Mercury is "a poison more toxic than lead or arsenic"
– Sam Ziff

Are Your Fillings Poisoning You?

“Mercury is the most poisonous, non-radioactive, naturally occurring substance on our planet.”
I have a problem.

I no longer use mercury in my dental practice. Consequently, I have unused mercury in my office. I have tried to return it to the dental mercury manufacturers, but they refuse to accept it. I am required to pay an expensive disposal fee to a toxic waste facility to get rid of it.

It is illegal under United States federal regulations for toxic waste to dispose of it in any other way, except one. The cheaper way to get rid of it (and the only other legal way) is to mix it with some metal dust and pack this paste into your teeth as fillings.

In fact, in 2004 alone, more than sixty thousand tons of mercury was placed into patients’ mouths as dental fillings.

No reputable scientist or doctor disputes the fact that mercury is dangerous and a poison. Although mercury is used in a variety of industries (including manufacturing, mining, chemical engineering, and medicine), it is “more toxic than lead or arsenic,”¹ which are both heavy metals everyday Americans are taught to avoid.

If you’ve ever heard the phrase “mad as a hatter,” it refers to the fact that mercury was once used in the making of fur hats. Hatters, those who made fur hats, would often go mentally insane because of mercury poisoning.² The United States Occupational Safety and Health Administration (OSHA), Food and Drug Administration
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(FDA), Environmental Protection Agency (EPA), and other government organizations have implemented strict regulations to protect workers and consumers from similar tragedies.³

The use of mercury is so heavily regulated because it is extremely hazardous. At room temperature, elemental mercury exists as a liquid metal which releases a mercury vapor into the air.⁴ This vapor is extremely dangerous.

According to the United States Department of Health and Human Services, “When metallic mercury vapors are inhaled, they readily enter the bloodstream and are carried throughout the body and can move into the brain.”⁵ While the body can effectively filter most foreign elements from the bloodstream before it reaches the brain, mercury is able to penetrate that barrier easily. Because mercury is able to penetrate the body’s defenses so easily, it can wreak havoc to the brain and the central nervous system in ways that other toxins cannot.

When a person is exposed to this vapor in large amounts, the symptoms are easily recognized (although difficult to treat) as acute mercury poisoning. However, when a person is exposed slowly over a long time (chronic mercury poisoning), the condition is much more difficult to diagnose. Because the symptoms of chronic mercury poisoning mimic the symptoms of many other diseases, chronic mercury poisoning has been called the “greatest masquerader of all time.”⁶ Once chronic mercury poisoning has been diagnosed, it is difficult to treat, because mercury is extremely difficult to remove from the body.
What Are Potential Symptoms of Chronic Mercury Poisoning?

- Irritability
- Nervousness
- Shyness
- Forgetfulness
- Insecurity
- Mood changes
- Increased anger
- Mental decline
- Depression
- Drowsiness
- Insomnia
- Abdominal cramps
- Constipation or diarrhea
- Gastrointestinal problems
- Irregular heartbeat
- Feeble and irregular pulse
- Alterations in blood pressure
- Pain or pressure in the chest
- Persistent cough
- Shallow and irregular respiration
- Dim or double vision
- Fatigue
- Excessive perspiration
- Loss of appetite
- Loss of weight
- Mild tremors

This list of symptoms is large, and none of them point conclusively to chronic mercury poisoning. These are simply some of the symptoms that have, in many patients, been attributed to or exacerbated by chronic mercury poisoning. Because mercury attacks not only the central nervous system and the brain, but also nearly every other system or organ, the resulting damage can manifest itself in a variety of ways. According to Tom McGuire, “Over 100 symptoms, diseases, and syndromes are directly related to chronic mercury exposure.”
Why Amalgam Fillings in the First Place?

hat about the use of mercury in the dental industry? Close to half of United States dentists repair teeth with amalgam fillings, and the main ingredient of dental amalgams is mercury.

The first dental silver amalgam was invented in 1819 in England and was made by mixing elemental mercury with metal (silver) powder. It was the most effective means of repairing tooth decay at the time. Dentists did not know of other substance that they could place into the tooth in paste form that would then harden afterwards (thus molding to the contours of the cavity). Not only was it the most effective technique of the time, it was also the cheapest.

The overlooked problem with amalgam fillings was simple: because they were 50% mercury, they were toxic. In fact, when amalgam fillings were introduced in the United States in 1833, the primary dental organization of the time, the American Society of Dental Surgeons (ASDS) prohibited its members from using the amalgam because they knew mercury was toxic. Members of the ASDS would lose their membership in the organization (and thus their credibility as well) if they put amalgam fillings into their patients’ mouths.

However, many dentists who were not members of the ASDS did not depend on the ASDS for their credibility. These “barber-dentists” (this term refers to the fact that they did not consider themselves medical practitioners) were therefore able to charge less for tooth repair than the more strictly self-regulated members of the ASDS. For this reason, the ASDS lost the support of its members, and a new dental organization developed called the American Dental Association (ADA), which would grant membership and licenses to dentists who used mercury fillings.

According to Tom McGuire, DDS, “the ADA was formed so member dentists could generate revenues from placing amalgam fillings without fear of losing their licenses. This same association regulates and controls the dental profession today—and continues to support the use of amalgams.” Because of the continued support of the ADA, nearly half of the dentists in the United States still use amalgam fillings, despite the fact that more effective and safer techniques have been developed to repair tooth decay.
any nations (including Germany and Sweden) have recognized the dangers of amalgam fillings and have taken steps to reduce the use of mercury in the dental industry.21

However, the well-known fact that mercury vapor is hazardous has been ignored by American dentists. For a long time, the ADA claimed that although elemental mercury releases toxic vapor, dental amalgams do not. This is because, the ADA argued, when mercury bonds with the metal powder in the amalgam, it is “locked in,” and no longer releases mercury vapor.22

This claim was disproven when recent studies demonstrated that “some mercury from the amalgam is vaporized and absorbed by the body, particularly after chewing and brushing teeth.”23 In light of this discovery, in 2008, the FDA warned pregnant mothers to avoid dental amalgams. The FDA said, “Dental amalgams contain mercury, which may have neurotoxic effects on the nervous systems of developing children and fetuses.” Since these discoveries, the ADA has since changed its position. It no longer claims that amalgam fillings don’t release any vapor, but that the amount of vapor released from amalgam fillings is too minute to damage the human body (except in the extremely rare case that the patient is allergic to mercury).24

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—Congressman Dan Burton

The ADA’s present position that mercury vapor from amalgam fillings is only a threat to those rare patients who have a allergic reaction to mercury is absurd. The definition of an allergy is an “exaggerated or pathological immunological reaction [to substances] that are without comparable effect on the average individual.” We have already demonstrated that mercury vapor is toxic to any human body, regardless of any exaggerated reaction of the immune system. Consider the message that the ADA’s position sends to you as a dental patient: “Don’t worry: mercury is toxic to pregnant women, children, workers, the environment, and the general population, but it is perfectly safe for you because you are not allergic.”

This absurdity of this claim is elo-
Amount of Mercury Vapor Released from Dental Amalgams

Amount that can be released while dry polishing an amalgam filling:

- 4,295 Micrograms per Cubic Meter

Amount that can be released while brushing your teeth:

- 272 Micrograms per Cubic Meter

Amount that can be released while chewing food:

- 68 Micrograms per Cubic Meter

Recommended limit by OSHA:

- 50 Micrograms per Cubic Meter

Recommended limit by WHO:

- 25 Micrograms per Cubic Meter
ently captured by Congressman Dan Burton, who said, “Regrettably, the dental establishment continues to hold to the scientific fiction that a material that is hazardous before it goes into the mouth, and hazardous after it comes back out of the mouth, is somehow perfectly safe while contained in the mouth.”

Extensive scientific research has shown that there is no safe level of exposure to mercury vapor for those who have already been exposed. Because a certain amount of exposure to mercury is inevitable, the human body has evolved mechanisms to cleanse itself small amounts of mercury. However, explains McGuire, although “it’s absolutely fantastic that the body can remove any [mercury], … the body was never designed to deal with the large, continuous amounts released by amalgam fillings, as well as other sources that didn’t exist a few hundred years ago. … At some point, the incoming amount will surpass the body’s ability to remove it, and mercury will begin to accumulate.” At this point, no exposure to mercury is safe, because the body’s defenses against mercury are already depleted.

Let’s put the small amount of mercury vapor released by dental amalgams in comparison. A study performed by the World Health Organization (WHO) has shown that mercury vapor from amalgam fillings is the single highest source of mercury exposure (for those who aren’t exposed due to their occupation). The WHO claims that the average intake of mercury due to mercury vapor from amalgam fillings is 3.8-21 micrograms per day. According to research, up to 80% percent of this vapor, when inhaled, is absorbed into the human body. And that is just one day. There are more mercury atoms in 30 micrograms of mercury vapor than there are cells in the human body!

It is clear that the amount of mercury vapor released from amalgam fillings is not as harmless as the ADA claims it is. The OSHA has said that the maximum allowed exposure to mercury vapor in the workplace is 50 micrograms per cubic meter of air (the WHO has recommended the even lower value of 25 micrograms per cubic meter of air). Some studies have shown that the amount of mercury vapor released by dental amalgams while chewing food can reach 68 micrograms per cubic meter. That number can reach up to 272 micrograms per cubic meter when brushing your teeth. However, that is nothing compared to the 4,295 micrograms per cubic meter that can be released while a dentist is dry polishing a dental amalgam. We see that during ordinary daily activities, the amount of mercury vapor released by dental amalgams can reach 10 times the recommended limit by U.S. and international agencies, and up to 170 times the recommended limit when visiting the dentist!
Mercury Free Is Not Necessarily Mercury Safe

It is clear that we should avoid having our teeth repaired with amalgam. It is likely that some will want to have their dental amalgams removed. Fortunately, 52% of American dentists no longer use mercury in their practice, and many will even remove dental amalgams and replace them with safer products.30 However, it is important to be aware that many dentists have stopped using dental amalgams because they believe other products are more effective, not because they believe that dental amalgams are toxic. Because of this, they may not take proper precautions when treating teeth that have already been repaired with dental amalgams, nor take proper precautions when replacing dental amalgams with safer materials.

If your amalgam fillings are removed without proper safety precautions, you may be exposed to much more mercury and be at greater risk of mercury poisoning than you be if you did nothing.31 In essence, removing amalgam fillings improperly can be dangerous! For this reason, it is important to find a dentist who is not only mercury free, but also mercury safe. A mercury safe dentist will not only avoid the use of dental amalgams, he will also take careful precautions when removing amalgam fillings and replacing them with alternative materials.

In 1984, a number of dentists formed an organization called the International Academy of Oral Medicine and Toxicology (IAOMT) to explore ways to improve the safety and effectiveness of dental procedures. The IAOMT has released guidelines and recommendations for the safe removal of dental amalgams.32 Here are some of the precautions that a mercury safe dentist will take:

- A mercury safe dentist will remove amalgam fillings one chunk at a time. Rather than remove the entire filling, the dentists will cut the filling into pieces and remove the pieces individually. This lessens the amount of mercury that is released into the air.
- A mercury safe dentist will vacuum the patient’s mouth throughout the entire procedure, in order to suck up any mercury vapor that may be released. This vacuum will have a special mercury filter that grabs mercury vapor.
- A mercury safe dentist will put a “dental dam” over the patient’s mouth. This covers everything in the mouth except the tooth being worked on. This keeps mercury vapor and dust from settling elsewhere in the mouth. The dental dam will be non-latex, because mercury can travel through latex.
- A mercury safe dentist will cover the patient with a surgical drape, to keep mercury from settling on the patient’s
face and skin.

- A mercury safe dentist will provide the patient with an alternate source of air to breath (an oxygen mask, for example) so that the patient does not have to breath mercury vapor that may be released during the amalgam removal.

- A mercury safe dentist will also filter the air in the office, to make sure that other patients are not exposed to mercury vapor or dust that was released during the amalgam removal.

- A mercury safe dentist will also protect himself by wearing a mask and non-latex gloves.

If you have amalgam fillings and want them removed, first consider whether your dentist follows these procedures.

Amalgam Fillings Are Less Effective Than Other Filling Materials

Not only is mercury toxic, but amalgam fillings may also damage your teeth. Back in the 1800’s, mercury was the most useful substance for repairing dental decay because of its versatility. It could easily be molded to fit the contours of the tooth. However, studies have shown that when amalgam hardens, it exerts a constant pressure on the sides of the cavity. This pressure stresses the tooth, and makes it easier for the tooth to fracture under strain.\(^{33}\) While the effects of this strain may be unnoticeable, they may contribute to a lifetime of dental challenges.

Also, studies have shown that the same kinds of microorganism responsible for tooth decay in the first place can often be found beneath amalgam fillings.\(^ {34}\) This means that amalgam fillings do not always protect the tooth beneath it from decay (nor are they intended to). This can lead to further decay that is more difficult to detect, and which will require more of the tooth to be removed and, consequently, more amalgam to be used to restore the normal shape of the tooth. Other restorative materials may reduce this challenge and decrease the risk of perpetual tooth decay.
References


For example, the OSHA regulations regarding mercury vapor can be found online at HYPERLINK "http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9992"


EPA website, available online at http://www.epa.gov/mercury/effects.htm#elem.


Ibid. pg. 75.


Ibid. Pg. 11-12.

Ibid. Pg. 13.


Ibid. 21.

Ibid. 26.

Ibid. 75.

