CALIFORNIA PROP 65 ON AGAIN - AMALGAM WARNINGS REQUIRED!

The United States Ninth Circuit Court of Appeals ruled, on 5 August 1996, that consumers in California must be warned of exposure to mercury from amalgam dental fillings! The decision was based on appeal of a lower court decision that dental amalgam was exempted from the requirements of California’s Proposition 65 because it fell under the regulation of the United States Food and Drug Administration (FDA).

California’s Proposition 65 requires providers of products to inform consumers of potential health risk from materials on their toxic chemical list, which includes mercury. Penalties for disregarding the law accrue at the rate of $2500 per day per violation. For dental amalgam, the warning reads: “Warning: This dental office uses amalgam filling materials which contain and expose you to mercury, a chemical known to the State of California to cause birth defects and other reproductive harm. Please consult your dentist for more information.”

The original charge had been brought by the Environmental Law Foundation (ELF) of Oakland, California. Although Generic/Penton agreed to provide the warnings, the other amalgam manufacturers banded together in a legal action, convincing the lower court to rule in their favor. ELF then took their appeal to the higher court, and won this dramatic victory, which had been recently forecast by a similar decision on a different medical device by the Supreme Court of the United States.

ACLU DEFENDS UNIVERSITY PROFESSOR ON AMALGAM

Bio-Probe has previously reported that Dr. Dennis Lobstein has been fired from his position of the health and wellness program at New Mexico Highlands University (NMHU) for distributing newsletter articles questioning the safety of mercury/silver amalgam dental fillings [BPNL, 12(4), Jul 1996]. Local dentists had threatened suit against the University on the basis that Dr. Lobstein’s articles were detrimental to their livelihood.

The American Civil Liberties Union (ACLU) has taken up the defense of Dr. Lobstein on the basis that the University has deprived him of his First Amendment and due process rights under the Constitutions of the United States and the State of New Mexico. The ACLU points out that the University might be guilty of intentional and negligent infliction of emotional distress and tortious interference with Dr. Lobstein’s contractual rights. The ACLU attorneys also suggested that NMHU has violated Federal Law by acting in conspiracy with the local dentists. The University Faculty Grievance Committee is now addressing the issue.
U.S. ATTORNEY NAILS W.H.O.!

On 16 January 1996, attorney James M. Love sent a letter to the Director General of the World Health Organization regarding the 1995 "WHO/FDI Consensus Statement on Dental Amalgam." The "FDI" is the Federation Dentaire Internationale, which represents dentists and dental manufacturers. Mr. Love stated: "The document is not signed by, or attributed to, any author. I am interested in learning the identity of the author(s) who prepared this document."

Mr. Love received his response from Dr. G.N. Pakhomov, chief of the Oral Health division of W.H.O., on 25 July 1996. Dr. Pakhomov explained: "The FDI World Dental Federation previously published a Policy Statement on Dental Amalgam, however, this statement did not incorporate the issue of amalgam on occupational and environmental health risks. Thus the draft of a WHO/FDI Consensus Statement on dental amalgam was prepared by staff of the WHO Oral Health Programme and the International Dental Federation Scientific Committee. The Statement was then approved by the FDI Council and was also endorsed by the International Association for Dental Research. The Consensus Statement was sent to all WHO Member States in the form of a 'note verbale'. Such communications, however, do not bear the signature of the Director-General."

It has now been formally verified that the "WHO/FDI Consensus Statement on Dental Amalgam" was solely the product of the dental division of WHO, working in concert with the dental industry! Neither the Director-General nor the scientists of WHO were aware of the document, let alone issuing any approval for it. Individuals wishing to protest should do so through their representatives to the United States Congress. The address for Dr. G.N. Pakhomov is: Oral Health, Division of Noncommunicable Diseases, World Health Organization, CH-1211 Geneva 27, Switzerland (T: 41-22-791 21 11; F: 41-22-791 07 46).

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HEALTH CANADA ON DENTAL AMALGAM

Health Canada, shamefully bowing to the considerable pressure applied to it from the dental industry, has finally released its updated policy statement on mercury/silver amalgam dental fillings. While acknowledging that "dental amalgam is the single largest source of mercury exposure for average Canadians", the statement declares that this exposure is harmless!

Health Canada did, however, recommend limitations on the use of dental amalgam in the following instances:

1) Primary teeth in children; 2) patients with impaired kidney function; 3) individuals allergic to mercury; and 4) contact with existing oral metal devices. It was further recommended: 1) Whenever possible, amalgam fillings should not be placed in or removed from the teeth of pregnant women; 2) in placing and removing amalgam fillings, dentists should use techniques and equipment to minimize the exposure of the patient and the dentist to mercury vapour, and to prevent amalgam waste from being flushed into municipal sewage systems; 3) dentists should provide their patients with sufficient information to make an informed choice regarding the material used to fill their teeth, including information on the risks and benefits of the material and suitable alternatives; and 4) dentists should acknowledge the patient's right to decline treatment with any dental material.

Although the new recommendations for restriction of the use of dental amalgam are gratifying, the position of Health Canada that the mercury exposure from amalgam is harmless is nothing less than astounding. Health Canada has now commissioned two internal scientific evaluations of the risk from amalgam mercury, one in 1976 and the recent one in 1995. The scientists conducting these evaluations both concluded a risk and recommended stringent regulation of the material, reporting thus to Health Canada. The Canadian public, through media reports, is aware of both of these reports, as well as the medical research from the University of Calgary and elsewhere questioning the safety of dental amalgam. Health Canada, instead, elected to adhere to the policy of the dental industry, rather than the findings of their own scientists and the published valid research. It is now likely that the issue will be placed before the Canadian Parliament, with potential severe adverse repercussions to Health Canada, which should be representing the interests of the Canadian public rather than the dental industry.

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PATIENT RESPONSES AFTER AMALGAM REMOVAL

BIO-PROBE COMMENT: The following preliminary study was sent to us by Dr. Weber of Marburg, Germany. It is our understanding that the complete study will be published by the Institute in a new edition of their book "Amalgam - und was dann?" (Sick Through Amalgam - What Can I Do?). One of the diagnostic protocols used in the study is called "Electroacupuncture According to Voll" (EAV). Although the use of EAV is well documented and accepted in Germany, the use of this medical device has never been approved by the FDA. Consequently, its use in this country has been
restricted to investigational research studies. Dr. Weber cites two other German studies comprising about 1200 patients and indicates that his findings about the palliative powers of amalgam replacement and detoxification further validate the previous studies. What we find so fascinating, is that the results of the Marburg study parallel our previously published data “Dentistry Without Mercury” pages 32-34, showing health improvement and amelioration of symptomatology in 1569 patients who had their amalgams replaced. Collectively, it would appear that the published results of amalgam replacement, with non-mercury dental fillings, for approximately 3500 patients has demonstrated conclusively that amalgam dental fillings are a serious threat to human health and a major UNRECOGNIZED factor in the ever escalating cost of health care throughout the industrialized world.

THE MARBURG AMALGAM DETOXIFICATION STUDY
Bernhard A. Weber, and Regina Schneider

The Institute for Naturopathic Medicine is a private non-profit organization located in Marburg, Germany. The Institute has been involved in the amalgam issue since 1992 and have amalgam information centers in Giesen, Fulda, and Koblenz, Germany in addition to the Main facility located in Marburg. Since 1994 the Institute has also offered a nationwide telephonic amalgam advice service (06421 66379).

The main purpose of the Institute is to conduct investigational studies on naturopathic and environmental medicine.

The potential health effects of chronic mercury poisoning attributable to amalgam dental fillings have been the subject of nationwide discussion within Germany, leading to increased restrictions being placed on the use of this material by the "Amt fur Arzneimittelsicherheit" (official board for the security of drugs).

SOME HISTORY OF AMALGAM IN MEDICINE

Historically, the therapeutic use of mercury, without regard to its poisonous effects, was known long before modern medicine. In fact, an important motive for Hahnemann’s development of homeopathy nearly 200 years ago, was the excessive use of mercury ointments by quacks, which caused enormous chronic poisonings.

Amalgam, was introduced into medical/dental practice around 1830 and from the outset sparked great controversy and some temporary prohibitions on its use. Although the formula for amalgam has been refined since inception, the basic ingredients remain relatively the same, i.e. 50% mercury, 30% silver, plus varied amounts of other metals such as tin and copper.

As far back as 1925 Professor of Chemistry Alfred Stock, Germany, presented distinct evidence demonstrating chronic mercury poisoning from amalgam dental fillings. More recently, Professor Drasch from the University of Munich, was able to show that one can find increased mercury values in the tissues of brain, liver and kidney of a patient with a high number of amalgam fillings. Also in Munich, Professor Dauneder introduced a mobilization test, based on the use of DMPS for diagnostic purposes. In his "Handbuch der Amalgamvergiftung" (Handbook for Amalgam Poisoning) he presents therapeutic successes of detoxification in individual cases.

ARE DISEASES CAUSED BY POISONING WITH AMALGAM TRACEABLE?

Individual studies have clearly shown the accumulation of mercury in various body organs and tissues and other studies have shown that certain substances have the ability to mobilize mercury from these tissues. However, the question of whether conditions believed to be caused by amalgam mercury are traceable, can only be answered by studies involving large numbers of people.

The Marburg Amalgam Detoxification Study provides us with a good basis and many arguments in the discussion against the use of amalgam as a dental filling material.

A major problem relating to proving the bad effects of amalgam are the enormous variety of symptoms that can be caused by chronic mercury poisoning and the confounding factors of having the other heavy metals of silver, tin and copper also leaching from the amalgam into the body. Hahnemann, in 1830, had already listed about 1260 different symptoms that could be caused by mercury. Thomsen and Kramer documented this variety from the view of a dentist.

In our pilot study, involving approximately 1200 patients, the objective was to determine what pre-existing symptoms patients had and then see whether an amalgam removal and a detoxification therapy improved or cured these symptoms. All of the 1200 patients investigated until September 1995 at our amalgam information centers in Marburg, Giesen, Fulda and Koblenz filled out our "Symptom Questionnaire." After completing the questionnaire, patients were then tested using EAV (electroacupuncture according to Voll). We specifically investigated "amalgam stress" at the acupuncture points of the mainly involved organs and organic systems,
lymph system, allergy and nervous system. In addition, we examined the individual severely stressed meridians. 

**DIAGNOSTIC METHODS**

Several studies, including our own 1993 blinded study, have demonstrated the high accuracy of the diagnostic results achieved with EAV. In a small number of the cases investigated with this method, a mobilization with DMPS and a chemical diagnosis of the urine followed the initial examination in order to validate the diagnosis and at the same time start the patient into intensive therapy.

Dependent on the seriousness of the individual patients symptoms and with the patient’s permission, we either chose to treat with the chelating agent DMPS or treat with a naturopathic detoxification protocol involving homeopathy/phytotherapy, vitamins A,C,E, the trace elements zinc and selenium, and certain amino acids and glutathione.

For this portion of the study being published at this time, there were 266 patients involved who completed questionnaires and actual examination. Of this number, 14 underwent detoxification and 130 patients underwent amalgam replacement and detoxification.

**EVALUATION OF THE 266 PATIENTS**
**(EXAMINATION AND QUESTIONNAIRE)**

Average age 43.9 years; standard deviation 15.1; 85 male and 151 female; amalgam removal in 130 patients; amalgam detoxification in 144 patients; and 13.1% had a positive reaction to an allergy patch test.

**DETOXIFICATION THERAPY**

DMPS 16.9%; zinc 58.4%; selenium 57.7%; homeopathic 47.6%; vitamins 30.7%; Other 11.5%.

78 patients were also treated for secondary diseases (intestinal dysbacteria and sinusitis)

There was an 80.4% improvement of the symptom complaints in patients who had undergone amalgam removal and detoxification over 3-6 months. 19.6% of the patients had not yet shown any improvement at the end of 6 months.

**IMPROVEMENT IN SINGLE SYMPTOMS**

<table>
<thead>
<tr>
<th>MOUTH SYMPTOMS</th>
<th>No. of patients (%)</th>
<th>% Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>gingiva bleeding</td>
<td>39 (20.8%)</td>
<td>79.5%</td>
</tr>
<tr>
<td>grinding of teeth</td>
<td>34 (13.1%)</td>
<td>79.1%</td>
</tr>
<tr>
<td>burning tongue</td>
<td>18 (9.7%)</td>
<td>88.9%</td>
</tr>
<tr>
<td>dry mouth</td>
<td>28 (15.4%)</td>
<td>92.8%</td>
</tr>
<tr>
<td>metallic taste</td>
<td>58 (24.6%)</td>
<td>96.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ALLERGIES</th>
<th>No. of patients (%)</th>
<th>% Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>contact eczema</td>
<td>26 (10.5%)</td>
<td>61.5%</td>
</tr>
<tr>
<td>food allergy</td>
<td>32 (16.5%)</td>
<td>62.5%</td>
</tr>
<tr>
<td>hay fever</td>
<td>34 (18.4%)</td>
<td>50.0%</td>
</tr>
<tr>
<td>eczema (neurodermatitis)</td>
<td>27 (13.5%)</td>
<td>51.8%</td>
</tr>
<tr>
<td>asthma/chronic bronchitis</td>
<td>9 (20.0%)</td>
<td>55.5%</td>
</tr>
<tr>
<td>itching/pruritus</td>
<td>27 (19.5%)</td>
<td>75.0%</td>
</tr>
</tbody>
</table>

**CHRONIC/FREQUENT INFECTIONS OR INFLAMMATORY IRRITATIONS**

<table>
<thead>
<tr>
<th></th>
<th>No. of patients (%)</th>
<th>% Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>nose</td>
<td>62 (32.0%)</td>
<td>74.2%</td>
</tr>
<tr>
<td>paranasal sinuses</td>
<td>61 (29.6%)</td>
<td>78.7%</td>
</tr>
<tr>
<td>pharynx</td>
<td>56 (27.8%)</td>
<td>83.9%</td>
</tr>
<tr>
<td>chronic headache/migraine</td>
<td>49 (19.5%)</td>
<td>77.5%</td>
</tr>
<tr>
<td>vertigo</td>
<td>48 (26.3%)</td>
<td>75.0%</td>
</tr>
<tr>
<td>low blood pressure</td>
<td>40 (21.8%)</td>
<td>50.0%</td>
</tr>
</tbody>
</table>

**NEUROLOGIC SYMPTOMS**

*fatigue *(1) *albula* 89 (46.9%)  69.7%* 

<table>
<thead>
<tr>
<th></th>
<th>No. of patients (%)</th>
<th>% Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>lack of concentration</td>
<td>75 (41.3%)</td>
<td>72.0%</td>
</tr>
<tr>
<td>depressive mood</td>
<td>76 (40.9%)</td>
<td>80.3%</td>
</tr>
<tr>
<td>extreme nervousness</td>
<td>55 (30.4%)</td>
<td>83.6%</td>
</tr>
<tr>
<td>insomnia</td>
<td>52 (28.5%)</td>
<td>76.9%</td>
</tr>
<tr>
<td>tremor</td>
<td>34 (17.6%)</td>
<td>70.6%</td>
</tr>
<tr>
<td>defective vision</td>
<td>41 (19.5%)</td>
<td>53.6%</td>
</tr>
<tr>
<td>tinnitus</td>
<td>31 (17.2%)</td>
<td>48.4%</td>
</tr>
<tr>
<td>arhythmias</td>
<td>29 (18.4%)</td>
<td>62.1%</td>
</tr>
<tr>
<td>increased sweating</td>
<td>42 (22.5%)</td>
<td>61.9%</td>
</tr>
<tr>
<td>aching back</td>
<td>72 (39.4%)</td>
<td>61.1%</td>
</tr>
<tr>
<td>rheumatic</td>
<td>19 (11.2%)</td>
<td>73.7%</td>
</tr>
<tr>
<td>acne (n = 70)</td>
<td>8 (11.4%)</td>
<td>50.0%</td>
</tr>
<tr>
<td>alopecia/loss of hair</td>
<td>32 (19.5%)</td>
<td>59.4%</td>
</tr>
<tr>
<td>urgency</td>
<td>39 (21.0%)</td>
<td>61.5%</td>
</tr>
<tr>
<td>constipation</td>
<td>26 (15.7%)</td>
<td>76.9%</td>
</tr>
<tr>
<td>meteorism (gas)</td>
<td>64 (31.5%)</td>
<td>62.5%</td>
</tr>
<tr>
<td>diarrhea</td>
<td>39 (15.4%)</td>
<td>69.2%</td>
</tr>
<tr>
<td>eye inflammation</td>
<td>33 (17.6%)</td>
<td>63.3%</td>
</tr>
</tbody>
</table>

(*fatigue is defined as lack of willpower, inability to make decisions)

**DETECTED ASSOCIATED DISEASES**

Comprehensive EAV testing revealed that 78 patients also had amalgam related secondary diseases consisting of mycosis (fungal) and intestinal dysbiosis. Utilizing an intensified amalgam detoxification and microbiological therapy, these concomitant diseases were successfully treated, even without the use of antimycotics. Microbio-
logical examinations of the feces were only necessary in a few cases.

CONCLUSIONS

The Marburg amalgam detoxification study proves again the necessity to prohibit the use of amalgam as a dental material.

Amalgam related/connected chronic disease states have been increasing at a threatening rate with a concomitant increase in health care costs.

The very large increase in sugar consumption over the last 100 years has led to an enormous increase of caries and has allowed amalgam to be established as the "cheapest solution" to the caries problem.

The complete study with detailed results will be published by the Institute in a new edition of "Amalgam - und was dann?" (Sick through amalgam - what can I do?)

SELECTED REFERENCES:


Drasch, Schupp, Riedel: Einfluss von amalgam fullungen auf die quecksilberkonzentration in menschlichen organen.


Smrz P: Amalgam, die verharmlose zeitbombe. Hipokrates Akademie-Verlag, Ulm.


Dr. med. Bernhard Weber. Institut for Naturopathic Medicine - Uferstr 4 - D35037 Marburg, Germany. 011-49-6421-66379 Fax 011-49-6421-682581

SCIENCE

Mercury vapor in amalgam waste discharged from dental office vacuum units.

Rubin, PG.


Abstract: Clinical procedures in dental offices generate quantities of waste slurry or fine particulate matter, much of which is derived from dental amalgam filling material.

This mercury-containing material is discharged into waste streams via the dental office vacuum-pump system. This system also discharges large quantities of air, either into the atmosphere exterior to the office building or into the sewer system, depending on the type of equipment used. The purpose of this study was to investigate whether the discharged air contained mercury vapor.

BIO-PROBE COMMENT: The study determined mercury vapor levels of 10-237 ug (micrograms) Hg/m³ air, with an average of 92 ug Hg/m³. Samples were collected at various times during the day, even when there were no patients being treated, suggesting accumulation of waste amalgam in plumbing lines. Based upon consideration of flow rates of various vacuum systems and estimated running times, an estimated quantity of 60 milligrams of mercury vapor per dentist per day is released into the waste stream. An extrapolation of the approximately 112,000 U.S. dentists working 200 days per year yields an estimate of more than one ton of mercury per year delivered into the waste stream. The author concluded: "Such a result appears to be cause for some environmental concern."

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Psychological and somatic subjective symptoms as a result of dermatological patch testing with metallic mercury and phenyl mercuric acetate.

Marcusson, JA.


Abstract: Sixty patients with a history of malaise over the ensuing weeks following the drilling out of old amalgam fillings were included in the study. They were tested epicutaneously weekly (standard procedure) with either 0.5% metallic mercury in petrolatum or 0.01% phenyl mercuric acetate in water, and, on 2 separate occasions, with only saline or petrolatum as a control according to a randomized double-blind protocol. The presence or absence of an allergic patch test response was read on day 3.

Two patients showed allergic cutaneous responses towards metallic mercury and 1 to phenyl mercuric acetate. There was a concurrent 7-day self-registration of subjective psychological and somatic symptoms, using a validated visual analogue scale (minor symptom evaluation profile; MSE). In the group analysis it was clearly shown that the patients reacted with subjective symptoms to phenyl mercuric acetate. A reaction to test doses of metallic mercury seems to exist but could only be visualized when a scoring system was elaborated to individually define those subjects with a psychological and somatic response to test doses of mercury. This psychosomatic reactivity, namely intolerance, seems to be unrelated to the cutaneous delayed allergic skin response.

Thus, it might be possible to identify patients intolerant to small test doses of percutaneously penetrating mercury (previously considered innocuous). These find-
ings may have a bearing on the systemic side-effects attributed to mercury released from amalgam tooth fillings.

**BIO-PROBE COMMENT:** The importance of this study is the documentation of sixty patients having adverse reaction from the removal of amalgam fillings and the identification that this is not related to "allergy" to mercury. The author's use of the term "intolerance" is intriguing, as it relates to a toxic rather than allergic response. Further, this study demonstrates the absolute requirement for rigid attention to protective measures during the removal of amalgam fillings, to minimize the patient exposure to mercury vapor as much as possible.

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In vitro reaction of macrophages to metal ions from dental biomaterials.

Wataha, JC; Hanks, CT; Sun, Z.


**Abstract:**

**OBJECTIVES:** This study was conducted to 1) measure the sensitivity of human and mouse macrophages to metal ions which are released from dental biomaterials, 2) compare these sensitivities with those of other cell types in the oral cavity, and 3) determine if metal ions alter the metabolism and synthetic processes of these cells at lower concentrations than are required to lyse the cells. This information will help define the biological risks associated with the release of metal ions into the oral cavity.

**METHODS:** Macrophages were exposed to a range of concentrations of Ag^{+}, Au^{3+}, Cu^{2+}, Hg^{2+}, Ni^{2+}, Pd^{2+}, Pt^{4+}, and Zn^{2+} for 24 h in cell culture. The concentrations which caused a 50% decrease in succinic dehydrogenase (SDH) activity, protein production, and lactate dehydrogenase (LDH) release were measured and compared with those values for fibroblasts and osteoblasts.

**RESULTS:** Most metal ions caused alteration in SDH activity and protein production at lower concentrations than were required to induce LDH release. There were exceptions to this trend, and the differences were not always statistically significant. Furthermore, although the macrophages sometimes had statistically different sensitivities to metal ions than fibroblasts or osteoblasts, these differences were less than one order of magnitude. Macrophage response to the metal ions was highly dependent on the metal ion and the species of macrophage.

**SIGNIFICANCE:** Macrophages react adversely to metal ions at similar concentrations as other cell types found in the oral cavity. Furthermore, the concentrations which affect cell metabolism and protein production are generally lower than those which lyse cells. Thus, non-lethal concentrations of metal ions may alter the secretion of protein inflammatory mediators such as cytokines which direct the inflammatory response in tissues.

Catalase and superoxide dismutase activities as biomarkers of oxidative stress in workers exposed to mercury vapors.

Perrin-Nadif, R; Dusch, M; Koch, C; Schmit, P; Mur, JM.


**Abstract:** For this article we investigated the role of three blood antioxidant enzyme activities and total antioxidant status (TAS) as biological markers of oxidative stress in workers exposed to mercury (Hg) vapors. Twenty-two female workers took part in the study. The examination included a questionnaire on age, educational level, occupational history, actual health status, previous accidents and diseases, smoking and dietary habits, and alcohol consumption. Blood and urine sampling for biological analyses completed this examination. The workers were classified into three subgroups according to their creatinine-corrected Hg concentration in urine. Blood antioxidant enzyme activities and TAS were compared between groups with nonparametric distribution-free methods.

A significant difference existed in catalase activity and a slight, but not significant, difference existed in Cu^{2+}/Zn^{2+} superoxide dismutase (Cu^{2+}/Zn^{2+} SOD) activity between the three groups. No differences were observed in either the glutathione peroxidase activity or the TAS between these groups. Catalase and Cu^{2+}/Zn^{2+} SOD activities were increased in the groups of workers with higher creatinine-corrected urinary Hg concentrations when compared with the group of lower creatinine-corrected urinary Hg concentrations. Catalase activity was positively correlated with the creatinine-corrected concentration of Hg in urine, and Cu^{2+}/Zn^{2+} SOD activity was slightly correlated with the creatinine-corrected concentration of Hg in urine.

The role of erythrocyte catalase and Cu^{2+}/Zn^{2+} SOD activities we have measured is in agreement with the hypothesis of the involvement of reactive oxygen species production as an important event in chronic exposure to Hg_{0} vapors in humans. In spite of the small size of the sample, these results indicate that erythrocyte catalase and Cu^{2+}/Zn^{2+} SOD activities could be considered as
markers of biological effect in workers exposed to Hg⁰ vapors.

**BIO-PROBE COMMENT:** The search for valid biological diagnostic indicators for chronic exposure to mercury vapor continues. It is becoming increasingly acknowledged that measurements of mercury in blood or urine are not valid indicators of body burden or toxic effects after chronic exposure to mercury vapor. As with lead, the key is finding the one indicator that is affected by mercury, but nothing or little else.

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Neurotoxicity of sodium fluoride in rats.
Mullenix, PJ; Denbesten, PK; Schunior, A; Kerman, WJ.


**Abstract:** Fluoride (F) is known to affect mineralizing tissues, but effects upon the developing brain have not been previously considered. This study in Sprague-Dawley rats compared behavior, body weight, plasma and brain F levels after sodium fluoride (NaF) exposures during late gestation, at weaning or in adults. For prenatal exposures, dams received injections (SC) of 0.13 mg/kg NaF or saline on gestational days 14-18 or 17-19. Weanlings received drinking water containing 0, 75, 100, or 125 ppm F for 6 or 20 weeks, and 3 month-old adults received water containing 100 ppm F for 6 weeks. Behavior was tested in a computer pattern recognition system that classified acts in a novel environment and quantified act limitations, total times and time structures.

Fluoride exposures caused sex- and dose-specific behavioral deficits with a common pattern. Males were most sensitive to prenatal day 17-19 exposure, whereas females were more sensitive to weaning and adult exposures. After fluoride ingestion, the severity of the effect on behavior increased directly with plasma F levels and F concentrations in specific brain regions. Such association is important considering that plasma levels in this rat model (0.059 to 0.640 ppm F) are similar to those reported in humans exposed to high levels of fluoride.

**BIO-PROBE COMMENT:** The authors pointed out that the plasma F levels of 0.059-0.640 ppm found in the rats corresponds to levels found in humans ingesting 5-10 ppm fluoride in drinking water, as well as those found in humans receiving treatment for osteoporosis. More alarming, plasma F levels as high as 1.44 ppm are found in children 1 hour after receiving topical applications of an acidulated phosphate fluoride (1.2%)gel.

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Studies of human gastric mucosa after application of 0.42% fluoride gel.
Spak, C-J; Sjostedt, S; Eleborg, L; Veress, B; Perbeck, L; Ekstand, J.

**Abstract:** Dental prophylaxis with APF gels (1.23%) may cause gastric distress as a side effect. This gastric irritation is probably due to a direct toxic effect of fluoride (F), swallowed in conjunction with the treatment, on the gastric mucosa. The aim of the present study was to investigate whether - and to what extent - a dental treatment with 3 g of a 0.42% F gel could affect the gastric mucosa due to inadvertent swallowing of the gel.

Ten subjects underwent a control gastroscopy, and two weeks later, a second gastroscopy was performed two hours after a F gel treatment. During the gastroscopy, the mucosa was examined and the injuries graded according to an arbitrary scale. Four biopsies of the antral and corpus regions of the stomach were taken and evaluated histologically.

The mean (± SD) amount of F retained after the application was 5.1 ± 2.1 mg, i.e., 40% of the applied amount of F. Petechiae and erosions were found in the mucosa in seven of the ten patients. The histopathological evaluation revealed changes in nine of ten patients, with the surface epithelium as the most affected component of the mucosa.

The present study clearly shows that a treatment with a F gel of rather low F concentration may result in injuries to the gastric mucosa. The importance of current recommended guidelines so that the amount of F swallowed during a gel application can be minimized is emphasized. From a toxicological standpoint, the use of a low-F gel instead of a 1.23%-F gel in small children is recommended for avoidance of adverse gastric effects.

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Influence of fluoride on titanium in an acidic environment measured by polarization resistance technique.
Boere, G.

**Abstract:** The effect of sodium fluoride on the polarization resistance of titanium was investigated. Titanium plates were exposed to sodium chloride solutions with increasing fluoride concentrations. This was done at pH 7 and 4 at 37 degrees C. The polarization resistance technique was chosen because it is the only electrochemical corrosion test procedure that allows sequential measurements of the same specimen and provides a
quantitative basis to estimate corrosion currents unlike measurements of the potential.

The results showed a large decrease in polarization resistance with increasing fluoride concentration at pH 4. The polarization resistance at pH 7 remained constant after a slight decrease at a very high value, even with a high fluoride concentration. The results clearly confirm that titanium is attacked by fluoride in an acidic environment. The clinical implications are that fluoride rinses or fluoride gels must have a neutral pH if there is a titanium containing device in the oral environment despite the less prophylactic effectiveness.

**BIO-PROBE COMMENT:** This study raises the important question of the potential effect of acidulated fluoride use on other metals in the oral cavity, particularly highly toxic metals like nickel and mercury!

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**FORUM**

**IAOMT 1997 MID-YEAR MEETING**

**DATE:** Friday-Sunday, 14-16 March 1997.

**SITE:** Louisville, Kentucky.


**PROGRAM:**

- Boyd Haley, Ph.D. - “Detection of a Toxic Material Associated With Root Canaled Teeth”
- Murray J. Vimy, D.M.D. - “Scientific Update on the Safety of Dental Amalgam”
- Trevor Lyons, D.D.S. - “Oral Microbiology in Periodontal Disease”
- Dan Watt, D.D.S. - “Non-Surgical Treatment for Periodontal Disease”

Friday afternoon will be devoted to IAOMT Workshops, with attendees having a choice of three workshops per session.

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**19th NATIONAL DENTAL SEMINAR IN HOMEOPATHY**

**DATE:** Friday-Sunday, 18-20 Oct 1996.

**SPONSOR:** The Holistic Dental Association. P.O. Box 123, Marenga, IL 60152. Fees: Basic Course= $395.00; Advance Course= $375.00; Spouses/Auxiliaries= $125. Checks payable to: National Dental Seminar.

**HOTEL:** The Oak Brook Hills Hotel and Conference Center, 3500 Midwest Road, Oak Brook, IL 60523-7010. Room Rate: $102/nite, single or double (includes continental breakfast and evening snack). Tel: (800) 445-3315.

**COURSE COORDINATORS:** Dr. Craig A. Zunka, Dr. Daniel Dieska, Dr. Harris M. Kimbrough, Jr.

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**REBUILDING YOUR PATIENTS’ HEALTH THROUGH FREE RADICAL THERAPY**

**DATE:** 24-27 October 1996.

**SITE:** Colorado Springs, Colorado.

**HOTEL:** Cheyenne Mountain Conference Resort.

**SPONSOR/REGISTRATION:** H.L. “Sam” Queen, M.A., C.N.S., C.C.N. Queen & Co. P.O. Box 49308, Colorado Springs, CO 80949-9308. T: 719-598-4968; F: 719-548-1785.

**COURSE:** Includes lectures, hands-on application, round-table discussion, and continuing technical support. Designed to provide a working understanding of how to implement free radical therapy to help restore patients to a state of health.

If you are a mercury-free dentist or are contemplating going mercury-free, you need to join the IAOMT. The IAOMT has helped fund or has been the catalyst for much of the current scientific research demonstrating that dental amalgam is not the benign dental material that 150 years of use and the ADA would like you to believe. Furthermore, the IAOMT is doing something about Standards of Care and Protocols that protect you, your staff and the patient.

For membership information contact Dr. Ronald M. Dressler, D.D.S., FIAOMT, 3071 Campbellton Rd. SW, Atlanta, GA 30311. (404) 349-2088 or FAX (404) 349-2090