

AMALGAM BAN DEMANDED IN GERMANY

The following Press Release From Germany has been translated by Mats Hanson, Ph.D. of Sweden.

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Review/Background Information

Presentation of the results of the largest trial on mercury release from dental amalgam fillings in world, BUND demands:

No respite for amalgam - Amalgam ban overdue.

Amalgam has been the dental filling material of choice for 150 years. The criticism of this debated material has now been further strengthened after the current results of the Tübingen amalgam tests.

The largest experiment in the world ever conducted on mercury release from Dental Amalgam fillings into the saliva was initiated in the summer 1995 by BUND and carried out by the Department of Environmental analysis labs at the university of Tübingen. After a few hundred tests at the BUND- Environmental exhibition (tm)KO-95 in Ulm had shown a mean of more than four times higher mercury levels in the saliva than the Bundesgesundheitsamt had reported, BUND decided to act because of apparent governmental inactivity. Funded by the MOMO-Children Foundation, we engaged the environmental analytical group at the university of Tübingen for the scientific realization of the largest experiment in the world on mercury release from Dental Amalgam fillings. The analysis of the data have been completed and sent to the Bundesinstitut für Arzneimittel und Medizinprodukte for publication.

Part 1: Mercury concentration in saliva from Dental Amalgam fillings.

In the first part of the study mercury levels in the saliva were measured in 20,000 persons and related to the number of Amalgam fillings. The aim was to evaluate whether and to what degree there was an exposure to mercury from amalgam fillings.

The second part of the study examined the relation between the levels of mercury in saliva and a special spectrum of symptoms.

Mercury levels strongly elevated.

When mercury levels in saliva were found to be more than 4-5 times higher than the levels reported by the former Bundesgesundheitsamt in 1984, (now Bundesinstitut für Arzneimittel und Medizinprodukte) this caused alarm, both among the public as well as among professionals. Continuation of these experiments were increasingly made more and more difficult for the scientists at the University of Tübingen, a sign of the alarming nature of the results. In addition to a great deal of irrelevant criticism, it was also reported that WHO had distanced itself from interpretations of the Tübingen study, which also proved to be false. The fact that established mercury limits were exceeded caused worry: The total tolerable weekly uptake of mercury (including the vapor phase) stipulated by the W.H.O. were exceeded.

About 43 % of the test subjects had higher, often several fold, exposure than the permissible intake. Since it has already been demonstrated that the mercury in the saliva is in solution and *not* particulate, one has to calculate a much higher absorption and mercury load than previously supposed. It is of importance that in the 20-39 year old group (including women in the fertile ages) the tolerable levels were more often exceeded. This can be explained by the fact that the number of fillings in this group is especially high with 9-11 fillings, compared to a mean of 8 in the general German population. The tolerable intake was also often exceeded for children with fewer fillings because of their lower body weight.

Mercury load from amalgam fillings.

As a further statistical result the study established that the mercury concentration in saliva (before and after chewing) depends on the number amalgam fillings. The exposure to mercury from amalgam fillings has been scientifically debated, and the results from the Tübingen study clearly show an increased mercury load from amalgam fillings.

Saliva test a method to establish the mercury load.

The criticism of the Tübingen amalgam study concentrated on the question whether saliva was a better medium than for instance blood and urine to evaluate mercury exposure. Recent research confirms the advantages of the saliva test. The load on the oral cavity and the gastrointestinal tract can be estimated better with the saliva test than with any other available method. Hg can be present in both the oral cavity and the gastrointestinal tract without being detectable in blood or urine. It is clear that blood and urine do not reflect the Hg-concentration in the oral cavity/upper airways and in the gastrointestinal tract. In addition, it was not possible to obtain a certification/standardization for either blood (Dtsch Ges für Arbeitsmed) or urine (Dtsch Ges für Klin Chem) in the exposure range relevant for amalgam fillings. In contrast, a standardization test by the State Medical Dept of Stuttgart confirmed the excellent reproducibility for the saliva test; laboratories which processed the samples with the same method obtained consistent results; the standard error between the 10 laboratories was less than 15%.

Part 2. Correlation between measured levels in saliva and health symptoms.

Every saliva test was accompanied by a questionnaire in which the persons were asked for 30 symptoms. The analytical group at Tübingen university evaluated 17500 completely answered questionnaires. The question was whether there was a significant relation between report of a symptom and the measured level of Hg in the saliva after chewing. It has to be stressed that the established relation has a direct mathematical and statistical character and should not be causally interpreted. A statistically significant difference does not automatically mean a medical or biological relevance. Not even multi variance analysis can decide which relations are caused by chance and which by a causal relation.

Relation between symptoms and mercury concentrations in saliva after chewing.

The Tübingen amalgam study could establish in the especially examined group of 21-40 year old persons a statistically significant relation between mercury levels in saliva and symptoms. Only symptoms which are characteristic of subacute or chronic mercury exposure in the low-level range

were studied. The set of symptoms are often called micromercurialism in the literature. There was a significant correlation between the measured mercury concentration and the following symptoms:

1. Mouth-oral cavity: Bleeding gingiva, metal taste, burning tongue.
2. Central nervous system: Concentration difficulties, impaired memory, sleep disturbances, lack of initiative, nervousness.
3. Gastrointestinal tract: not specified; further research is needed to establish the diseases which are covered by the non-specific label gastrointestinal problems.

Plausibility and explainability of the demonstrated symptoms.

In addition to high levels of mercury in saliva there has also been demonstrated high levels in gingiva, pulp, oral mucosa, dentine, roots and jaw bone. Amalgam fillings, as described in the literature, lead to increased inflammation of the gingiva. In addition the oral cavity will be affected by the Hg-vapor released by the fillings. Experiments with cell cultures demonstrated that the Hg-levels measured in the oral tissues (up to 8000 ng/g in the mucosa) can lead to damage to human cells. It has also been described that unpolished amalgam fillings can damage nearby cells more than polished ones.

Also for the gastrointestinal tract it has been demonstrated that there are high levels of mercury in the intestinal wall, intestinal lymph nodes and in feces. The cause of this is that the mercury which is swallowed with the saliva is only absorbed to 10% and the rest remains in the gastrointestinal tract.

For both these body parts it has been established that blood and urine levels are unsuitable to evaluate the mercury load. The symptoms from the central nervous system show a remarkable similarity with the classical mercury symptoms described in the literature. For instance, effects of mercury on memory and concentration have been repeatedly described in the literature. The Tübingen group for environmental analysis stress that some aspects of the study require further examination. For instance, the relationships between mercury exposure and metal allergy, or loss of hair, or the relationship to involuntary infertility.

In each of these considerations, tendencies were noted, however, extensive and expensive further questionnaires are required. It should be stressed that the results are statistical and do not establish a causal relation for single cases for any symptom.

After the statistical relations found in the study, persons who complain over problems with amalgam must not further be dismissed as "Ecochondriacs" or "Hypochondriacs," and furthermore a possible Hg-load must be taken into account in the anamnesis, especially when the patients exhibit the described symptomatology.

Amalgam is with certainty not the material for the future, the Tübingen group stress, however they also warn against exaggerated panic reactions. As in medicine in general, in every single case one must together with the treating doctor evaluate whether an amalgam removal is necessary and if yes, how rapidly a removal should take place.

The relations found, which as stated above, should not be causally interpreted, clearly prove however that humans will be exposed to a continuous load of mercury from amalgam fillings. The filling material amalgam is thus suspected of being able to cause damage to health. This should be sufficient for health policy measures and at last start to end the amalgam era.

Demands by BUND as a consequence of the amalgam study:

- BUND demands that the Minister of Health, Seehofer, immediately act on the basis that: Amalgam, as an additional risk factor, does not belong in the oral cavity.
- The amalgam ban should not only be restricted to pregnant women and children but should immediately be general for dentistry.
- The university dental clinics must immediately remove the technique of amalgam placement from their educational agenda, as has already happened in renowned dental clinics in Switzerland.
- Teaching and education on amalgam problems, safer removal techniques for amalgam filling and on plastic alternatives for molar teeth.
- Further studies are indicated by the amalgam study. The Minister of Health Seehofer must not further burden environmental organizations with the expenses,
- BUND demands that the Minister of Health release funds for follow-up studies at the University of Tübingen.
- After an overdue amalgam ban the costs for alternative materials must be taken over by the insurance system

Dental metal test can be mediated by all pharmacies. BUND can, in cooperation with the environmental analytical group at Tübingen, offer under the name SALIVAGAM a dental metal test. This can be mediated by all pharmacies. In addition to mercury levels in saliva all other dental metal are analyzed. Further information in all pharmacies and from BUND-Umweltlabor, Tel: 0781/9383-21, Fax-11. For answers to scientific matters please contact Dr E Roller, Dr. HD Wolss, KH Maier, AK Umweltanalytik, Univ. of Tübingen, Postfach 210352, D-72026 Tübingen, tel 07071/2984802. The study can be read at: <http://www.amalgam.ukgo.com/tu.htm>.

Interested journalists can obtain detailed information from BUND, Dunanstrasse 16. D-79110 Freiburg, Tel: 0761/885955-0, Fax-90