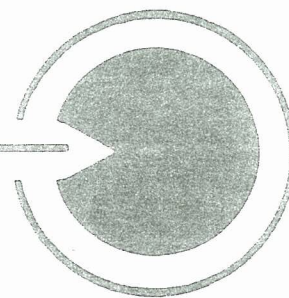


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NEWSLETTER



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CURRENT RESEARCH

In December of 1990, a medical research team at the University of Calgary School of Medicine reported an animal study tracing mercury from dental amalgam fillings rapidly into body tissues. The study was published in the highly prestigious FASEB medical journal. Since that time, there has been a great increase in reported studies of adverse health effects to chronic low dose mercury exposure.

In stark contrast, the dental profession continues to focus on the estimated daily dose of mercury from dental amalgam with comparison to various standards, even though expert medical toxicologists clearly state that no exposure to mercury vapor can

be considered harmless (i.e.- there is no toxic threshold for exposure to mercury vapor).

In this issue of the Bio-Probe Newsletter, we present abstracts of current research demonstrating the widening gap between the scientific documentation being presented by the medical scientific community and the rigid position of the dental profession in direct contradiction to the scientific documentation.

The first abstract is the latest dental community attempt to discredit formal science by estimating daily intake of mercury from dental amalgam. It is followed by the abstract of the April 1992 FASEB article (reported in the May BPNL) that provides hard scientific data contradicting the dental profession estimates. The abstracts that follow are examples of the current medical research defining the direction of medical scientists on the issue, all of which cast serious doubt on the safety of mercury exposure from dental amalgam.

TABLE OF CONTENTS

Daily dose calculations from measurements of intra-oral mercury vapor. Olsson S; Bergman M.	1
Urinary mercury after administration of 2,3-Dimercaptopropane-1-sulfonic Acid: Correlation with dental amalgam score. Aposhian .	2
Amalgam removal - A road to better health? Ostlin L. et al.	2
Mercury content in tissues of pregnant rats with dental amalgam. Takahashi et al.	3
Number of amalgam fillings in pregnant rats and mercury concentration in their fetuses. Takahashi et al.	3
Effect of Inorganic mercury on in vitro placental nutrient transfer and oxygen consumption. Urbach et al.	4
Effects of mercuric compounds on human lymphocytes and monocytes. Shapiro et al.	4
Suppression of Human T and B cell activation by mercuric compounds. Shenker et al.	5
Psychiatric manifestations of mercury poisoning. Fagala et al.	5
Ammoniated mercury ointment as a cause of peripheral neuropathy. Kern et al.	5
Comparative study on the inhibition of acetylcholinesterase activity in the freshwater fish <i>Cyprinus Carpio</i> by mercury and zinc.	5
Methylmercury effects on reproduction and offspring size at birth.	6
Intestinal-type alkaline phosphatase in urine as an indicator of mercury induced effects on the S3 segment of the proximal tubule.	6
Relationship between stress protein induction in rat kidney by mercuric chloride and nephrotoxicity. Goering et al.	6
Autometallographic demonstration of mercury in rat molars.	7
Mercury contents in indicators and target organs in rats.	7
LAMMS and ICP-MS detection of dental metallic compounds in not-discolored human gingiva. Rechmann P.	7
The molecular anti-carcinogenesis function of garlic.	8
IAOMT Annual Scientific Meeting.	8
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REVIEWS/ABSTRACTS

Olsson, S; Bergman, M.: Daily Dose Calculations from Measurements of Intra-oral Mercury Vapor. *J Dent Res.* 71(2):414-23. Feb 1992.

ABSTRACT: Measurements of intra-oral mercury vapor from amalgam fillings are discussed. It was shown that the only quantity which it is possible to measure is the mercury release rate, and that the concentrations of mercury vapor in the oral cavity published in most earlier studies are the mercury concentrations in the measuring cell of the measuring apparatus and not the concentrations in the oral cavity. The consequences for the daily dose equations of the facts that the mercury source is present inside the oral cavity and that the amount of mercury released during a certain time is limited are

discussed. It was found that most daily dose equations used have a questionable mercury distribution on inspiration, expiration, and swallowing.

Re-calculations of almost all the available daily dose data showed a mean daily dose value of about 1.3 micrograms Hg/day (range, 0.3-2.2 micrograms Hg/day). The mean swallowed amount of mercury from intra-oral mercury vapor was calculated as being in the order of 10 micrograms Hg/day (range, 2.4-17 micrograms Hg/day), resulting in an estimated absorption of about 1 microgram Hg/day from the gastro-intestinal tract.

Aposhian, HV; Bruce, DC; Alter, W; Dart, DC; Hurlbut, KM; Aposhian, MM.: Urinary Mercury after Administration of 2,3-Dimercaptopropane-1-sulfonic Acid: Correlation with Dental Amalgam Score. *FASEB J.* 6(7):2472-6. Apr 1992.

ABSTRACT: There is considerable controversy as to whether dental amalgams may cause systemic health effects in humans because they liberate elemental mercury. Most such amalgams contain as much as 50% metallic mercury. To determine the influence of dental amalgams on the mercury body burden of humans, we have given volunteers, with and without amalgams in their mouth, the sodium salt of 2,3-dimercaptopropane-1-sulfonic acid (DMPS), a chelating agent safely used in the Soviet Union and West Germany for a number of years. The diameters of dental amalgams of the subjects were determined to obtain the amalgam score.

Administration of 300 mg DMPS by mouth increased the mean urinary mercury excretion of the amalgam group from 0.70 to 17.2 micrograms and that of the non-amalgam group from 0.27 to 5.1 micrograms over a 9-h period. Two thirds of the mercury excreted in the urine of those with dental amalgams appears to be derived originally from the mercury vapor released from their amalgams. Linear regression analysis indicated a highly significant positive correlation between the mercury excreted in the urine 2 h after DMPS administration and the dental amalgam scores.

DMPS can be used to increase the urinary excretion of mercury and thus increase the significance and reliability of this measure of mercury exposure or burden, especially in cases of micromercurialism.

BIO-PROBE COMMENT: The Aposhian study, supported by the study by Zander and associates reported in the May 1992 BPNL, clearly contradicts

the Olsson and Bergman estimates. The estimates by these dentists are also contradicted by the calculations of noted mercury toxicologists such as the World Health Organization expert mercury committee (WHO. Environmental Health Criteria 118: Inorganic Mercury. Geneva. 1991) and Drs. Thomas W. Clarkson and Lars Friberg and associates (Biological Monitoring of Toxic Metals. Plenum Press, New York. 1988).

Östlin, L et al. AMALGAM REMOVAL - A ROAD TO BETTER HEALTH? Health Insurance Bureau, Stockholm County, 1991

ABSTRACT: We have examined the effect of removing amalgam from a group of patients where the patients themselves or their dentists have suspected a reaction to mercury in amalgam.

The aim of the present study was to define the patient group with respect to sex, age, reason for asking for amalgam removal and their health situation after replacing their amalgam fillings with other materials. They were also asked if all fillings were exchanged and the costs. The number of days off work for health reasons (paid by the insurance) was compared the year before removing amalgam, and one and two years after. The aim of the investigation was to evaluate if a removal of amalgam fillings will rehabilitate the patients with a subsequent reduction in sick leave and reduced total costs for society.

The study comprised 383 patients who between February 1987 and December 1989 asked the insurance system for cost coverage for replacing amalgam with other materials. These patients were asked to answer a questionnaire. 308 patients replied. These were then divided into three groups: suspected mercury poisoning, mercury allergy and lichenoid reactions. Two thirds of the respondents were between 40 and 74 years old and 74% were women.

Most of the patients have a polysymptomatic clinical picture. On average, the patients reported 8.6 symptoms. Nearly a quarter of the group reported all 16 symptoms in the questionnaire and a third had 0-4 symptoms. More than two-thirds reported mouth eruptions, unpleasant feeling in the mouth like smarting pains, metal taste and tiredness.

Nearly 73% reported that they had exchanged all amalgam fillings. Those who had exchanged all reported an improvement of all health symptoms. The local, oral symptoms improved most. More