

Dental Amalgam Mercury Solutions

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DENTAL AMALGAM MERCURY SOLUTIONS www.dams.cc

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New Studies Find High Mercury and Adverse Effects from Dental Amalgam:

1. Mercury is the most toxic substance that people commonly are exposed to. The U.S. EPA drinking water standard is 2 parts per billion. Mercury is in the top 3 of toxic exposures affecting large numbers of people. (1, 4)

2. Dental amalgam is an unstable mixture of 50% liquid mercury with other toxic metals including copper, silver, tin. Since mercury is a gas at room temperature it vaporizes continuously from the amalgam mixture resulting in high levels of mercury in the oral air and saliva, as can be easily measured. Since amalgam is also a mixture of metals in an electrolyte (saliva) this results in galvanic currents that pump mercury and other toxic metals into the gums and oral mucosa, from which it is carried throughout the body by the blood and nerves. (24, 27, 32)

3. Dental Amalgam Fillings are the Largest Source of Mercury in Most People who have amalgam fillings (2-22, 32) and Daily Mercury Exposure from Amalgam Commonly Exceeds Government Health Standards for Inorganic Mercury (vapor). (4-10, 19-21, 32)

4. Medical tests show that those with several amalgam fillings have on average 10 times more mercury in feces and saliva than those without amalgam, and after amalgam replacement levels of mercury in feces and saliva decline approx. 90%, while mercury level in urine declines 75% on average. (19, 13-15)

5. Elemental and inorganic mercury are methylated in the body to methyl mercury by bacteria, yeasts, etc. so that amalgam fillings are the largest source of methyl mercury in many people who have amalgams (17, 18, 13-15)

6. Mercury from amalgam is passed on to fetuses and infants through mother ' s blood and milk, and Mother ' s dental amalgam fillings are the largest source of mercury in most fetuses and infants prior to mercury containing vaccinations (12, 26, 21, 32). One flu vaccination (or other vaccination that contains 25 micrograms of mercury thimerosal) exceeds the Canadian health standard for daily mercury exposure to an infant by a factor of 250 and for a child by a factor of 100 (20).

7. Dental amalgam is the largest source of mercury in most children who have amalgam fillings other than from vaccines, and mercury level is directly proportional to the number of mercury fillings (11, 21, 32). Developmental effects on infants occur at low levels of mercury exposure and many thousands are known to be affected. (25, 26, 12)

8. Mercury vapor from amalgam is the most dangerous form of mercury, most rapidly crossing blood-brain barrier and mother ' s placenta and causing adverse developmental

effects at lower levels than other forms. (28, 26, 21, 29)

9. In addition to the high mercury volatility and galvanic currents between mixed metals in the mouth, electromagnetic fields (EMF) from appliances such as computer monitors cause currents in the metals which carry mercury into the body. (24, 21)

10. Mercury in those with amalgam fillings or dental workers accumulates to much higher levels in the major body organs like the brain, heart, liver, and kidneys that receive a lot of blood than in those without amalgam. Mercury blocks or damages metabolic or hormonal processes in all organs at very low levels of exposure. (16, 21, 22, 32)

11. Chronic adverse health effects from amalgam are common in adults. Mercury is extremely cytotoxic, neurotoxic, immunotoxic, endocrine disrupting, inflammatory, and a reproductive toxin. Mercury commonly causes chronic neurological, immune and autoimmune, cardiovascular, hormonal, oral, and reproductive conditions. (1, 27, 23, 22, 21, 32)

12. Those who replace amalgam fillings and reduce body mercury levels commonly recover or see significant improvement, as documented by peer-reviewed studies and thousands of clinical cases histories. (23, 31, 21, 32)

13. Dental Amalgam is the largest source of mercury in sewers and sewer sludge, and thus a major source in water bodies, fish, crops, and the atmosphere-due to sludge outgasing and high emissions from crematoria (30).

1.1 Documentation

Special interests like the ADA which was founded to support use of dental amalgam have been successfully misleading the public regarding the true nature of dental amalgam for years by use of misinformation, money, and politics to suppress the truth. But the science is clear that dental amalgam is a mixture of approximately 50% liquid mercury with various metals including copper, silver, tin to form an unstable alloy that results in high levels of toxic metal exposure including mercury over time. Since mercury is a gas at room temperature the mercury vaporizes continuously from the amalgam, resulting in high levels of mercury in the oral air and saliva, as is easily measured. Additionally since amalgam is a mixture of metals in an electrolyte (saliva) this produces galvanic currents (battery effect) that pumps mercury and other toxic metals into the gums and oral mucosa, from which it is taken by the blood and nerves throughout the body (24, 21). Approximately 80% of the mercury in the oral air is absorbed by the blood in the lungs (7, 24) and is distributed throughout the body, along with the other mercury released by amalgam, rapidly passing out of the blood, crossing cell membranes and accumulating in the major organs that receive large amounts of blood-the brain, heart, liver, kidneys, and hormone glands. Over time this, along with exposures to other synergistic toxics, commonly results in chronic degenerative health conditions affecting all major body organs, as has been well documented in the medical literature (21, 22).

A large National Institute of Dental Research study has confirmed other previous study results that found that the current type of amalgam dental fillings being used in the U.S. leak significant amounts of extremely toxic mercury into the body and are the number one source of mercury in people (5, 2-21). The study measured mercury levels in the blood and urine of over 1000 military personnel and found a high significant correlation to the number of amalgam filling surfaces in the mouth. Like several other recent studies, the study found that amalgam fillings are not stable because of mercury's high volatility and galvanic action between the different metals in the mouth. For this large military population that had a range of from 0 to 66 amalgam filling surfaces, each 10 surfaces added approximately 1 microgram of mercury per liter of urine excreted, meaning total mercury

excreted in urine averaged about 3.1 micrograms per day, with soldiers levels with over 49 amalgam surfaces averaging over 8.7 micrograms in urine. The average level for those with fillings was 4.5 times that of the controls without amalgam, and those with over 49 surfaces averaged over 8 times controls without amalgam. Together with the considerably larger amount of mercury excreted daily through the digestive tract and sweat, the daily mercury excretion would amount to over 30 micrograms per day on average and much more for some individuals, as supported by other studies and medical lab tests (6-15, 19, 30). Over 90% of the mercury in the urine was inorganic mercury, the kind that comes from fillings, but the majority of mercury in blood was methyl mercury. Inorganic mercury has been found to be methylated in the mouth and intestines to methyl mercury by bacteria, yeasts, etc. so that dental fillings are the largest source of methyl mercury in most dental staff or people with amalgam fillings (18, 17, 7, 13-15, 21, 29).

For this population, it was determined that the exposure from amalgam fillings was the primary source of mercury exposure, and on average the exposure exceeded the levels that would be consistent with U.S. Government Standards (MRL) for daily mercury exposure (20). The study's findings were consistent with the findings of many other recent such studies (21, 24), including a similar study testing 20,000 people at a University Health Clinic in Germany (6), as well as the findings of the World Health Organization Scientific Panel on inorganic mercury exposure and U.S. ATSDR (4).

Because of the extreme toxicity of mercury, the U.S. EPA drinking water standard for mercury is 2 parts per billion, which allows for not over 4 micrograms per day mercury exposure for an average adult. The U.S.EPA mercury health guideline for elemental mercury exposure (vapor) is 0.3 micrograms per cubic meter of air ($0.3 \mu\text{g}/\text{m}^3$). For the average adult breathing 20 m^3 of air per day, this amounts to an exposure of approximately 6 micrograms per day. The U.S. Department of Health, Agency for Toxic Substances and Disease Registry (ASTDR) standard (MRL)-for acute inhalation exposure to mercury vapor is $0.2 \text{ micrograms Hg}/\text{m}^3$, which translates to approx. $4 \mu\text{g}/\text{day}$ for the average adult (20). The EPA health guideline for methyl mercury is $0.1 \mu\text{g}/\text{kg}$ body weight per day or $7 \mu\text{g}$ for the average adult (4, 20), and the MRL for methyl mercury is $0.3 \mu\text{g}/\text{kg}$ body weight/day (4).

The corresponding tolerable daily exposure developed in a report for the Canadian Health Agency, Health Canada, is $.014 \mu\text{g}/\text{kg}$ body weight or $1 \mu\text{g}/\text{day}$ for average adult (2). The permissible level for a child would be less. But the levels of the average daily exposures found in this study and other studies (6-10, 19) were above all of these health guidelines for mercury exposure.

The reference average **level of mercury in feces** (dry weight) for those tested at **Doctors Data Lab** with amalgam fillings is $.26 \text{ mg}/\text{kg}$, compared to the reference average level for those without amalgam fillings of $.02 \text{ mg}/\text{kg}$ (19). **(13 times that of the population w/o amalgam)**. A Swedish lab that does fecal tests for mercury had similar results (19). Tests on people who have had amalgam replaced likewise confirm these results (13-15). **Government and Scientific panels** as well as large numbers of medical studies have confirmed dental mercury amalgam is the number one source of mercury in most people and affects millions (2-22, 30)

In a large study of a group with amalgams, a group without amalgams, and a group that had undergone amalgam replacement-using saliva mercury measurements, it was concluded that amalgam is the main source of organic mercury in most people. Those with amalgams on average had more than 4 times as much organic mercury as either group without amalgam. Those with amalgam had over 10 times the total mercury as those without (18). And mercury from fish was controlled for in the study and not a factor in these results. Mercury vapor and inorganic mercury are well documented to be methylated to methyl mercury in the mouth and intestines by bacteria, yeast, and other methyl donors. These results are similarly supported by other studies (7, 13-15, 17, 29).

The main reasons for the high exposure levels from mercury are the high volatility of mercury (which is vaporizing constantly at room temperature) and the galvanic currents in the mouth gen-

erated by mixed metals in an electrolyte (saliva)(24). Mercury has a relatively high vapor pressure and vaporizes at room temperature. The rate of mercury volatilization is directly related to temperature so in the body it is even more volatile. The vapor saturation concentration in air of 20 milligrams of mercury per cubic meter of air is much higher than the safety limit. The ATSDR safety standard (MRL) for mercury is 0.2 micrograms of mercury per cubic meter of air. Thus mercury readily vaporizes to above the MRL level. Studies have found that on average for each additional amalgam filling, the level of mercury in saliva increases by 1.5 micrograms per Liter (6, 21), while for each additional 10 amalgam surfaces the amount of mercury in urine increases by 1 microgram per liter (5.21). Saliva and feces have the highest levels of mercury that are measurable by tests. Many studies have overlooked the fact that metal crowns over amalgam cause exposure levels as much as amalgam fillings, and also taking them into account would improve precision of regression equations for the level of mercury (24).

Other studies in addition to the studies that the Government Health Standards were based on have found adverse health effects at very low levels of exposure (4, 21) and developmental effects on infants and children at very low levels of exposure (25, 26, 12), along with finding that mercury vapor from a mother's fillings is readily transferred through the mother's blood across the placenta to a fetus and also through mother's milk (26, 21).

These findings increase the urgency to advise the public of the clear danger in the use of mercury in fillings and to reconsider the policy of using mercury in dental fillings. Based on such studies, several other countries, such as Sweden, Australia, Norway, Japan, and Canada, have already adopted restrictions or warnings on the use of mercury in fillings, such as for children, pregnant women, women of child bearing age, people with damaged kidneys or immune systems, and in the mouth adjacent to other metals (21). Amalgam manufacturers have also warned against some of the uses currently made of amalgam in dentistry in the U.S. (21)

Studies are also available that confirm adverse health effects from amalgam fillings (23, 27, 22, 21, 32) and clinically document that many thousands of people have recovered or had significant improvement in over 40 chronic conditions including very serious autoimmune and neurological conditions after replacement of amalgam fillings (23, 31, 22, 21, 32). Fact sheets are available from the DAMS website with cites to over 4,000 medical study references covering the statements and issues in this press release.

DAMS is currently working with thousands of people in the U.S. dealing with serious health effects caused by exposure to mercury from amalgam and urges everyone to find out more about this major problem and to get involved in resolving these health safety issues. DAMS can provide information and help to anyone who is interested or who thinks they might have health problems related to their amalgam fillings.

(www.flcv.com/indexd.html)

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21. Health Effects of amalgam fillings and results of replacement of amalgam fillings. Over 4000 medical study references (most in Medline) documenting common high mercury exposures from amalgam, that vapor from amalgam is the most dangerous form of mercury to the fetus, and the mechanisms by which mercury causes over 40 chronic health conditions www.flcv.com/amalg6

22. Neurological & Autoimmune conditions: CFS, FM, MS, Parkinson’s, ALS, Alzheimer’s, Lupus, Chron’s, Scleroderma: the connection to mercury immune reactivity and amalgam fillings; www.flcv.com/indexa.html (Over 4,000 peer-reviewed references)

23. Documentation of recovery from 60,000 clinical cases of serious adverse health effects after replacement of amalgam fillings in over 30 chronic health conditions, B. Windham (Ed.) www.flcv.com/hgremov (Over 50 peer-reviewed studies)

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