chelating (binding) and excreting the heavy metals.

Diet is extremely important during the process of eliminating heavy metals. Eating 5-10 servings of vegetables and fruit per day is very important. Also consuming whole grains and a high fiber diet will help to aid elimination. Sulfur containing vegetable such as broccoli, cauliflower, brussel sprouts, onions and garlic will aid in liver detoxification of the heavy metals. Kelp, arame and hijike are sea vegetables that also aid in elimination via their chelating abilities. Adequate water intake is also essential. Sulfur containing amino acids, such as cysteine, along with 4 other branched chain amino acids are included in the treatment regime to effectively remove heavy metals. The primary chelator DMSA is one of the safest and most effective chelator for the brain mercury. DMSA can cross a partially permeable barrier in the brain called the blood brain barrier. DMSA is superior to other chemicals in chelating heavy metals from the brain. Other chelating agents such as EDTA, BAL and DMPS, (used by some doctors) while useful adjuncts to DMSA with certain heavy metals, must be used with caution when treating heavy metal toxicity.

Conclusion

Although heavy metals cannot be avoided due to their prevalence in the environment, several measures besides avoidance of the source of heavy metals can be taken to treat toxicity. Diet, nutritional supplements and chelating agents such as DMSA are safe and effective means to reduce heavy metal toxicity. Treating heavy metals is a long process. It can take several months to adequately chelate heavy metals from the body. The effort could pay great dividends in one's health and quality of life.