



THE EFFECTS OF MERCURY ON DENTAL PERSONNEL

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How can dental patients be at risk from having mercury amalgam fillings if dental personnel are not suffering adverse health effects from the occupational exposure to mercury?

This is a frequently used argument to justify the continued use of dental amalgam. Unfortunately, there is no valid scientific data available to justify such a conclusion. The most commonly utilized reference to defend this position is an ADA report on the health status of dentists, published in 1975. (1)

Even a cursory examination of this study reveals that it has no data whatsoever relevant to the use of dental amalgam fillings. Health parameters of the subjects (dentists) were compared with figures on the general population. Neither the subject group nor the control group were divided into those with and without mercury amalgam fillings, nor was the dental group divided into those who worked with mercury and those who did not. Dentists might very well have statistically fewer amalgam fillings than the general population. Had these criteria been considered, the results may well have been entirely different. In any case, the study certainly is not a scientifically valid demonstration of the safety of mercury amalgam fillings in patients.

Might we expect dentists who work with mercury to have greater exposure than patients with mercury amalgam fillings?

Maybe - maybe not! There are variables that simply cannot be ignored. In view of the dental health awareness and economic status of dentists, it is not likely that they will have an intra oral exposure that is statistically comparable to the general public. The significance, therefore, is the comparison of absorption of mercury from sources directly within the mouth to those sources outside of the mouth. Since the primary concern at this time is the inhalation of vapors of mercury, it then becomes imperative that exposure/absorption factors be considered; these would include the distance of the sources from the lungs, the dilution of the source in the operating room versus that of the source within the mouth, the temperature differences of the two sources, and the constant stimulation of mercury vapor from the intra oral source by various functions. It must also be considered that, in most modern dental offices, very few

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dentists actually mix or handle the amalgam; this function is almost exclusively performed by dental assistants, who work in much closer proximity to the amalgam and its instrumentation. It might be more valid, therefore, to investigate health status of dental assistants, rather than dentists.

Are there any published studies available that investigate the health status of patients with and without mercury amalgam fillings? - NO!!! There should be, in view of the serious nature of exposure to mercury vapor, but there aren't. This is a profound shame and embarrassment to the dental community and the government health agencies, but a fact of life nonetheless. Given the recent proliferation of research demonstrating patient exposure to mercury vapor from their amalgam dental fillings, this type of research should have received the very highest priority. Someday, someone will have to answer for this neglect.

Since the responsible parties have failed to conduct broad studies on the patients, it may well be interesting to look at what investigations have been conducted on the effects of occupational exposure to mercury on dental personnel. There have been a number of case reports of dentists poisoned by mercury in the workplace and even the death of a dental assistant attributed to occupational exposure to mercury. (2) One would expect that these reports should have stimulated an intense investigation.

This, strangely, has not been the case. An example of the type of "research" provided can be found in the following "study". (3)

OCCUPATIONAL EXPOSURE TO MERCURY IN DENTISTRY AND PREGNANCY OUTCOME. Brodsky JB, et al. JADA. 111:779-780. November 1985.

"A detailed questionnaire was mailed to a random sample of 29,514 male dentists and 30,272 female dental assistants. More than 70% of the dentists (21,634) and dental assistants (21,202) responded. The questionnaire requested information concerning practice specialty, use of anesthetic agents, use of mercury amalgams, and health and pregnancy history of the respondent (for male dentists, their wives) for the years 1968 to 1978."

"Mercury exposure was divided into three groups. As few dental professionals (less than 10%) reported no exposure to mercury, the zero and low mercury exposure groups were combined for statistical comparison." The 'low exposure' group were those who placed 0-40 amalgams per week; those placing more than 40 amalgams per week were placed in the 'high exposure' group.

"When analyzing pregnancy outcome, spontaneous abortion was defined as loss of the product of conception before the 20th week of gestation." "The congenital abnormality rate was based on the number of live-born babies with one or more abnormalities (skin lesions excluded) per 100 births."

Results: "Neither direct nor indirect mercury exposure at the two levels defined in our study had a statistically significant effect on the rate of spontaneous abortion or the incidence of congenital abnormalities in the offspring of dentists or dental assistants who were exposed to mercury."

It is hard to believe that a 'study' of this nature with those conclusions could be published in a respected, supposedly peer-reviewed journal. As the ADA is continually citing this particular study to "prove" that amalgams are safe and present no significant problems to pregnancy or pregnancy outcome, we thought our readership might find it interesting to see what the underlying scientific facts contained in this study really were. There are several aspects of this study and the 1980 Cohen et al. study, upon which it was based, that require clarification: