NEW RESEARCH - AMALGAM MERCURY HARMs DENTAL PERSONNEL!

A newly published research study adds further evidence that amalgam mercury is not totally without adverse health effects to dental personnel. The study compared urine mercury levels before and after DMPS challenge, urine porphyrin profiles, and neurobehavioral scores of dental personnel to controls. The dental personnel exhibited statistically significant adverse effects on neurobehavioral function. It should be noted that the dental assistants, who obviously handle the amalgam far more than do dentists, were affected more severely.

The authors included a significant comment: "We once stated that our experimental results (Aposhian, et al., 1992) can not be used to support either side of the controversy dealing with whether mercury vapor liberated from dental amalgam is harmful or involved in the etiology of disease(s). In the present study, however, in which dental technicians were exposed to mercury vapor as a result of their working with amalgams, the mean urinary mercury level after the DMPS challenge was adversely and statistically associated with functions related to complex attention, a psychomotor task, mood and symptoms in a linear dose-effect manner.

Of singular importance, this investigation establishes a firm protocol for the evaluation of dental personnel regarding potential adverse neurological effects from occupational exposure to amalgam mercury. The study was abstracted as follows:

Gonzalez-Ramirez, D; Maiorino, RM; Zuniga-Charles, M; Xu, Zhaofa; Hurlbut, KM; Junco-Munoz, P; Aposhian, M; Dart, RC; Gama, JHD; Echeverria, D; Woods, JS; Aposhian, HV.

Sodium 2,3-Dimercaptopropane-1-Sulfonate Challenge Test for Mercury in Humans: II. Urinary Mercury, Porphyrins and Neurobehavioral Changes of Dental Workers in Monterrey, Mexico.


The sodium salt of 2,3-dimercaptopropane-1-sulfonic acid (DMPS) challenge test (300 mg p.o. after an 11-hr fast) was given in Monterrey, Mexico to dental and nondental personnel. Urine samples were collected and analyzed for total mercury.

The mean mercury urinary excretion (± S.E.) for 6 hr before and 6 hr after DMPS administration for 10 dental technicians, who formulate amalgam, was 4.84 mcg ± 0.742 and 424.0 mcg ± 84.9; for 5 dentists, who use amalgam in their practice, 3.28 mcg ± 1.11 and 162.0 mcg ± 51.2; and for 13 nondental personnel, 0.783 mcg ± 0.189 and 27.3 mcg ± 3.19.
The urinary coproporphyrin levels before DMPS administration, which are indicative of renal mercury content, were quantitatively associated with the urinary mercury levels among the three study groups after DMPS administration. This was not so if the urinary mercury level before DMPS administration was compared with the urinary coproporphyrin concentration.

The urinary mercury level after DMPS administration is a better indicator of exposure and renal mercury burden than is the mercury level measured in the urine before DMPS is given.

Regression analysis showed that the coefficient of urinary mercury was statistically and adversely associated with complex attention (switching task), the perceptual motor task (symbol-digit substitution), symptoms and mood. The easily performed DMPS-mercury challenge test is useful for monitoring dental personnel for mercury vapor exposure.

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U.S. GOVERNMENT MEETS ON AMALGAM MERCURY AND METHYL MERCURY!

On 16 September 1994, the United States National Institutes of Health sponsored a workshop entitled "Methods for Detection of Health Effects from Low Level Exposure to Methyl Mercury and Inorganic Mercury". Representatives of the Food and Drug Administration (FDA), Environmental Protection Agency (EPA), Public Health Service (PHS), National Institute of Environmental Health Services (NIEHS), National Institute of Dental Research (NIDR), and the American Dental Association (ADA) attended.

Several medical scientists who have conducted and published research specifically on dental amalgam mercury were members of various panels of the workshop. These included: Dr. Anne Summers, Dr. Diana Echeverria, Dr. K. Michael Pollard, and Dr. John W. Reinhardt. In addition, Dr. William Markesbery of the University of Kentucky (Alzheimer's Disease and mercury) was also a panelist, as were other noted mercury researchers Dr. Thomas Clarkson, Dr. Maths Berlin, and Dr. George Cherian.

The workshop focused on two reports; a 1992 NIEHS workshop responding to a section of the "Clean Air Act" and the 1993 PHS report entitled "Public Health Service Strategy for Research, Education and Regulation of the Human Health Risks from Dental Amalgams."

The 1992 NIEHS workshop summarized the state of knowledge concerning the "threshold level of mercury exposure below which adverse human health effects were not expected to occur" and pointed out the need for:

- Better methods to detect early or "subclinical", particularly neurotoxic, effects of low level mercury exposure.
- Possible improvements in the "patch test", currently used to detect populations that are immunologically sensitive or hypersensitive to mercury.
- Additional research on the conversion and differences in pharmacokinetics and toxicities of methyl, elemental and inorganic mercury.

The 1993 PHS report on dental amalgam - along with subsequent determination from NIEHS, FDA, and NIDR - emphasized the need for assessment of:

- Methods currently used to measure the extent of exposure as well as the dispersal of mercury.
- Tracking the absorption, distribution, metabolism and elimination of mercury from all sources.
- The adequacy of current animal models.
- The effects of mercury exposure on high risk or more sensitive groups.
- Mechanisms of action of mercury from all sources on the central nervous system and other target organs.
- Possible interactive effects of mercury from various sources (e.g., from food and amalgam).
- Potential genetic differences in the effect of mercury from various sources.

No one can predict for certain the eventual outcome of this new attention to dental amalgam mercury by U.S. government agencies. One thing, however, is obvious; the recently published medical scientific research on adverse effects of amalgam-derived mercury has stimulated the government to initiate a more serious investigation of the issue.

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OTHER GOVERNMENTS ALSO LOOKING AT AMALGAM MERCURY RESEARCH!

On 9 December 1994, the Ministry of Health of the German government held a special meeting on dental amalgam. The ministry invited a number of short presentations, both pro and con, from interested parties. The IOMT position was presented by Dr. Graeme Hall, President of IOMT Europe.

The German Ministry of Health did not offer any new position or directives on dental amalgam, but the presentations of Dr. Hall and others regarding the medical scientific findings are on record with the Ministry.

Following this national meeting, on the 16th of December the German government sponsored an international conference of government regulatory officials, for
the specific purpose of addressing the dental amalgam issue. Besides Germany, officials from the United States, Canada, the United Kingdom, Austria, Switzerland, Sweden, Denmark, Norway and Finland attended. The USA had seven representatives present. The meeting featured an exchange of present positions of the various governments and did not produce any pronouncements of policy changes.

At the present time, the government of Canada is developing a new risk assessment/risk management policy for dental amalgam. The division of Health and Welfare Canada conducting the investigation has invited information from all interested parties, including medical scientists who have conducted research on amalgam mercury. In the United Kingdom, some of these medical scientists presented information to Members of Parliament in November of 1994. Interest in the dental amalgam controversy in the U.K. has been highly stimulated by the 1994 BBC "Panorama" television program on dental amalgam.

Here again, no one can predict the eventual outcome of the flurry of government interest on dental amalgam, but it appears obvious that the burgeoning published medical research demonstrating adverse effects to amalgam mercury can no longer be ignored.

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HOW MUCH MERCURY IS TOO MUCH?

Confusion abounds about the various "standards" used to evaluate exposure to mercury, specifically that from amalgam dental fillings. Many, even those who should know better, apply standards that are obviously invalid for people with dental amalgam fillings.

First, and foremost, is the use of measurements of mercury levels in blood and urine. Since the 1960's, mercury toxicologists have agreed that these levels do not correlate to body burden or toxic effects for exposure to mercury vapor. Even the National Institute of Dental Research (NIDR) and the American Dental Association (ADA) publicly admitted this in 1984. The lipid (fat) solubility and lack of electrical charge of elemental mercury vapor allows rapid and easy transport from blood, across cell membranes, into body cells.

Next, come the oft quoted "Threshold Limit Value's" ("TLV's"), or their synonymous acronyms MAC, OEL, and PEL). These are, by definition, occupational exposure standards, and therefore restricted to 40-hour per week exposures for healthy adult workers (so stated in the various documents). For example, the United States Occupational Safety and Health Administration (OSHA) TLV for mercury is 50 micrograms/m³ as a Time-Weighted Average (TLV-TWA).

There are mercury exposure standards for the general population; these are the correct standards for reference to mercury exposure from dental amalgam. Bio-Probe wishes to thank Carl B. Meyer, J.D., Ph.D. for recently clarifying this issue with the following:

MERCURY EXPOSURE CALCULATION

* OSHA: 8-hr time weighted average (TWA) limit: 50 mcg/m³, based on epidemiological studies (clinical observation of tremors and vasomotor disturbances in the range from 60 to 720 mcg/m³; NIOSH¹; OSHA²). At an inhalation rate of 10 m³/work-day and time averaging over a seven day week, the daily mercury intake is:

\[ 50 \text{ mcg/m}^3 \times 10 \text{ m}^3 (5 \text{ days/7 days}) = 380 \text{ mcg/day} \]

* EPA: Continuous exposure ("Reference Dose"): Rfd = 0.3 mcg/m³, based on onset of subclinical hand tremor, increase in memory disturbances, and slight evidence of subjective and objective evidence of autonomic dysfunction, observed at 25 mcg/m³ in the occupational studies of Fawer³ and Piikivi⁴. Calculated as follows:

\[ \text{LOEL} = 0.025 \text{ mg/m}^3 (5\text{d/7d})(10 \text{ m}^3/20 \text{ m}^3) = 9 \text{ mcg/m}^3 \]

[LOEL: Lowest Observed Effect Level]

Scale factor of 10 to protect sensitive individuals, not found in work force, and a factor of 3 for lack of reproductive studies, one obtains the current Reference Dose = Rfd = 0.3 mcg/m³.

Assuming that an average sedentary person would inhale 20 m³ air per day, the Acceptable Daily Intake (ADI) is 20 x Rfd = 6 mcg/day.

* EPA: Drinking water: Rfc (body weight of 70 kg; average water consumption of 2 L/day). The Maximum Contaminant Level Goal (MCLG) = 2 mcg/L (EPA⁵). The FDA has the same value for bottled water (FDA⁶).


REFERENCES


**BIO-PROBE COMMENT:** It is patently obvious, based on current government standards, that an exposure level of 0.3 micrograms of mercury per cubic meter of inhaled air is the only exposure standard legally applicable to the general population with amalgam dental fillings (the U.S. Public Health Service has also adopted a mercury vapor exposure standard of 0.3 mcg Hg/m³ for the general population). Moreover, the legitimate standards for intake of mercury indicate a level of 2.5-6 micrograms of mercury per day, which has been shown to be easily approximated or exceeded by subjects with amalgam dental fillings.

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**ABSTRACTS**

Moszczyński, P; Slowiński, S.

The Behavior of T-Cell Subpopulations in the Blood of Workers Exposed to Mercury.


**ABSTRACT:** In 55 men with a history of exposure to mercury vapours, and 36 men without such exposure, the count of T-cells, helper T-cells, suppressor T-cells and NK-cells in peripheral blood was determined using monoclonal antibodies. The concentration of mercury in the urine of the exposed individuals was x = 54, S.D. = 45 micrograms xl-1, and in blood x = 4.7, S.D. = 7.2 micrograms xl-1.

Occupational exposure to mercury induced changes in T-cell subpopulations in the peripheral blood, but was without effect on the number of NK-cells.

**BIO-PROBE COMMENT:** The evidence that low level exposure to mercury vapor has adverse effects on the immune system continues to mount. Recently published research has attributed this effect to mercury (and silver) derived from dental amalgam (Hultman, P; et al. 1994. See: BPNL, 10(6), Nov 1994). The implications of this research on the health of subjects with amalgam dental fillings is indeed profound.

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Skare, I; Engqvist, A.

Human Exposure to Mercury and Silver Released from Dental Amalgam Restorations.


**ABSTRACT:** In 35 healthy individuals, the number of amalgam surfaces was related to the emission rate of mercury into the oral cavity and to the excretion rate of mercury by urine.

Oral emission ranged up to 125 micrograms Hg/24 h, and urinary excretions ranged from 0.4 to 19 micrograms Hg/24 h. In 10 cases, urinary and fecal excretions of mercury and silver were also measured. Fecal excretions ranged from 1 to 190 micrograms Hg/24 h and from 4 to 97 micrograms Ag/24 h.

Except for urinary silver excretion, a high interplay between the variables was exhibited. The worst-case individual showed a fecal mercury excretion amounting to 100 times the mean intake of total Hg from a normal Swedish diet. With regard to a Swedish middle-age individual, the systemic uptake of mercury from amalgam was, on average, predicted to be 12 micrograms Hg/24 h.

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Halbach, S.

Amalgam Tooth Fillings and Man’s Mercury Burden.


**ABSTRACT:** Next to nutrition, amalgam fillings represent the main source for exposure of the general population to mercury. Toxicological considerations focus on the dose of mercury resulting from such exposure. Various approaches to estimate this dose are reviewed.

Introducing the dose into the known toxicokinetic model for mercury, tissue and blood and urine concentrations related to mercury release from the fillings can be predicted. These agree well with autopsy and in vivo observations.

An assessment of the health hazard for individuals with amalgam fillings shows that the combined mercury intake from food and amalgam does not exceed the acceptable daily intake. In addition, blood and urine mercury concentrations of amalgam wearers are below one tenth of the critical values associated with the onset
of early symptoms or of subclinical effects attributable to mercury.
Hongo, T; Abe, T; Ohtsuka, R; Komai, M; Okiyama, T; Amano, K; Toya-Oka, T; Suzuki, T.
Urinary Mercury Monitoring of University Staff and Students Occasionally Exposed to Mercury Vapor.
ABSTRACT: To monitor the exposure to mercury (Hg) vapor among university staff members and students who occasionally handle elemental Hg in laboratory experiments, urine samples were collected at health examinations conducted by the Health Service Center, University of Tokyo, for six years.
Geometric mean of urinary Hg concentrations of 343 samples collected from 234 subjects was 1.61 micrograms Hg/g creatinine (Cr), with the range of 0.30 to 9.31 micrograms Hg/g Cr. Elevated urinary Hg levels, i.e. 3 micrograms Hg/g Cr or higher, were found only among the subjects who worked in several laboratories. This urinary Hg level is judged to correspond to 1-2 micrograms/m3 of air Hg concentration in working areas.
The contribution of dental amalgam fillings to urinary Hg excretion, though it exists, was concluded to be small from the result of multiple regression analysis.

Smith, JC; Allen, PV; Turner, MD; Most, B; Fisher, HL; Hall, LL.
The Kinetics of Intravenously Administered Methyl Mercury in Man.
ABSTRACT: We describe a compartmental pharmacokinetic model for methyl mercury and its metabolite mercuric mercury in humans. A tracer dose of \(^{203}\)Hg-labelled methyl mercury was administered i.v. to seven healthy adult male volunteers. Blood samples were obtained periodically and urine and feces were collected throughout the 70 days of the study. The blood contained predominantly methyl mercury, while the excreta contained principally inorganic mercury.
The behavior of both methyl mercury and inorganic mercury in the body was modeled with the simplest compartmental model which fit the data. This five-compartment model shows that inorganic mercury accumulates in the body and at longer times is the predominant form of mercury present. The biological half-life of methyl mercury in the body is 44 days and 1.6% of the body burden is lost each day by both metabolism and excretion. This rate of loss is 60% greater than that currently accepted (1.0% per day). Thus, the risk associated with dietary methyl mercury may have been overestimated.

BIO-PROBE COMMENT: The previous four studies, along with the lead article on the new DMPS challenge study, exemplify the inconsistent information being presented regarding mercury exposure from amalgam dental fillings. Significant and well established factors are not being considered by some investigators. For example, it has been well documented since the 1960's that measurements of mercury levels in blood and urine do not correlate to body burden or toxic effects for exposure to mercury vapor, which has been re-confirmed by the new DMPS challenge study. This has even been publicly acknowledged by the National Institute of Dental Research and the American Dental Association (JADA. Volume 109, Sep 1984). Yet, both the Halbach and the Hongo, et al. papers draw their conclusions based upon these obviously invalid parameters.

In addition, contemporary science recognizes the importance of mercury levels in feces, a factor totally ignored by Halbach and Hongo, et al. Skare and Engqvist did acknowledge this factor. Halbach states that mercury intake from food and amalgam combined does not exceed "acceptable daily intake". The U.S.E.P.A maximum adult daily intake for non-dietary mercury is 20 micrograms per day, which is certainly approached on average in subjects with amalgams according to respected mercury toxicologists. Many subjects would certainly exceed that level, to say nothing of children and other high risk groups. One must question if "standards" developed for healthy adult workers should be applied to the general population, as pointed out in the information presented by Dr. Carl Meyer.

Finally, the last study points out increasing scientific documentation that exposure to mercury vapor is at least as hazardous as is exposure to methyl mercury. Care should be exercised by published investigators in providing information that can impact the public health. The disclosures presented in this comment are all on record and therefore readily available to conscientious investigators.

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Hinkelman, KW; Schuller, PD; Nguyen, H; Collinson, DM; Thompson, GW.
Mercury Release During Ultrasonic Scaling of Amalgam.
ABSTRACT: Ultra-sonic scalers are routinely used in the initial phase of the scaling and root planing procedure, and may contact amalgam surfaces during use. Research has shown that polishing and cutting of
amalgam results in increased Hg emissions. The purpose of this in vitro study was to investigate the effect of ultra-sonic scaling on Hg vapour release from amalgam.

Dispersalloy was condensed into a split die to make 110 standardized Ag cylinders. Set cylinders were stored in distilled H2O at 37 degrees C. for 24 hours. Closed one litre chambers were constructed for controlled experimental environments. Chambers had air-tight access cuffs for insertion of scalers and air extraction tubing.

Extracted air samples were analyzed for Hg vapour with a JIC 511 Gold Film Hg analyzer. Ag cylinders were randomly divided into groups. The first group was scaled with a Cavint® unit, the second with a Titan® handpiece scaler and the third served as controls. Each cylinder was placed in a chamber and the scaler tip, at normal reciprocation frequency and H2O spray, was moved across the surface for 20 seconds. Five seconds were allowed for spray and Hg vapour dispersion, then chamber air was extracted and again analyzed. Scaler tips did not contact the Ag surfaces of controls. Results were analyzed using Students t-test.

Significantly greater vapour release occurred in the experimental groups than in the control (p<.001), with the Titan® causing significantly more release (p<.001) than the Cavint®. None of the vapour levels approached the NIOSH safety limit. Ultrasonic scaling on Ag releases Hg vapour. The concentrations vary between instrument types and adjustment.

BIO-PROBE COMMENT: As pointed out in this abstract, it has been scientifically demonstrated that mercury is released not only when amalgams are cut but also when they are polished. This study shows that mercury is also released from amalgam during ultra-sonic scaling. The NIOSH occupational standard does not account for potential reproductive effects. As most dental hygienists are female, they should at least be informed of this research.

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ABSTRACT: Dental waste water may contain amalgam particulate ranging from large to colloidal particles. Earlier studies (JDR. 73, A-#25, 1994) reported the size distribution of amalgam particles collected from whole day sampling of dental offices using sequential filtration methods. This study further characterizes clinical samples using alternative particle sizing methods and compares procedures associated only with amalgam removals, amalgam placements or combinations of both.

Particle size characterization was determined utilizing sequential wet sieving and high resolution automated particle sizing by electric sensing zone method (Coulter Technique). Sieve techniques approximate particle size based on longest dimension, where electrical sensing zone technique measures based on equivalent spherical volume.

Wet sieve analyses indicated that amalgam resulting from placement and removal differ not only in mass distribution but also in mean percent of colloidal particles (< 10 um). The mass median diameter for removal samples was found to be around 170 um (5% colloidal), and for placements around 300 um (15%) colloidal. The substantial fraction of particles calculated by Coulter technique below the given sieve sizes illustrate that wet sieving and filtration underestimates the fraction of small particles in the waste samples due to shape effects. Analysis of these results suggest an overall shape factor of approximately 0.6.

BIO-PROBE COMMENT: This study, financed by the National Institute of Dental Research and conducted by the American Dental Association and the Naval Research Institute, emphasizes the increasing concern with amalgam mercury in dental office waste water. From these results, it is apparent that a significant amount of amalgam mercury will pass through screen traps. Before long, the United States will follow the example of four European countries and require all dental offices to install amalgam separation units in waste lines.

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Marek, M.

Abortion of Mercury Vapor in Simulated Oral Environment.


ABSTRACT: Mercury is released from dental amalgam restorations as vapor in the oral atmosphere, and ionic and atomic mercury in oral fluids. Since most of the released mercury leaves the amalgam in the atomic form, the rate of oxidation is one of the factors determining the distribution. In a previous study (IADR 1992, A-#1388) the oxidation kinetics were studied as a function of the oxidation power of the solution using a fixed amount of mercury vapor. In this study an unlimited amount of mercury vapor was available for absorption into simulated oral liquids, and the absorbed mercury was determined as a function of time and solution composition.
The source of mercury vapor was a large pool of liquid mercury, which saturated the air at 37 degrees C in a sealed desiccator. The liquid samples were in open dishes allowing absorption of the vapor through the surface. After periods of time ranging from 1 to 48 hours the solutions were analyzed for mercury by cold-vapor AAS. The reference solution was synthetic saliva; other solutions were KCl of the same chloride concentration, and synthetic saliva containing ascorbic acid (reducing), hydrogen peroxide (oxidizing), or EDTA (complexing). The oxidizing power of the solution was determined by its redox potential.

At the shortest time all liquids absorbed mercury at about the same rate (mean 14.4 ± 0.58 (SD) ng cm⁻² h⁻¹). For the solutions of the same or lower oxidizing power than the reference solution the rate of absorption decreased with time equally, and an almost constant concentration of Hg was reached after 24 hours (mean 123 ± 11 ppb). In the solution of higher oxidizing power (w. hydrogen peroxide) mercury absorption was much faster, reaching concentrations an order of magnitude higher after 24 hours.

The results can be interpreted as follows: For solutions of low oxidizing power, the absorption rate was controlled by the low dissolution rate of atomic mercury in liquids, which was not substantially changed by the changes in composition. In the solution of high oxidizing power atomic mercury was oxidized fast enough to lower the surface concentration of atomic mercury and allowing more mercury to be absorbed. The study confirms that the oxidizing power of the oral environment may play a major role in the distribution of the forms of mercury to which the body is exposed.

**BIO-PROBE COMMENT:** While great attention has been devoted to exposure by inhalation of mercury vapor from dental amalgam fillings, little has been directed to the amalgam mercury that dissolves in oral fluids. Atomic (elemental) mercury, of course, readily oxidizes to ionic form which then rapidly forms inorganic or organic mercury compounds.

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von Wowern, N; Klausen, B; Kollerup, G.
Osteoporosis: A Risk Factor in Periodontal Disease.

**ABSTRACT:** Osteoporosis is suspected as a risk factor in periodontal disease, but previous studies have failed to establish a relationship between osteoporosis and periodontal disease. Possible explanations for this could be lack of precise methods for assessment of osteoporosis in the jaws and confounding of the result by other factors such as age, gender, or smoking. In the present study 12 female patients with osteoporotic fractures (Group O) and 14 non-osteoporotic women (Group N) were examined clinically for plaque (VPI), gingival bleeding (GBI), and loss of attachment on the six Ramfjord index teeth. Bone mineral content (BMC) of the mandible and forearm was determined by dual photon scanning. Results were presented as arithmetic means + or - standard error, and differences between groups were tested by two-sample t-test. The two groups were comparable with respect to age (O: 68.3 ± 1.8 years; N: 68.1 ± 1.5 years), menopausal age (O: 47.5 ± 1.8 years; N: 47.2 ± 1.5 years), and smoking habits (O: 4 smokers; N: 3 smokers).

The osteoporotic women had significantly lower BMC values than controls in mandible (O: 0.63 ± 0.04 U/cm²; N: 0.78 ± 0.02 U/cm², p) and forearm (O: 1.05 ± 0.05 U/cm²; N: 1.28 ± 0.05, p). No significant differences were found with respect to plaque (O: 46.67 ± 10.00 %; N: 36.67 ± 6.67 %) and gingival bleeding (O: 46.67 ± 11.67 %; N: 43.33 ± 10.00 %), whereas significantly more loss of attachment was seen in osteoporotic women (O: 3.65 ± 0.18 mm; N: 2.86 ± 0.19 mm, p).

These results suggest that osteoporosis which significantly reduces the bone mineral content of the mandible is a risk factor for increased loss of periodontal attachment.

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**IAOMT RESEARCH STUDY - VOLUNTEERS NEEDED!**

Dr. H. Vasken Aposhian, a widely acknowledged authority on mercury chelation, will conduct a research study on IAOMT members at the Spring Scientific Symposium in Tucson, Arizona on 22-25 March 1995. If you are an IAOMT member and have never received DMPS or DMSA, please register for this important study (who knows, the rumors of your neurobehavioral impairment may not be true)!

The two day study will consist of urine mercury measurements before and after per oral administration of DMPS and will include a neurobehavioral test, dental exam, overnight fast, and pre- and post-physical exams. The mercury body burden and neurobehavioral function of IAOMT members will be compared to local dentists who use amalgam and a group of dental specialists (orthodontists, etc.) who do not place or remove amalgam.

Twenty eight IAOMT participants are needed, fourteen of whom must be in Tucson by Wednesday evening to be tested on Thursday and Friday and fourteen who must arrive by Thursday evening to be tested on Friday.
and saturday. There will be minimal absence from the regular friday-saturday IAOMT program for participants.

Those that have already previously received DMPS or DMSA are not eligible for the study, but Dr. Aposhian has kindly offered to provide the testing to others for a nominal $45.00 fee to cover lab expenses. The first fourteen to enroll will be tested on sunday and monday.

If you wish to participate in this study, please contact IAOMT Executive Director Dr. Michael F. Ziff at (407) 290-9670 [Fax (407) 298-2450] or Wendy Durazo of Dr. Steven Swidler’s office (602) 743-7101 [Fax (602) 743-0450] AS SOON AS POSSIBLE. Dr. Aposhian must be provided with the names of test subjects at the earliest possible date.

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FORUM

IAOMT - SPRING SCIENTIFIC SYMPOSIUM

Date: 24-25 March 1995.

Site: Tucson, Arizona.


Program:

- Murray J. Vimy, D.M.D. = "Dental Amalgam Controversy - A Scientific Update."
- H. Vasken Aposhian, Ph.D. = "Mercury Chelation - Part II."
- Boyd Haley, Ph.D. = "Mercury-EDTA Complex and Mercury Vapor Specifically Block Brain Tubulin-GTP Interactions."
- Anne Summers, Ph.D. = "Effect of Amalgam Mercury On Primate Normal Flora."
- Harinder Garewal, M.D., Ph.D. = "Antioxidant Vitamins In The Prevention of Oral Cancer."
- John Lee, M.D. = "Fluoride and Bone Physiology."
- Mark A. Breiner, D.D.S. = "Beyond Mercury - A Look at Other Metals Used in the Mouth and their Effects."
- Walter Jess Clifford, M.S. = "Blood Cell Responses to Anesthetics and Antibiotics."
- Phillip P. Sukel, D.D.S. = "IAOMT Standards of Care."
- Michael F. Ziff, D.D.S. = "Mercury 102."

[Plus the DMPS research study by Dr. H.V. Aposhian described above.]

Registration: Dr. Steven Swidler. P.O. Box 85490. Tucson, AZ. 85754. (602) 743-7101. Before 1 March: IAOMT members = $285.00; non-members = $395.00 [After 1 March: $335.00/$445.00]. Checks payable to IAOMT.

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AUSTRALASIAN SOCIETY OF ORAL MEDICINE AND TOXICOLOGY (ASOMAT)

"BIOCOMPATIBLE DENTISTRY FOR AUSTRALIA"

Date: 25-26 February 1995.

Site: Sydney Convention Centre, Darling Harbour, Australia.


Registration: ASOMAT. P.O. Box A860. Sydney South, NSW, 2000, Australia. ASOMAT or IAOMT members = $200.00 (AUS).

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GREAT LAKES ASSOCIATION OF CLINICAL MEDICINE

Date: 24-25 February 1995.

Site: Cincinnati, Ohio. Terrace Hilton Hotel.

Program: "Orthodoxy and Alternatives." Includes Boyd Haley, Ph.D., presenting new information on mercury as it relates to Alzheimer's Disease and mercury toxicity in general.

Contact: GLACM Executive Director Jack Hank, 70 West Huron St., Chicago, Ill. 60610; (800) 286-6013.

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Bio-Probe, Inc. is accepting advanced orders on the new study by Fredrik Berglund, M.D. Dr. Berglund has compiled case reports on the adverse effects of dental amalgam and their relationship to poisoning by elemental mercury. The case reports reflect published data on 245 cases over the last 150 years. Dr. Berglund cites 208 reference, 118 of which refer to case reports. Publication date is scheduled for March 1, 1995 and the book will sell for $20.00 U.S. plus $3.00 S&H (U.S & Canada). To place your order call (800) 282-9670. Visa and MasterCard accepted.