

What Others NOW Say

A Response by Californians for Green Dentistry to the American Dental Association's "What Others Say" (2008)

December 2012

Highlights

- The ADA states, "Exhaustive clinical studies... in the United States and Portugal ... have reported no adverse effects.... Both [of the Children's Amalgam Trials] support the continued use of dental amalgam...."

True, initial analyses published in 2006 found that amalgam was not associated with observable health effects during the study period (although amalgam was associated with higher urinary mercury levels).

Yet **three recent analyses** of the data from the Portugal Children's Amalgam Trial, **now find harm**. First, biomarkers for **enzyme damage**, called porphyrins, were associated with amalgam. Second, boys with a common genetic variant, called CPOX4, showed **neurobehavioral deficits** associated with amalgam. Third, the same subset of boys showed biomarkers for **kidney damage** associated with amalgam. (See p.10.)

- The ADA is silent on the issue of fetal toxicities. Yet according to the most current metals toxicology textbook, Nordberg's *Handbook on the Toxicology of Metals* (2007):

"Clear effects on nerve growth arise at the concentration level ... found in neonatal infants of amalgam-bearing mothers." (See p. 9.)

- The ADA is also silent on the issue of genetic susceptibilities. Yet the same textbook states:

The existence of cases with genetically determined high sensitivity to mercury and with an incidence [of less than one in one hundred exposed] is very likely and is a problem relevant to mercury vapor exposure from dental amalgam in the population. (See p.9.)

[M]ercury is a potent cell toxin that affects basic functions of the cell ... this leaves ample scope for genetic polymorphism to manifest itself in varying sensitivity and types of reaction to mercury exposure. (See p.9.)

- The ADA states, "The use of amalgam has not been banned in any country in the European Union," citing a 2001 journal article.

Yet in 2008 amalgam was **banned in Norway, Sweden, and Denmark**. Germany and Canada have limited its use for pregnant women. France, Finland, and Austria have recommended that alternative dental materials be used for pregnant women. (See p.13.)

American Dental Association:

What Others Say

August 2008

Alzheimer's Association: "According to the best available scientific evidence, there is no relationship between silver dental fillings and Alzheimer's. ... Many scientists consider these studies compelling evidence that dental amalgam is not a major risk factor for Alzheimer's disease (Clarkson, Thomas W. et al. "The Toxicology of Mercury: Current exposures and Clinical Manifestations." *New England Journal of Medicine*. October 30, 2003: 1731-1737, and Saxe, Stanley R., et al. "Alzheimer's Disease, Dental Amalgam, and Mercury," *Journal of the American Dental Association*, 1999, February: 130 (2): 191-199). Public health agencies including the FDA, the U.S. Public Health Service, and the World Health Organization endorse the continued use of amalgam as a safe, strong, inexpensive material for dental restorations. ... National Institutes of Health (NIH) in 1991 funded a study at the University of Kentucky to investigate the relationship between amalgam fillings and Alzheimer's. Analysis by University statisticians revealed no significant association between silver fillings and Alzheimer's." Source: Alzheimer's Association web site, "Alzheimer's Myths. Myth 7: Silver dental fillings increase risk of Alzheimer's disease," March 17, 2008

http://www.alz.org/alzheimers_disease_myths_about_alzheimers.asp

Californians for Green Dentistry

What Others NOW Say

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In a 2010 review of the Alzheimer's literature, Mutter, *et al*, write:

*In vitro models showed that inorganic mercury reproduces all pathological changes seen in AD, and in animal models inorganic mercury produced changes that are similar to those seen in AD. Its [toxic mechanism] suggests that inorganic mercury may promote neurodegenerative disorders via disruption of redox regulation. Inorganic mercury may play a role as a cofactor in the development of AD. It may also increase the pathological influence of other metals. **As the single most effective public health primary preventive measure, industrial, and medical usage of mercury should be eliminated as soon as possible.***¹
(Emphasis added.)

(The ADA cites the Clarkson 2003 review in three separate entries. A critique of this review is provided on page 12.)

The Saxe 1999 study, which was published in a trade journal, has been criticized for using control subjects with high mercury levels.²

The World Health Organization states in its 2005 policy paper, *Mercury in Health Care*, "**Recent studies suggest that mercury may have no threshold below which some adverse effects do not occur.**" (Emphasis added.) Within its long-term strategy, the WHO seeks to "support a ban for use of mercury-containing devices and effectively promote the use of mercury-free alternatives."³

American Academy of Pediatrics: “Although dental amalgams are a source of mercury exposure and are associated with slightly higher urinary mercury excretion, there is no scientific evidence of any measurable clinical toxic effects other than rare hypersensitivity reactions. An expert panel for the National Institutes of Health has concluded that existing evidence indicates dental amalgams do not pose a health risk and should not be replaced merely to decrease mercury exposure.” Source:

<http://aappolicy.aappublications.org/cgi/content/full/pediatrics;108/1/197>

Q. Should my child have non-mercury fillings? Or should the mercury fillings be replaced?

A. Mercury amalgams are a durable material for filling dental caries. There is no scientific evidence that this commonly used dental material is a health hazard, although mercury exposure may occur from the presence of dental amalgams. It is not necessary to replace amalgams just because of the mercury content; furthermore, the removal process may weaken the tooth.

Source: *Pediatric Environmental Health*, 2 edition, American Academy of Pediatrics Committee on Environmental Health, Elk Grove Village, IL, 2003: p. 277

According to the linked webpage, the American Academy of Pediatrics policy statement quoted by the ADA has been “retired.”

Regarding potential effects on fetuses and children, Nordberg’s *Handbook on the Toxicology of Metals* (2007) states, “**Clear effects on nerve growth arise at the concentration level ... found in neonatal infants of amalgam-bearing mothers.**”⁴ (Emphasis added.)

American Cancer Society: Biological dentistry is the removal of dental fillings or teeth claimed to contain toxins, which are said to cause systemic diseases or pain. Available scientific evidence does not support claims that removing healthy teeth or amalgam fillings can prevent cancer or any other disease. The clinical studies that have been published in peer-reviewed medical journals found no link between mercury-containing fillings and the development of cancer and other diseases. The amount of mercury absorbed by the body from amalgams is so small it is considered harmless.

Source:

http://www.cancer.org/docroot/ETO/content/ETO_5_3X_Biological_Dentistry.asp?sitearea=ETO

This American Cancer Society link for information on biological dentistry is inactive, and a Google search of the ACS’s website returns no relevant hits.

According to the International Association of Oral Medicine and Toxicology, biological dentistry is a practice of oral medicine that considers the effects of dental materials and dental procedures themselves on the overall health of the body, based on the current scientific understanding of toxicology, immunology, and microbiology, in order to minimize the impacts of dental work on the biological terrain of the patient.⁵

Autism Society of America: “There is no known single cause for autism, but it is generally accepted that it is caused by abnormalities in brain structure or function. Brain scans show differences in the shape and structure of the brain in autistic versus non-autistic children. Researchers are investigating a number of theories, including the link between heredity, genetics and medical problems. In many families, there appears to be a pattern of autism or related disabilities, further supporting a genetic basis to the disorder. While no one gene has been identified as causing autism, researchers are searching for irregular segments of genetic code that autistic children may have inherited. It also appears that some children are born with a susceptibility to autism, but researchers have not yet identified a single "trigger" that causes autism to develop.” Source: Autism Society of America Web site, http://www.autism-society.org/site/PageServer?pagename=about_whatcauses

According to a 2010 evaluation of the state of scientific knowledge on autism, “scientific research does not support rejecting the link between the neurodevelopmental disorder of autism and toxic exposures;” and “empirical investigations are finding support for a link with heavy metal toxins.”⁶

According to autism expert Martha Herbert, multiple lines of evidence suggest a role for environmental factors as well as environmentally vulnerable physiologies due to gene variants and dietary factors.⁷

The following studies (2009 - 2011) show that the recently identified porphyrins biomarkers for mercury toxicity^{8,9} are associated with autism:

The porphyrins biomarkers for mercury toxicity are higher in children with a diagnosis of Autism Spectrum Disorder than in controls.¹⁰

The porphyrins biomarkers for mercury toxicity are associated with autism score as measured by the Autism Treatment Evaluation Checklist.¹¹

Severe autism is associated with a high number of maternal dental amalgams.¹²

U.S. Centers for Disease Control and Prevention (CDC): “Reports that suggest mercury from amalgam causes [...] symptoms, conditions and other diseases like Alzheimer’s or multiple sclerosis, are not backed up by current scientific evidence. The evidence also suggests that the removal of amalgam has no health benefits.” Source: CDC website “Dental Amalgam Use and Benefits,” August 2008. <http://www.cdc.gov/OralHealth/publications/factsheets/amalgam.htm>.

The quoted CDC statement is not available at the link shown, and a search for “Alzheimer’s amalgam)” on the CDC website returns no such article. However, a search for “amalgam” on the CDC website directs the user to the Agency for Toxic Substances and Disease Registry website, which states:

*Whether the levels of exposure to mercury vapor from dental amalgam are sufficiently high to cause adverse health effects, and exactly what those effects are, continues to be researched and debated by scientists and health officials.*¹³

U.S. Environmental Protection Agency: "...[T]he primary exposure of people in the U.S. to mercury is from eating fish and shellfish containing methylmercury." "...EPA recognizes that the decision to use dental amalgam is a medical decision that is best made by dental professionals and their patients." Source: Letter to The Honorable Donald A. Manzullo, Chairman, Committee on Small Business, U.S. House of Representatives, Washington, D.C., January 5, 2006.

A Google search for these quotes returns nothing attributable to the EPA.

According to the World Health Organization, the estimated average daily intake and retention of total mercury and mercury compounds is dominated by dental amalgams, which provide an estimated average daily retained exposure (to the general population not occupationally exposed) of 3 to 17 micrograms per day, whereas dietary fish provides about 2 micrograms per day.^{14,15}

Life Sciences Research Office (LSRO): LSRO conducted the independent scientific review of dental amalgam at the request of a work group made up of representatives from the National Institutes of Health, Centers for Disease Control and Prevention, Food and Drug Administration and the U.S. Public Health Service. The report, *Review and Analysis of the Literature on the Potential Adverse Health Effects of Dental Amalgam*, considered some 950 scientific and medical studies, 300 of which met criteria for scientific merit and study design. The report concludes that peer-reviewed scientific and medical literature published since 1996 provides insufficient evidence "of a link between dental mercury and health problems, except in rare instances of allergic reactions." http://www.lsro.org/amalgam/frames_amalgam_home.html

The statement is true, but the LSRO report exemplifies the burden-of-proof issue. The agency was asked to investigate whether the literature supported the hypotheses relating adverse health effects with amalgam. While the agency concluded that the literature provides insufficient evidence of a link, the agency also indicated that there was insufficient evidence of safety. In particular, it identified several research gaps, including developmental effects, effects of co-exposures to methylmercury, and genetic sensitivities including potential gender differences.

The LSRO literature review was not comprehensive. The agency considered only studies meeting certain criteria. These tended to be human occupational studies, which may be subject to the healthy-worker bias.

Urine mercury was chosen as the best biomarker for exposure, even though current science indicates that it correlates only roughly with exposure, on a population basis, and cannot be relied upon for individuals.¹⁶ Animal and *in vitro* studies were given little weight, even though such lab studies may allow better detection of subtle effects.

This report predates the 2011-2012 analyses of the Portugal Children's Amalgam Trial, which found associations between amalgam and several different health effects, as described on page 10.

National Council Against Health Fraud: "The National Council Against Health Fraud believes that amalgam fillings are safe..." "There is no logical reason to worry about the safety of amalgam fillings."
Source: National Council Against Health Fraud Web site, 2002
<http://www.ncahf.org/pp/amalgamp.html>

The link shown is to an archived document of the NCAHF, a non-profit organization that describes itself in the past tense.

National Multiple Sclerosis Society: "There is no scientific evidence to connect the development or worsening of MS with dental fillings containing mercury, and therefore no reason to have those fillings removed. Although poisoning with heavy metals-such as mercury, lead, or manganese-can damage the nervous system and produce symptoms such as tremor and weakness, the damage is inflicted in a different way than occurs in MS and the process is also different." Source: National MS Society Web site, June 2008 <http://www.nationalmssociety.org/about-multiple-sclerosis/treatments/complementary--alternative-medicine/index.aspx>

While a causal relationship has not been proven, Mutter, *et al*, summarize the scientific evidence linking amalgam with Multiple Sclerosis:¹⁷

- MS is correlated with caries and with amalgam;
- Several MS epidemics occurred after acute exposure to mercury or lead;
- Mercury caused a loss of Schwann cells in animals;
- Mercury provokes autoimmunity;
- MS patients have high levels of mercury in cerebrospinal fluid;
- MS patients who had their amalgams removed had fewer symptoms, better rates of recovery, lower blood mercury, and disappearance of oligoclonal bands in cerebrospinal fluid, as compared to MS patients who did not have their amalgams removed.

Also, one large study of a military population found a slight association between MS and amalgam-surface-years.¹⁸

New England Journal of Medicine: "Current concern arises from claims that long-term exposure to low concentrations of mercury vapor from amalgams either causes or exacerbates degenerative diseases such as amyotrophic lateral sclerosis, Alzheimer's disease, multiple sclerosis, and Parkinson's disease. Speculation has been most intense with respect to Alzheimer's disease after a report that the brains of patients with Alzheimer's disease had elevated mercury concentrations. However, several epidemiological investigations failed to provide evidence of a role of amalgam in these degenerative diseases . . . Patients who have questions about the potential relation between mercury and degenerative diseases can be assured that the available evidence shows no connection." Source: *New England Journal of Medicine* 349; 18, October 30, 2003, pp. 1731-1737.

(This Clarkson 2003 review was already cited by the ADA on page 3. Mutter's critique of Clarkson's 2006 review applies to the cited 2003 review as well, and is summarized on page 12.)

In addition, Mutter's 2004 critique of the mercury literature applies: "[A] number of studies are methodically flawed drawing inaccurate conclusions as to the safety of dental amalgam."¹⁹

<p>U.S. Public Health Service and National Institute of Dental and Craniofacial Research (NIDCR): “As an institute, we have participated in department reviews and there’s an ongoing process within the Public Health Service, Centers for Disease Control and Prevention, Food and Drug Administration and the National Institute of Dental and Craniofacial Research to continue to review the literature and maintain and be current on the emerging literature, in both animal and human studies. And at this point in time no new evidence has come up to change our view from the mid-1990s [that evidence does not warrant discontinuing use of dental amalgam].” —Dr. Dushanka Kleinman, deputy director, NIDCR and chief dental officer, U.S. Public Health Service, July 2001.</p>	<p>True, several government agencies and officials have purported that amalgam is safe, but others have disagreed.</p> <p>In 2006, an FDA science advisory panel found, first, that the agency’s documentation underlying its amalgam rule failed to present objectively the current science on health effects related to dental amalgam, and, second, that given the amount and quality of information available, the agency’s conclusions supporting amalgam were not reasonable.²⁰</p> <p>A similar panel in 2010 found that the science underlying the agency’s amalgam rule should be updated.²¹</p> <p>Much evidence to support an association between mercury dental amalgam and toxic effects may be found in the lengthy legal petitions by the International Academy of Oral Medicine and Toxicology, a professional dental association that is challenging the FDA’s amalgam rule.²²</p>
<p>World Health Organization and World Dental Federation: “No controlled studies have been published demonstrating systemic adverse health effects from amalgam restorations. Amalgam restorations are durable and cost-effective; they are, however, not tooth-colored.” — Consensus statement, September 1997.</p>	<p>The current position of the World Health Organization is described on page 3.</p>
<p>American Association for Dental Research: “Minute mercury exposure does not cause verifiable adverse effects on the general health of patients or dental health personnel.” (September 1996)</p>	<p>Regarding “verifiable” adverse effects, the FDA’s MedWatch system for reporting adverse effects may be inoperable. Many or perhaps all reports, including those of injured consumers who testified at the 2006 and 2010 FDA hearings, have never been investigated.²³</p> <p>According to Chang’s, <i>Toxicology of Metals</i> (1996):</p> <p><i>There are a considerable number of individuals who claim they have become ill from their amalgam fillings. It is problematic that so little effort has been made to evaluate such cases thoroughly. In an absence of a thorough evaluation, they cannot just be dismissed.</i>²⁴</p>

**Statements to the House Government Reform Committee,
November 14, 2002**

“Available scientific evidence continues to indicate that dental amalgam is a safe restorative material.” —Dr. Lawrence A. Tabak, Director, **National Institute of Dental and Craniofacial Research**.

“Eliminating dental amalgam as a restorative option precludes a dentist from offering patients what may be the best choice from a clinical perspective.” —Dr. Gregory Stoute, President, **National Dental Association**.

“This country enjoys the most accurate and comprehensive state-of-the-art medical institutions in the world. We should heed the advice and conclusions of these health professionals. The use of amalgam should remain a viable option for dentists and for their patients.” —**U.S. Rep. Butch Otter** (R-Idaho)

“I have always known this material to be safe and effective. Mercury is not the same thing as amalgam. We must put our emphasis on good peer-reviewed science.” —**U.S. Rep. Charles Norwood** (R-Ga.)

“Let me say, without equivocation, that if there were any credible and supportable evidence that amalgam was unsafe to the patient, I am certain that the ADA...would immediately call for its removal from the approved products list. I would also have the amalgams removed from my mouth.”—**U.S. Rep. Mike Simpson** (R-Idaho)

According to Nordberg's *Handbook on the Toxicology of Metals* (2007):²⁵

Mercury from dental amalgams is the dominant source of mercury exposure in terms of uptake and retention in the organism for the general population of industrialized countries (p. 681).

It is also the overwhelmingly dominant source of mercury in the central nervous system of the general population (p. 681).

The average daily retention in the population from amalgam is estimated at 3 - 17 [micrograms] with the note that substantial individual variations exist. ... [Some] cases demonstrate a mercury uptake of approximately 100 [micrograms per day] (p. 681).

[M]any of the studies reported in the older literature should be considered in light of limitations in mercury analysis and quality control (p. 684).

[T]he retention time of accumulated mercury varies widely among different organs (p. 685).

*[M]ercury is a potent cell toxin that affects basic functions of the cell by modifying the tertiary and quaternary structure of proteins by bonding strongly with sulfhydryl and selenohydryl groups. This metal may interact with receptor, ion channel, and intracellular signal link functions. As the structure of protein molecules is genetically determined, **this leaves ample scope for genetic polymorphism to manifest itself in varying sensitivity and types of reaction to mercury exposure*** (p. 686). (Emphasis added.)

*The existence of cases with genetically determined high sensitivity to mercury and with an incidence [of less than one in one hundred exposed] is very likely and **is a problem relevant to mercury vapor exposure from dental amalgam in the population*** (p. 687). (Emphasis added.)

[T]ests have confirmed the occurrence of high sensitivity to mercury.... (p. 688).

Recent Journal Articles

Journal of the American Medical Association

295: 1775 – 1783, April 19, 2006

“Neuropsychological and Renal Effects of Dental Amalgam in Children: A Randomized Clinical Trial”

Bellinger, et al

295: 1784 – 1792, April 19, 2006

“Neurobehavioral Effects of Dental Amalgam in Children: A Randomized Clinical Trial”

DeRouen, et al

Two studies measure whether children with dental amalgam fillings experienced any adverse effects related to neurobehavioral, neuropsychological (IQ) and kidney function. The authors find that there was no difference in neurological performance and kidney function in children who have amalgam fillings compared to a control group with composite (white) fillings.

The two studies bolster existing scientific understanding that the minute amount of mercury released by amalgams during such common activities as eating and drinking does not affect health adversely. Both studies support the continued use of dental amalgam as an important treatment option.

These two randomized, prospective, clinical trials in New England and Portugal, known as the **Children’s Amalgam Trials**, were widely cited to support the use of amalgam, because preliminary results showed no association between amalgam and health effects.

However, three recent analyses of the Portugal dataset now show adverse effects. First, a 2011 study found that **children with more amalgam had higher levels of porphyrins, indicating enzyme damage.**²⁶

Next, the group that had found no effects in 2006, found that **a genetically susceptible subset of children incurred neurobehavioral damage associated with amalgam.**²⁷ This genetic variant, called CPOX4, occurs in 25% of the population.²⁸ Further, the authors note that in adults at least four common genetic variants have been identified that confer susceptibility to mercury.²⁹

Finally, a third analysis revealed **biomarkers of kidney damage in a dose-response relationship with amalgam.**³⁰

Incidentally, in an editorial accompanying the original 2006 publication of the two parent studies, cited by the ADA, Herbert Needleman, the leading researcher on childhood lead poisoning, presciently warned against concluding that dental amalgam is safe.³¹

NeuroToxicology

26: 241-255, March 2005

“Amalgam Exposure and Neurological Function”

Kingman, Ph.D., et al

A study of 1,663 subjects of the ongoing Air Force Health Study of Vietnam era veterans found no connection between dental amalgam to any level of peripheral neuropathy. Subjects were tested for abnormal tremors, coordination, station or gait, strength, sensation and muscle stretch reflexes as part of the overall neurological evaluation. “The bottom line is there was no association between abnormal neurological signs and amalgam exposure,” states co-researcher James W. Albers, M.D., Ph.D. of the University of Michigan Medical School in an *ADA News* article about the study.

Many epidemiological studies find no association between amalgam and illness, perhaps because a high standard of statistical significance is required, and because the epidemiological noise of confounding factors makes it difficult to uncover real effects. Nonetheless, some epidemiological studies do show effects. For example:

Geier, *et al*, (2012) found that in a cohort of patients with neurodegenerative disease, the amount of brain dysfunction is associated with the porphyrins biomarkers for mercury body-burden; however the contributions of other heavy metals or genetic factors could not be ruled out.³²

Rothwell and Boyd (2008) found an association between amalgams and hearing loss.³³

As mentioned on page 7, Bates, *et al*, (2004) found a slight but statistically significant association between amalgams and MS.³⁴

Shapiro, *et al* (1982), found that dentists with higher mercury levels as measured by an X-ray fluorescence technique had more neurological symptoms than dentists with no detectable mercury.³⁵

New England Journal of Medicine

349; 18, pp 1731-1737 October 2003

“The Toxicology of Mercury: Current Exposures and Clinical Manifestations”

Clarkson, Thomas W. et al.

Current concern arises from claims that long-term exposure to low concentrations of mercury vapor from amalgams either causes or exacerbates degenerative diseases such as amyotrophic lateral sclerosis, Alzheimer’s disease, multiple sclerosis, and Parkinson’s disease... however, several epidemiologic investigations failed to provide evidence of a role of amalgam in these degenerative diseases.... Patients who have questions about the potential relation between mercury and degenerative diseases can be assured that the available evidence shows no connection.

(This is the ADA’s third separate citation for the identical 2003 Clarkson review; see pages 3 and 7).

According to Mutter, *et al*, in a 2007 critique of Clarkson’s 2006 review:³⁶

Clarkson and Magos do not present all the relevant studies in their review. The additional data provided here show that:

- (a) Dental amalgam is the main source of human total mercury body burden, because individuals with amalgam have 2–12 times more mercury in their body tissues compared to individuals without amalgam;*
- (b) there is not necessarily a correlation between mercury levels in blood, urine, or hair and in body tissues, and none of the parameters correlate with severity of symptoms;*
- (c) the half-life of mercury deposits in brain and bone tissues could last from several years to decades, and thus mercury accumulates over time of exposure;*
- (d) mercury, in particular mercury vapor, is known to be the most toxic nonradioactive element, and is toxic even in very low doses, and*
- (e) some studies which conclude that amalgam fillings are safe for human beings have important methodological flaws. Therefore, they have no value for assessing the safety of amalgam.*

Environmental Health Perspectives Journal of the National Institute of Environmental Health Sciences

“Mercury Derived from Dental Amalgams and Neuropsychological Function” Drs. Pam Factor-Litvak and Joseph Graziano, et. al Nov. 13, 2002. <http://ehpnet1.niehs.nih.gov/docs/2003/5879/abstract.html>

Researchers from Columbia University studied 550 adults, ages 30-49, to examine whether or not dental amalgams are adversely associated with cognitive functioning. Based on their results, the researchers conclude, “In a sample of healthy working adults, mercury exposure derived from dental amalgam restorations was not associated with any detectable deficits in cognitive or fine motor functioning.”

This study failed to consider genetic susceptibilities.

Quintessence International

Vol. 32, Number 7, pp.525-532, 2001

“Amalgam—Resurrection and Redemption. Part 1
The Clinical and Legal Mythology of Anti-amalgam”

Michael J. Wahl, D.D.S.

“The use of amalgam has not been banned in any country in the European Union. According to the latest scientific information available, dental amalgam is a remarkably durable and long-lasting restorative material. Although its appearance is unaesthetic, its clinical performance and effectiveness are unsurpassed by those of resin composite.”

Quintessence International

Vol. 32, Number 7, pp.696-706, 2001 “Amalgam—Resurrection and Redemption. Part 2 “The Medical Mythology of Anti-amalgam”

Michael J. Wahl, D.D.S.

“Mercury from dental amalgam restorations cannot be linked to kidney damage, Alzheimer’s disease, multiple sclerosis, other central nervous system diseases, “amalgam disease,” mental disorders, damage to the immune system, increases in antibiotic resistance, or harmful reproductive effects.” ... “According to the latest scientific information available, dental amalgam remains a safe and effective restorative material.”

In 2008, the governments of Norway, Sweden, and Denmark banned the use of mercury fillings in dentistry.³⁷

Germany and Canada have limited their use for pregnant women.³⁸ France, Finland, and Austria have recommended that alternative dental materials be used for pregnant women.³⁹

Regarding durability, a 2012 study finds that the longevity of properly-placed composite restorations is similar to that of amalgam.⁴⁰

Journal of the American Dental Association

Vol. 130, Number 2, pp. 191-199, 1999 “Alzheimer’s Disease, Dental Amalgam and Mercury” Stanley R. Saxe, D.M.D., Merle W. Wekstein, M.P.A., et. al.

Researchers from the University of Kentucky studied 68 subjects with Alzheimer’s disease and 33 control subjects without the disease and found no significant association of Alzheimer’s disease with the number, surface area or history of having dental amalgam fillings. The authors conclude, “Our results do not support the hypothesis that mercury is a pathogenetic factor in Alzheimer’s disease. This study demonstrates that dental amalgam is not a major public health risk factor for Alzheimer’s disease.”

(This 1999 Saxe study is described on page 3.)

Journal of Dentistry

Vol. 27, pp. 249-256, 1999 “Reproductive Toxicity of Occupational Mercury. A Review of the Literature” A.H.B. Schuurs, Academic Centre for Dentistry Amsterdam, The Netherlands

The article reviews epidemiological studies to give insight into potential reproductive effects of handling dental silver amalgam. According to the author, “It seems warranted to conclude that negative reproductive effects from exposure to mercury in the dental office are unproven... Consequently, in view of the general low amounts of mercury stemming from dental amalgam fillings, the population at large is at even less risk than dental staff.”

This is a 1999 review, published in a trade journal.

Studies Under Way

Exhaustive clinical studies supported by the National Institute of Dental and Craniofacial Research are under way in the United States and Portugal to determine whether dental amalgam has any demonstrable adverse health effects, by measuring a whole array of outcome measures to assess neuropsychological function (including I.Q., learning ability and behavior). Children participating in these studies also are being tested for kidney function and mercury levels in blood, urine and hair. The investigators identified one of the challenges in the design of the study being the identification of outcome measures, “since there is little evidence to indicate how health effects from such low-level exposure would be manifested.” In addition, multiple assessments were to be made during the course of the study to determine whether there were any adverse health effects associated with dental amalgam, which might warrant discontinuing the study.

These studies, ongoing since 1997, have reported no adverse effects. And while the studies will not be completed until 2006, the government would have halted them immediately if at any point during the past six years the study subjects showed any sign that amalgam was harming them.

As described on page 10, a 2012 reanalysis of one of these two Children’s Amalgam Trials revealed that a genetically susceptible subset of children incurred harm from amalgam.

- ¹ Mutter J, Curth A, Naumann J, Deth R, Walach H. Does inorganic mercury play a role in Alzheimer's Disease? A systematic review and an integrated molecular mechanism. *J Alzheimers Dis.* 2010. <http://www.ncbi.nlm.nih.gov/pubmed/20847438>
- ² Mutter J, Naumann J, Sadaghiani C, Walach H, Drasch G. Amalgam studies: disregarding basic principles of mercury toxicity. *Int J Hyg Environ Health.* 2004;207(4):391–397. <http://www.ncbi.nlm.nih.gov/pubmed/15471104>
- ³ http://www.who.int/water_sanitation_health/medicalwaste/mercurypolpaper.pdf
- ⁴ Berlin M, Zalups RK, Fowler BA. Mercury. In: Nordberg G, Fowler RA, Nordberg M, Friberg LT, eds. *Handbook on the toxicology of metals.* 3rd ed. Amsterdam, Boston: Academic Press; 2007, p. 688, 693.
- ⁵ <http://iaomt.org/intro-articles-biological-dentistry/>
- ⁶ Desoto MC, Hitlan RT. Sorting out the spinning of autism: heavy metals and the question of incidence. *Acta Neurobiol Exp (Wars).* 2010;70(2):165–176. <http://www.ncbi.nlm.nih.gov/pubmed/20628440>
- ⁷ Herbert MR. Contributions of the environment and environmentally vulnerable physiology to autism spectrum disorders. *Curr. Opin. Neurol.* 2010;23(2):103–110. <http://www.ncbi.nlm.nih.gov/pubmed/20087183>
- ⁸ Woods JS, Bowers MA, Davis HA. Urinary porphyrin profiles as biomarkers of trace metal exposure and toxicity: studies on urinary porphyrin excretion patterns in rats during prolonged exposure to methyl mercury. *Toxicol. Appl. Pharmacol.* 1991;110(3):464–476. <http://www.ncbi.nlm.nih.gov/pubmed/8230299>
- ⁹ Nataf R, Skorupka C, Amet L, et al. Porphyrinuria in childhood autistic disorder: implications for environmental toxicity. *Toxicol. Appl. Pharmacol.* 2006;214(2):99–108. <http://www.ncbi.nlm.nih.gov/pubmed?term=16782144>
- ¹⁰ Kern JK, Geier DA, Adams JB, et al. Toxicity biomarkers in autism spectrum disorder: a blinded study of urinary porphyrins. *Pediatr Int.* 2011;53(2):147–153. <http://www.ncbi.nlm.nih.gov/pubmed?term=PMID%3A%2020626635>
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