

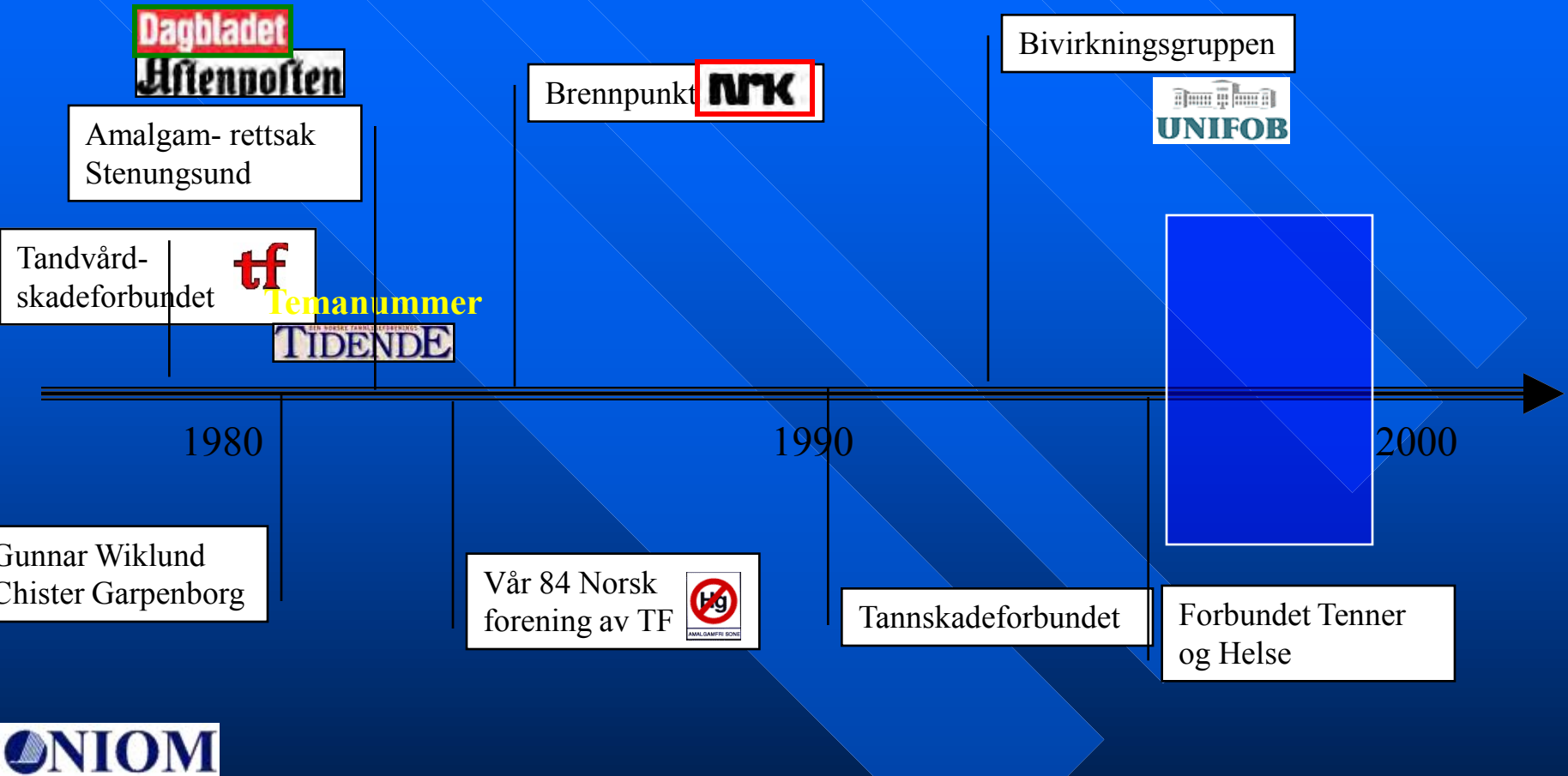
# Bivirkninger og Dentale Fyllingsmaterialer Norge, Januar 2001

*Asbjørn Jokstad*

*Institutt for Klinisk Odontologi*

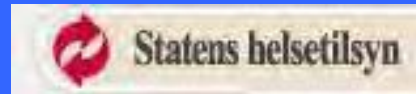
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# Tidsperspektiv -amalgamfobi



# Aktørene i amalgamdebatten

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Pasientforeninger



Media



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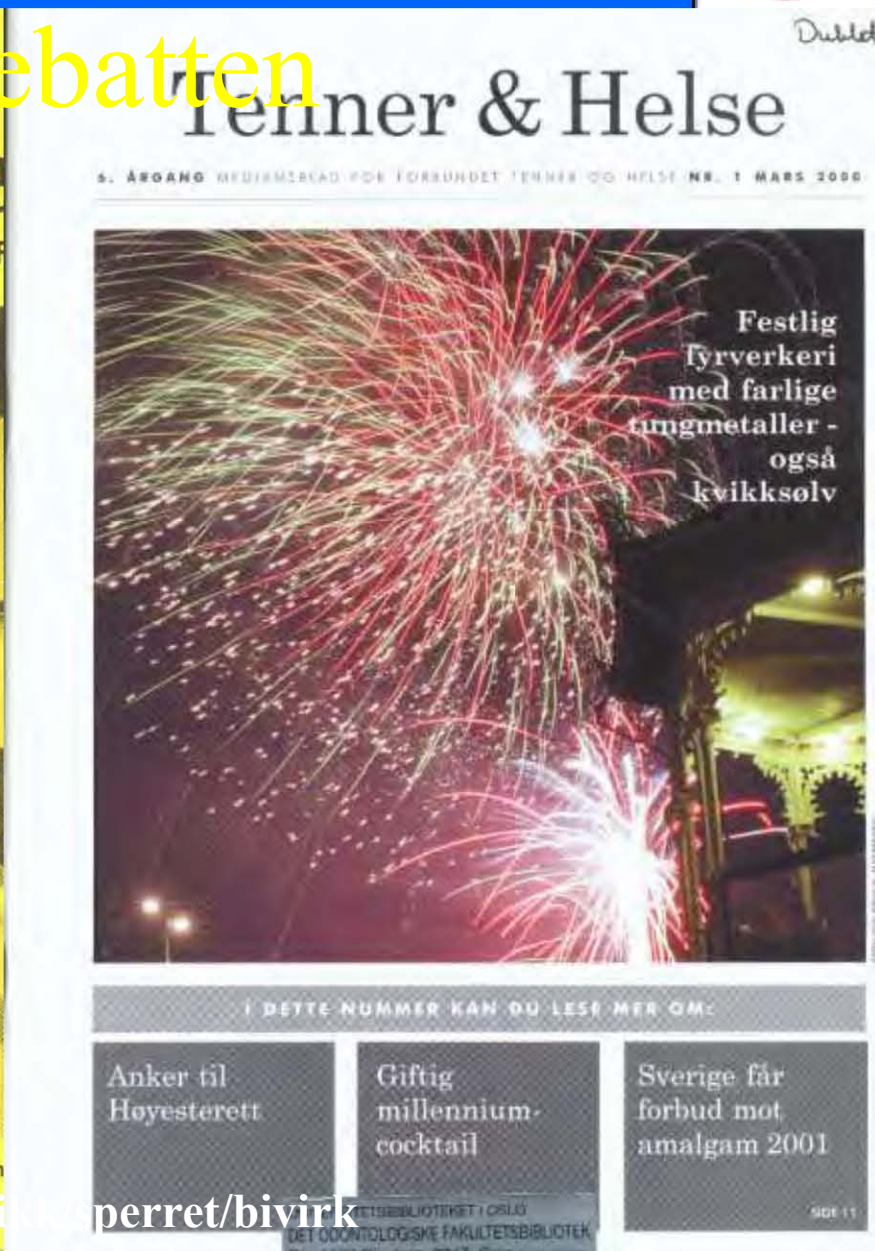
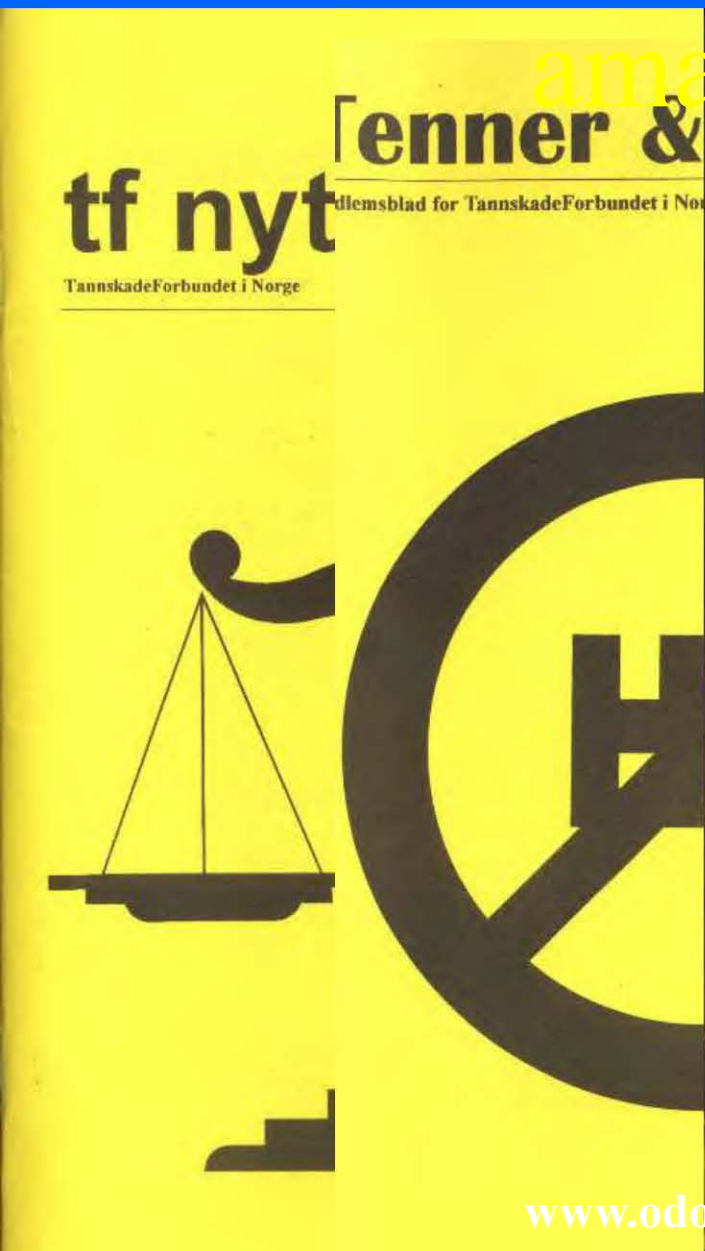
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## amalgamdebatten



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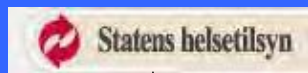
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Sällsten et al

Bratel et al

Marcusson et al  
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 Olea et al.

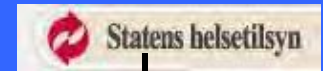
Oskarsson et al.

Edlund et al

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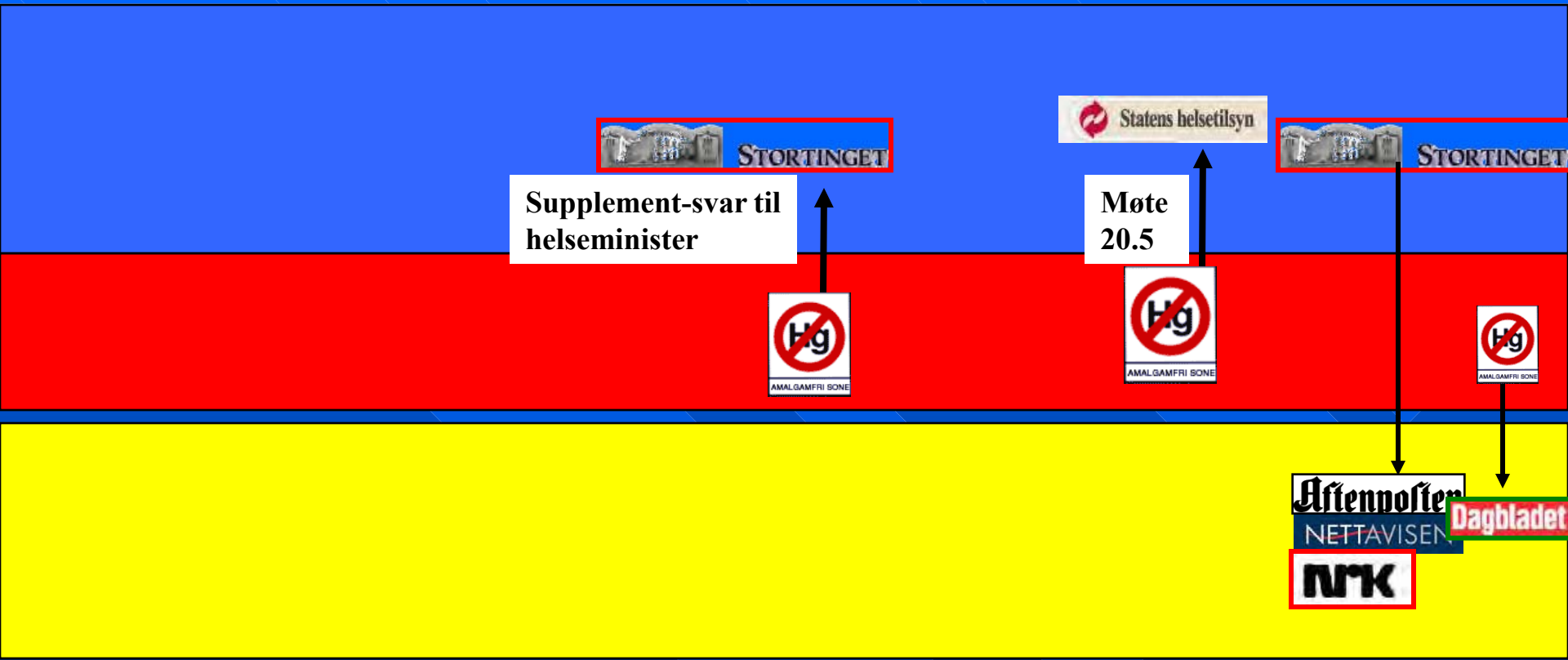


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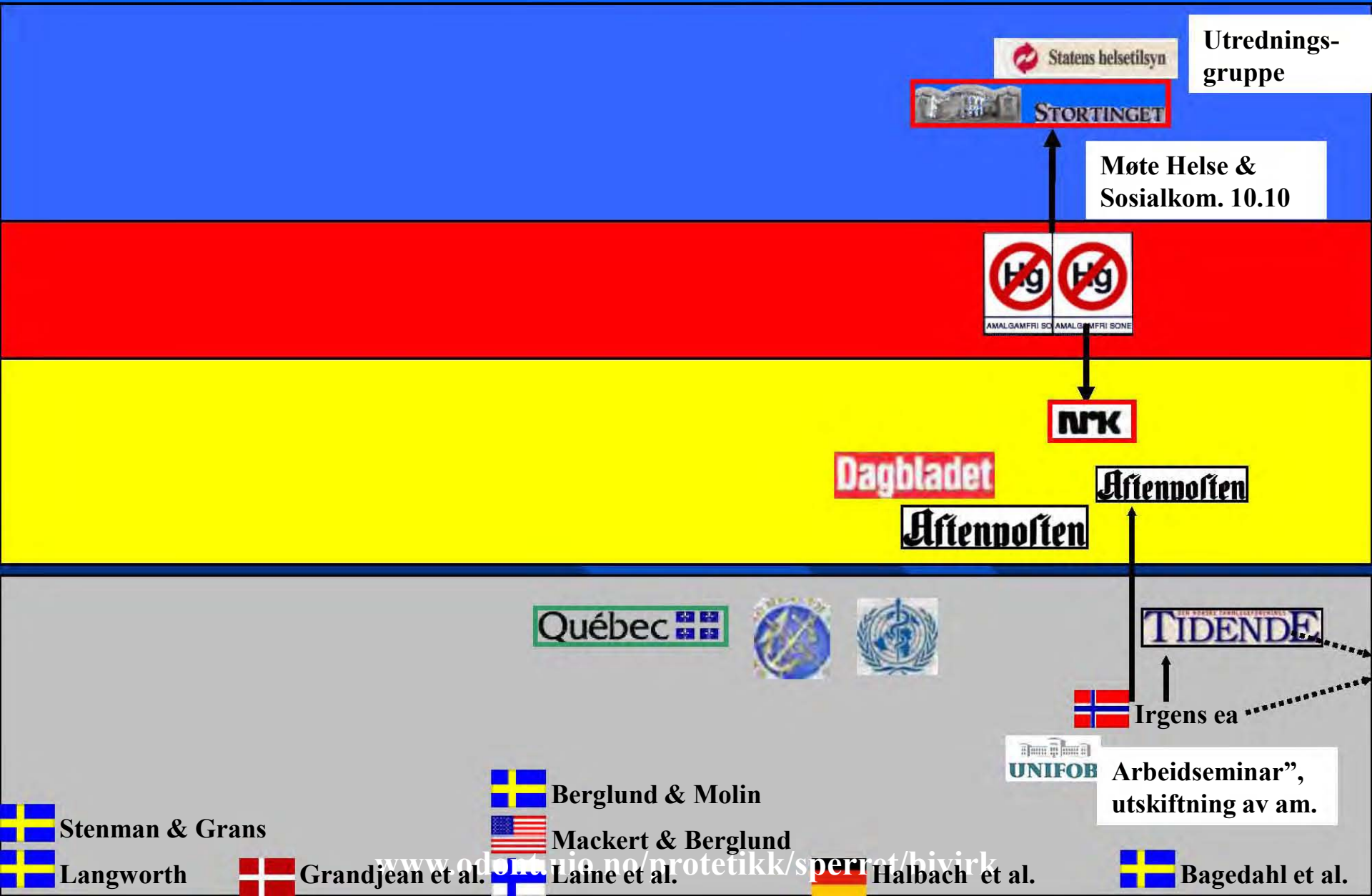
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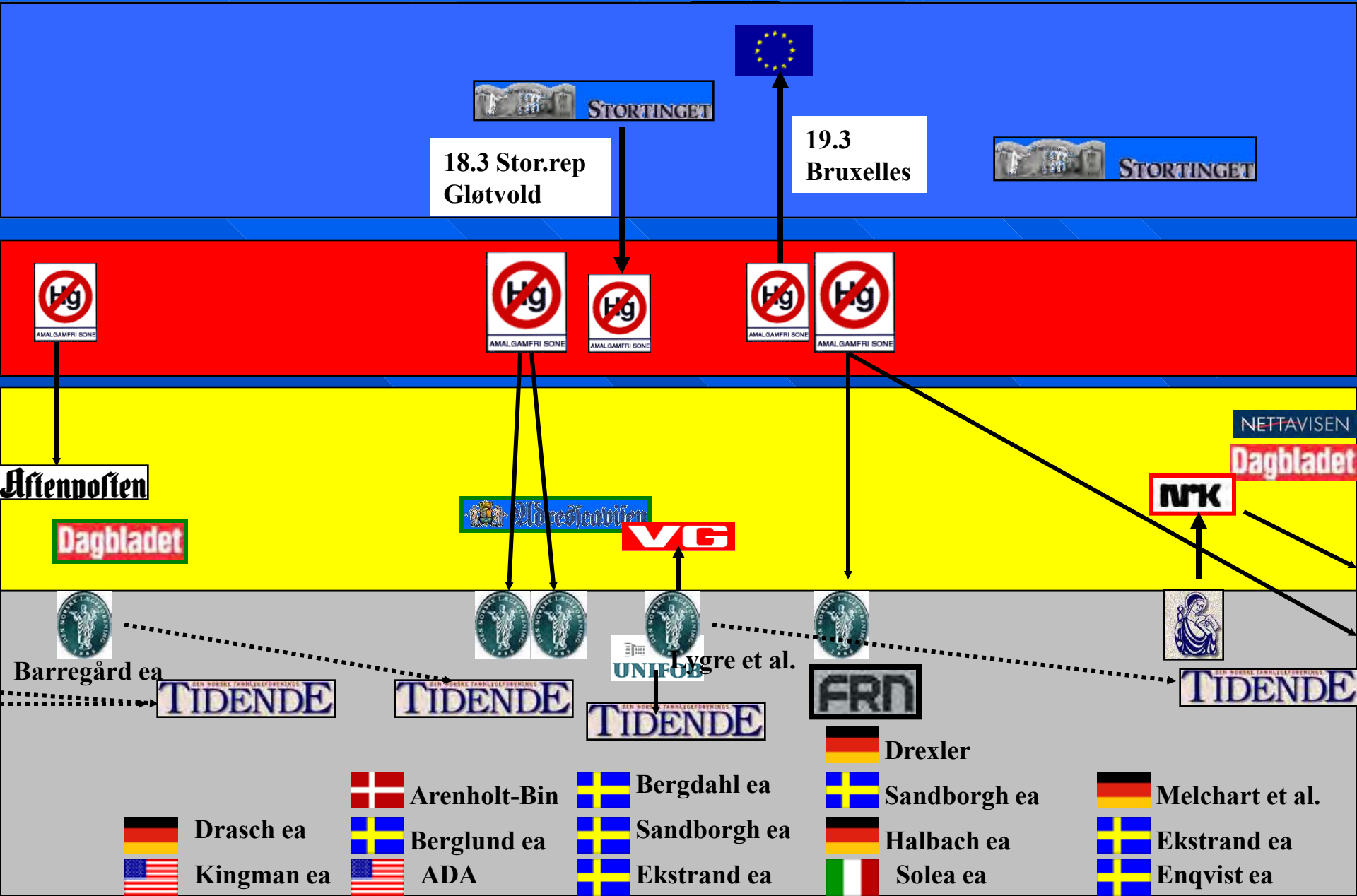
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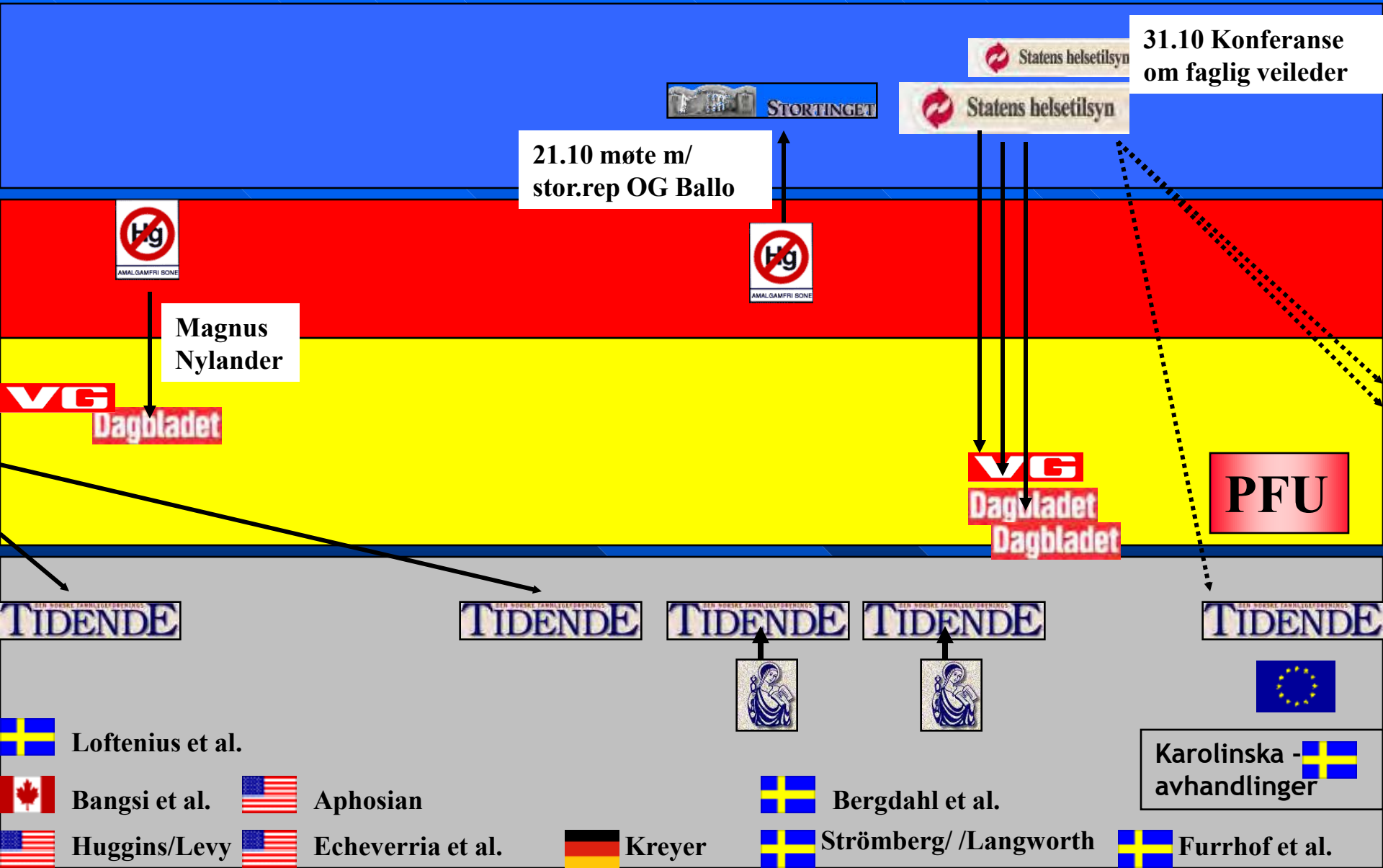


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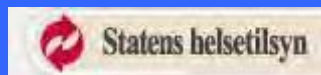
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26.1 Brev om oppfølging



24.3 Brev om oppfølging



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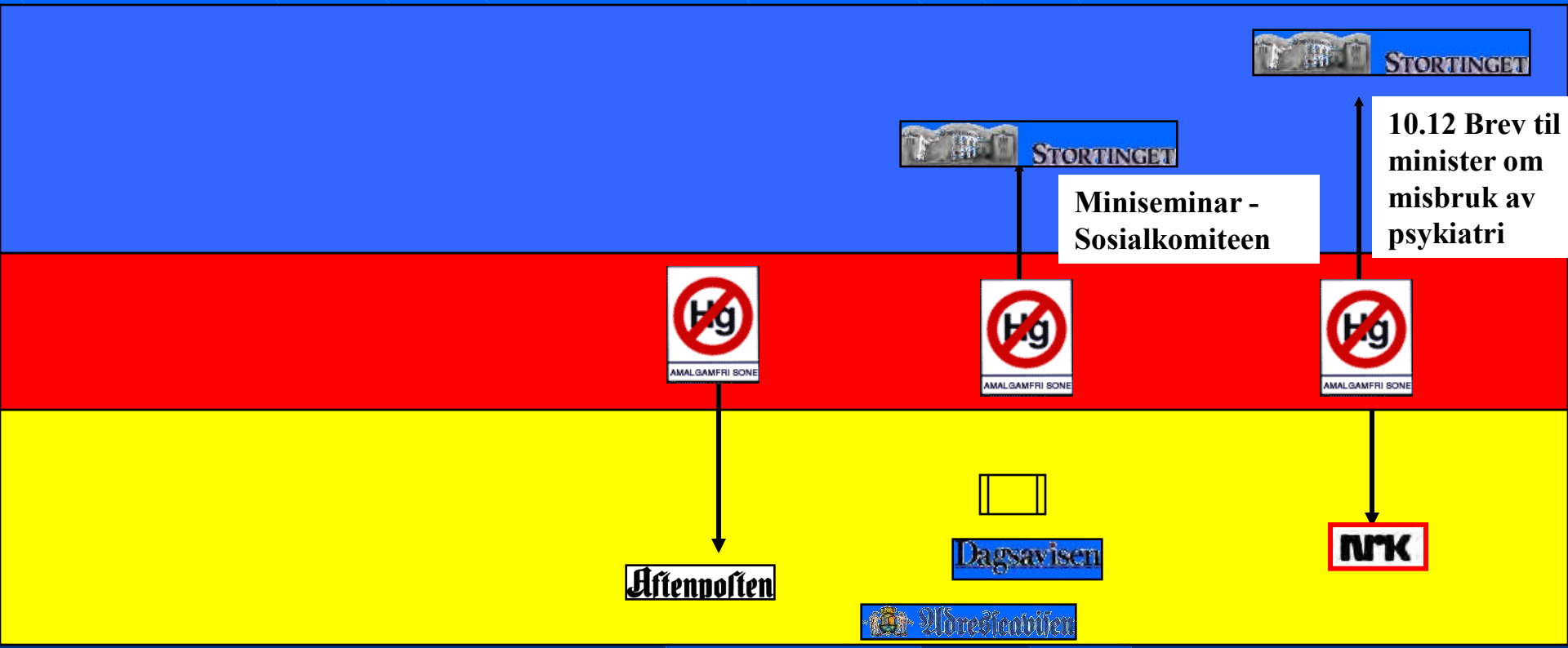
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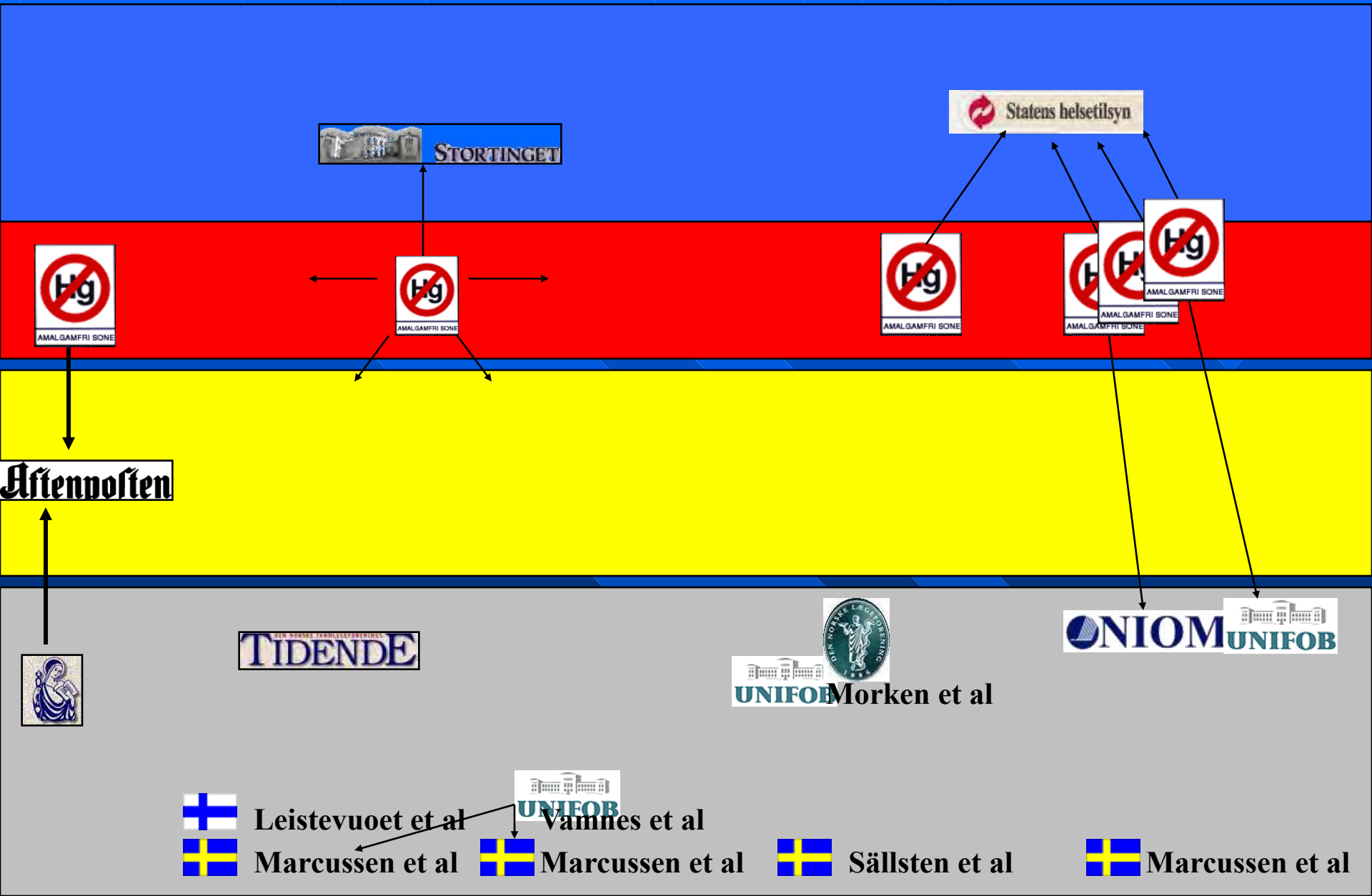


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Kidd



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Halbach et al



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# Stortingets spørretime 10.01.96

Øystein Hedstrøm: spørsmål om  
anbefalninger angående bruk av  
tannfyllingsmaterialer til  
helseminister Gudmund Hernes



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 1: *J Dent* 1996 Jan-Mar;24(1-2):41-5[Related Articles, Books, LinkOut](#)

## Effect of replacement of dental amalgam on oral lichenoid reactions.

Bratel J, Hakeberg M, Jontell M

Department of Endodontology and Oral Diagnosis, Faculty of Odontology, University of Goteborg, Sweden.

**OBJECTIVES:** The objectives of this study were to investigate (i) healing of oral lichenoid reactions (OLR) following the selective replacement of restorations of dental amalgam, (ii) whether there were differences in healing between contact lesions (CL) and oral lichen planus (OLP), and (iii) whether there was a difference in healing potential when different materials were selected as a substitute for dental amalgam. **METHODS:** Patients included in the study presented with OLR confined to areas of the oral mucosa in close contact with amalgam restorations (CL; n = 142) or with OLR which involved other parts of the oral mucosa as well (OLP; n = 19). After examination, restorations of dental amalgam which were in contact with OLR in both patient groups were replaced. The effect of replacement was evaluated at a follow-up after 6-12 months. **RESULTS:** In the CL group, the lesions showed a considerable improvement or had totally disappeared in 95% of the patients after replacement of the restorations of dental amalgam (n = 474). This effect was paralleled by a disappearance of symptoms, in contrast to patients with persisting CL (5%) who did not report any significant improvement. The healing response was not found to correlate with age, gender, smoking habits, subjective dryness of the mouth or current medication. However, the healing effect in patients who received gold crowns was superior compared to that of patients treated with metal-ceramic crowns (MC; P < 0.05). In the OLP group (n = 19), 63% of the patients with amalgam-associated erosive and atrophic lesions showed an improvement following selective replacement. OLP lesions in sites not in contact with amalgams were not affected. Most of the patients (53%) with OLP reported symptoms also after replacement. **CONCLUSION:** From these data it can be concluded that the vast majority of CL resolve following selective replacement of restorations of dental amalgam, provided that a correct clinical diagnosis is established. It is also noteworthy that MC crowns did not facilitate healing of CL to the same extent as gold crowns.

PMID: 8636491, UI: 96204274

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# Sallsten et al., 1.96

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1: *J Dent Res* 1996 Jan;75(1):594-8

Related Articles, Books, LinkOut

## Long-term use of nicotine chewing gum and mercury exposure from dental amalgam fillings.

**Sallsten** G, Thoren J, Barregard L, Schutz A, Skarping G

Department of Occupational Medicine, Sahlgrenska University Hospital, Goteborg, Sweden.

In experimental studies, chewing gum has been shown to increase the release rate of mercury vapor from dental amalgam fillings. The aim of the present study was to investigate the influence of long-term frequent chewing on mercury levels in plasma and urine. Mercury levels in plasma (P-Hg) and urine (U-Hg), and urinary cotinine were examined in 18 subjects who regularly used nicotine chewing gum, and in 19 referents. Age and number of amalgam surfaces were similar in the two groups. Total mercury concentrations in plasma and urine were determined by means of cold vapor atomic absorption spectrometry. Urinary cotinine was determined by gas chromatography-mass spectrometry. The chewers had been using 10 (median) pieces of gum per day for the past 27 (median) months. P-Hg and U-Hg levels were significantly higher in the chewers (27 nmol/L and 6.5 nmol/mmol creatinine) than in the referents (4.9 nmol/L and 1.2 nmol/mmol creatinine). In both groups, significant correlations were found between P-Hg or U-Hg on the one hand and the number of amalgam surfaces on the other. In the chewers, no correlations were found between P-Hg or U-Hg and chewing time per day or cotinine in urine. Cotinine in urine increased with the number of pieces of chewing gum used. The impact of excessive chewing on mercury levels was considerable.

PMID: 8655765, UI: 96221385

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 1: *J Clin Immunol* 1996 Jan;16(1):31-40[Related Articles, Books, LinkOut](#)**Mercury-specific lymphocytes: an indication of mercury allergy in man.****Stejskal** VD, Forsbeck M, Cederbrant KE, Asteman O

Astra AB, Safety Assessment, Sodertalje, Sweden.

In this study, 18 patients with oral lichen planus (OLP), adjacent to amalgam fillings, were tested in vitro with an optimized lymphocyte proliferation test, MELISA (memory lymphocyte immunostimulation assay) and with a patch test. Twenty subjects with amalgam fillings but without oral discomfort and 12 amalgam-free subjects served as controls. The results show that patients with OLP have significantly higher lymphocyte reactivity to inorganic mercury, a corrosion product of amalgam, compared to control groups. Removal of amalgam fillings resulted in the disappearance of oral mucosal changes, thus indicating a causal relationship. Positive responses to phenylmercury (phenyl-Hg), a bactericidal agent in root fillings and in pharmaceutical preparations, were also noted in the oral lichen group but not in the control groups. Thus, low-grade chronic exposure to mercury may induce a state of systemic sensitization as verified by Hg-specific lymphocyte reactivity in vitro.

PMID: 8926183, UI: 96401635

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## Berglund &amp; Molin 2.96

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 1: *Eur J Oral Sci* 1996 Feb;104(1):56-63

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**Mercury vapor release from dental amalgam in patients with symptoms allegedly caused by amalgam fillings.**

Berglund A, Molin M

Department of Dental Materials Science, Faculty of Odontology, Umea University, Sweden. Anders.Berglund@denmat.sc.umu.se

The aim of this study was to determine whether a group of patients with symptoms, self-related to their amalgam restorations, experienced an exposure to mercury vapor from their amalgam restorations that reached the range at which subtle symptoms have been reported in the literature. Furthermore, the aim was to determine whether the mercury exposure for these patients was significantly higher than for controls with no reported health complaints. The symptom group consisted of 10 consecutively selected patients from a larger group, referred by their physicians for investigation into any correlation between subjective symptoms and amalgam restorations. The control group consisted of 8 persons with no reported health complaints. The intra-oral release of mercury vapor was measured between 7:45 a.m. and 9:00 p.m. at intervals of 30-45 min, following a standardized schedule. The mercury levels in plasma, erythrocytes, and urine were also determined. The calculated daily uptake of inhaled mercury vapor, released from the amalgam restorations, was less than 5% of the daily uptake calculated at the lower concentration range given by the WHO (1991), at which subtle symptoms have been found in particularly sensitive individuals. The symptom group had neither a higher estimated daily uptake of inhaled mercury vapor, nor a higher mercury concentration in blood and urine than in the control group. The study provides no scientific support for the belief that the symptoms of the patients examined originated from an enhanced mercury release from their amalgam restorations.

PMID: 8653498, UI: 96251436

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# Marcusson 2.96

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 1: *Toxicol Lett* 1996 Feb;84(2):113-22[Related Articles, Books, LinkOut](#)

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

**Marcusson** JA

Department of Dermatology, Huddinge University Hospital, Sweden.

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, named 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 findings may have a bearing on the systemic side-effects attributed to mercury released from amalgam tooth fillings.

### Publication Types:

- Clinical trial
- Randomized controlled trial

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 1: *Environ Health Perspect* 1996 Mar;104(3):298-305[Related Articles](#), [Books](#), [LinkOut](#)**Estrogenicity of resin-based composites and sealants used in dentistry.**

Olea N, Pulgar R, Perez P, Olea-Serrano F, Rivas A, Novillo-Fertrell A, Pedraza V, Soto AM, Sonnenschein C

Department of Radiology, Dentistry, and Department of Nutrition, School of Pharmacy, University of Granada, Spain.

We tested some resin-based composites used in dentistry for their estrogenic activity. A sealant based on bisphenol-A diglycidylether methacrylate (bis-GMA) increased cell yields, progesterone receptor expression, and pS2 secretion in human estrogen-target, serum-sensitive MCF7 breast cancer cells. Estrogenicity was due to bisphenol-A and bisphenol-A dimethacrylate, monomers found in the base paste of the dental sealant and identified by mass spectrometry. Samples of saliva from 18 subjects treated with 50 mg of a bis-GMA-based sealant applied on their molars were collected 1 hr before and after treatment. Bisphenol-A (range 90-931 micrograms) was identified only in saliva collected during a 1-hr period after treatment. The use of bis-GMA-based resins in dentistry, and particularly the use of sealants in children, appears to contribute to human exposure to xenoestrogens.

## Comments:

- Comment in: *Environ Health Perspect* 1996 Aug;104(8):808
- Comment in: *Environ Health Perspect* 1997 Apr;105(4):362

PMID: 8919768, UI: 97077201



Ibbotson et al., 3.96

1: *Br J Dermatol* 1996 Mar;134(3):420-3[Related Articles, Books, LinkOut](#)**The relevance and effect of amalgam replacement in subjects with oral lichenoid reactions.**

Ibbotson SH, Speight EL, Macleod RI, Smart ER, Lawrence CM

Department of Dermatology, Royal Victoria Infirmary, Newcastle upon Tyne, U.K.

In this study we examined the prevalence of mercury hypersensitivity in patients with oral lichenoid reactions (OLR) and the effect of amalgam replacement in subjects with amalgams adjacent to OLR irrespective of their mercury sensitivity status. One hundred and ninety-seven patients with oral problems were examined: 109 with OLR, 22 with oral and generalized lichen planus, and 66 with other oral diagnoses, including aphthous ulcers and orofacial granulomatosis. Nineteen per cent of patients with OLR reacted to mercury on patch testing, significantly more than in those with generalized lichen planus (0%) and in those with other oral diagnoses (3%). Twenty-two patients with OLR and adjacent amalgams had amalgam replacement and, in 16 of 17 mercury-positive subjects and three of four mercury-negative subjects, the OLR resolved after amalgam removal. In conclusion, we found a significantly increased prevalence of mercury hypersensitivity in patients with localized OLR in comparison to subjects with other oral problems. Amalgam replacement resulted in resolution of OLR in the majority of patients with amalgams adjacent to OLR irrespective of their mercury sensitivity status.

PMID: 8731663, UI: 96297461

Aftenposten 11.4.96



Velg tannfylling selv

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Tannlegeforeningen oppfordrer nå tannleger til å informere om mulighetene til å velge fyllingsmateriale og eventuelle bivirkninger.

TROND BØ  
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Norsk Tannlegeforening (NTF) samarbeider med Norsk Tannvern om en billedbok og brosjyreserie som forteller tannpasienter om valg av fyllingsmaterialer og eventuelle bivirkninger.

- Tannleger må bli flinkere til å fortelle sine pasienter hvilken behandling de trenger og hvilke alternativer pasientene har når det gjelder fyllingsmaterialer, sier informasjonslederen i Norsk Tannlegeforening, Reidun Stenvik, til Aftenposten. NTF kommer nå til å gå ut med utfyllende informasjon om begge disse forholdene til alle sine medlemmer.

Tannlegeforeningen har registrert økt utbetaling knyttet til allergi fra private tannlegers sykeavbruddskasse. Hva økningen i allergi skyldes, har NTF ingen oversikt over.

- Faren for allergi har bekymret oss i lang tid. I diskusjonen om amalgamforbud har vi også prøvd å si at man kan risikere å gå fra asken til ilden, sier Stenvik.

Hun viser til at de tannlegene som er motstandere av amalgam ikke har villet høre på farene forbundet med de nye plaststoffene. NTF har også vurdert å sette i gang en stor helseundersøkelse av tannleger for blant annet å kartlegge allergi knyttet til fyllingsmaterialer.



1: *Arch Environ Health* 1996 May-Jun;51(3):234-41[Related Articles, Books, LinkOut](#)

## Total and inorganic mercury in breast milk in relation to fish consumption and amalgam in lactating women.

Oskarsson A, Schultz A, Skerfving S, Hallen IP, Ohlin B, Lagerkvist BJ

Department of Occupational and Environmental Medicine, University Hospital, Lund, Sweden.

Total mercury concentrations (mean +/- standard deviation) in breast milk, blood, and hair samples collected 6 wk after delivery from 30 women who lived in the north of Sweden were 0.6 +/- 0.4 ng/g (3.0 +/- 2.0 nmol/kg), 2.3 +/- 1.0 ng/g (11.5 +/- 5.0 nmol/kg), and 0.28 +/- 0.16 microg/g (1.40 +/- 0.80 micromol/kg), respectively. In milk, an average of 51% of total mercury was in the form of inorganic mercury, whereas in blood an average of only 26% was present in the inorganic form. Total and inorganic mercury levels in blood ( $r = .55$ ,  $p = .003$ ; and  $r = .40$ ,  $p = .016$ ; respectively) and milk ( $r = .47$ ,  $p = .01$ ; and  $r = .45$ ,  $p = .018$ ; respectively) were correlated with the number of amalgam fillings. The concentrations of total mercury and organic mercury (calculated by subtraction of inorganic mercury from total mercury) in blood ( $r = .59$ ,  $p = .0006$ , and  $r = .56$ ,  $p = .001$ ; respectively) and total mercury in hair ( $r = .52$ ,  $p = .006$ ) were correlated with the estimated recent exposure to methylmercury via intake of fish. There was no significant between the milk levels of mercury in any chemical form and the estimated methylmercury intake. A significant correlation was found between levels of total mercury in blood and in milk ( $r = .66$ ,  $p = .0001$ ), with milk levels being an average of 27% of the blood levels. There was an association between inorganic mercury in blood and milk ( $r = .96$ ,  $p < .0001$ ); the average level of inorganic mercury in milk was 55% of the level of inorganic mercury in blood. No significant correlations were found between the levels of any form of mercury in milk and the levels of organic mercury in blood. The results indicated that there was an efficient transfer of inorganic mercury from blood to milk and that, in this population, mercury from amalgam fillings was the main source of mercury in milk. Exposure of the infant to mercury from breast milk was calculated to range up to 0.3 microg/kg x d, of which approximately one-half was inorganic mercury. This exposure, however, corresponds to approximately one-half the tolerable daily intake for adults recommended by the World Health Organization. We concluded that efforts should be made to decrease mercury burden in fertile women.

PMID: 8687245, UI: 9629543?

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# Langworth S, Stromberg

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1: *Eur J Oral Sci* 1996 Jun;104(3):320-1

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## A case of high mercury exposure from dental amalgam.

**Langworth S, Stromberg R**

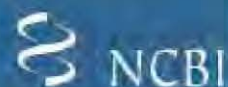
Dept. Occupational Medicine, Huddinge University Hospital, Sweden.

This report describes a patient who suffered from several complaints, which by herself were attributed to her amalgam fillings. Analysis of mercury in plasma and urine showed unexpectedly high concentrations, 63 and 223 nmol/l, respectively. Following removal of the amalgam fillings, the urinary excretion of mercury became gradually normalized, and her symptoms declined.

PMID: 8831068, UI: 96427752

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Display Abstract     1: *Acta Odontol Scand* 1996 Jun;54(3):176-81[Related Articles, Books, LinkOut](#)

## Defensive characteristics in individuals with amalgam illness as measured by the percept-genetic method Defense Mechanism Test.

Henningsson M, Sundbom E

Department of Applied Psychology, Umea University, Sweden.

Twenty patients complaining of symptoms deriving from their amalgam fillings and a non-patient group were assessed by means of the perceptual projective Defense Mechanism Test (DMT). The test protocols were scored for 130 DMT variables and analyzed by means of the multivariate statistical method Partial Least Squares discriminant analysis. The objective was to try to distinguish the group with amalgam illness from the non-patient group by means of the DMT. The results showed that it was possible to distinguish the two groups significantly from each other. The most characteristic traits of the patient group were a general lateness in perception and few emotional responses compared with the non-patient group and, especially, an inability to perceive the aggressive component in the stimulus picture. The DMT seems to be a powerful method in the effort to understand the mechanisms underlying the problems of amalgam illness.

PMID: 8811140, UI: 96407053

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Edlund et al 6.96

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1: *Clin Infect Dis* 1996 Jun;22(6):944-50 Related Articles, Books, LinkOut

**Resistance of the normal human microflora to mercury and antimicrobials after exposure to mercury from dental amalgam fillings.**

**Edlund C, Bjorkman L, Ekstrand J, Sandborgh-Englund G, Nord CE**

Department of Microbiology, Karolinska Institute, Huddinge University Hospital, Stockholm, Sweden.

The concentrations of mercury in saliva and feces and the resistance pattern of the gastrointestinal microflora were investigated for 20 subjects. Ten patients, with a mean number of 19 amalgam surfaces, had all amalgam fillings removed during one dental session. Ten subjects without amalgam fillings served as a control group. Saliva and fecal samples were collected before amalgam removal and 2, 7, 14, and 60 days afterward. Mercury levels in saliva and feces correlated significantly with the number of amalgam surfaces. No differences in the resistance pattern of the oral microflora were detected between the two groups. In the amalgam group there was an increase in the relative number of intestinal microorganisms resistant to mercury, ampicillin, sulfonamide, erythromycin, and clindamycin on days 7-14. This was not statistically significant in light of the normal variations of the control group. A significant correlation between the prevalence of mercury resistance and multiple antimicrobial resistance in intestinal bacterial strains was observed.

PMID: 8783691, UI: 96377916

Display Abstract [www.bodont.uio.no/protefikk/sperret/bivirk](http://www.bodont.uio.no/protefikk/sperret/bivirk)

# Health Canada 21.8.96

## Health Canada Position Statement on Dental Amalgam

### Considerations:

1. Although dental amalgam is the single largest source of mercury exposure for average Canadians, current evidence does not indicate that dental amalgam is causing illness in the general population. However, there is a small percentage of the population which is hypersensitive to mercury and can suffer severe health effects from even a low exposure.

2. A total ban on amalgam is not considered justified. Neither is the removal of sound amalgam fillings in patients who have no indication of adverse health effects attributable to mercury exposure.

3. As a general principle, it is advisable to reduce human exposure to heavy metals in our environment, even if there is no clinical evidence of adverse health effects, provided the reduction can be achieved at reasonable cost and without introducing other adverse effects.

### Recommendations:

3. Amalgam should not be placed in patients with impaired kidney function.

4. 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.

5. Dentists should advise individuals who may have allergic hypersensitivity to mercury to avoid the use of amalgam. In patients who have developed hypersensitivity to amalgam, existing amalgam restorations should be replaced with another material where this is recommended by a physician.

6. New amalgam fillings should not be placed in contact with existing metal devices in the mouth such as braces.

7. 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.

1: *Community Dent Oral Epidemiol* 1996 Aug;24(4):260-7[Related Articles, Books, LinkOut](#)

## Physical and mental health related to dental amalgam fillings in Swedish twins.

Bjorkman L, Pedersen NL, Lichtenstein P

Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden.

In the past years increasing attention has been paid to possible adverse health effects of mercury exposure from dental amalgam fillings. To evaluate possible health effects from amalgam fillings, dental status registered by specially trained nurses was obtained from 587 subjects included in the ongoing Swedish Adoption/Twin Study of Aging (SATSA). Data on physical and mental health were collected and memory function tested. Mean age was 66 years (SD 9, range 46-89). In the entire material, 25% of the individuals had no own teeth and in the group with own teeth the median number of teeth surfaces filled with dental amalgam was 15 (range 0-65). Analyses of associations between number of surfaces filled with dental amalgam and a number of scales estimating somatic and mental health and memory functions were performed both for the entire group and for individuals having at least 12 teeth. Regardless of the sample, no negative effects on physical or mental health were found from amount of dental amalgam, even after controlling for age, gender, education and number of remaining teeth. When using a co-twin control design with twin pairs discordant for amalgam exposure, no negative health effects associated with dental amalgam were detected. This study does not indicate any negative effects from dental amalgam on physical or mental health or memory functions in the general population over 50 years of age.

Publication Types:

- Twin study

PMID: 8871034, UI: 97024810

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## NRK, TV2 9.9.96

*J.S Vamnes, Lege ved  
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meg selv eller mine barn ut fra et  
allmennpreventivt hensyn”.*

Chien et al., 9.96



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1: *Sci Total Environ* 1996 Sep 20;188(1):39-47

[Related Articles, Books](#)

## Urinary mercury levels before and after amalgam restoration.

Chien YC, Feldman CA, Zohn HK, Weisel CP

Department of Environmental Sciences, Rutgers University, Piscataway, NJ, USA.

Urinary mercury levels and excretion rates were measured to determine the effect of dental amalgam restoration on the mercury body burden. No consistent increase in urinary mercury concentrations was found among subjects who had a single restoration, but a continuously increasing statistically significant ( $P < 0.05$ ) trend, that was 33% above background levels, was detected between 9 and 12 days after restoration, in the subject with four restorations in a single day. The current findings suggested that even though amalgam restorations can cause an increase in mercury body burden, the elevation above background levels is small and thus the risks associated with the use of this material are considered minimal for the general population.

PMID: 8810088, UI: 96405963

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# Stortinget 09.10.96

[\[Neste innlegg av Gudmund Hernes\]](#)

## Spørsmål 7

[Ola D Gløtvold](#) (Sp) : "Det som nå har kommet fram om alvorlige bivirkninger på grunn av tidligere poliovaksine, bekrefter at vi ikke har god nok oversikt over eventuelle bivirkninger av medisinske preparater vi benytter i vårt helsevesen. Kikhostevaksine og **amalgam** er andre preparater det kan stilles store spørsmålstegn ved.

Hva vil helseministeren gjøre for å bedre dette forholdet?"

[\[Neste innlegg av Ola D Gløtvold\]](#)

Statsråd [Gudmund Hernes](#) : Spørsmålet fra representanten [Ola D Gløtvold](#) gir meg en god anledning til å understreke at vaksinasjon er et av de forebyggende helsetiltak som har bidratt mest til å bekjempe sykkelighet og for tidlig død blant verdens befolkning. Den gunstige helsesituasjonen som kjennetegner vår del av verden, skyldes et samspill av bedre sosiale og økonomiske forhold, hensiktsmessig ernæring, hygieniske tiltak og ikke minst vaksinasjon.

Så sent som i første halvdel av 1950-tallet ble det hvert år registrert i Norge i gjennomsnitt henimot 1.000 tilfeller av poliomyelitt med død eller lammelser til følge. Poliovaksine ble tatt i bruk i Norge i 1956-1957 nettopp for å bekjempe poliomyelitt. I løpet av få år så vi en drastisk reduksjon av sykdommen. Det siste tilfellet av poliomyelitt oppstått i Norge ble registrert i 1969. Senere er det blitt registrert noen få importerte tilfeller til landet uten at disse har forårsaket spredning av sykdommen.

Det er ikke til å unngå at vaksiner i likhet med legemidler kan ha uønskede bivirkninger. Vaksinasjonsprogrammet er derfor lagt opp med sikte på at antallet og omfanget av uønskede virkninger skal bli lavest mulig. Med innføringen av meldesystemet for infeksjonssykdommer i januar 1975 ble alle leger pålagt å melde om observerte vaksinasjonskomplikasjoner til Statens institutt for folkehelse. I tillegg håndterer i dag Statens legemiddelkontroll registrering og overvåking av bivirkninger av alle legemidler. Vi har derfor en god oversikt over vaksinasjonskomplikasjoner og bivirkninger av vaksiner og andre legemidler i Norge.

Etter påvisning av at det uforvarende var brukt vaksine som inneholdt et apevirus - SV40 - ble det i USA i en årrekke gjennomført oppfølging og undersøkelser av grupper av vaksinerte. Det er ikke påvist at bruk av poliovaksine forurenset med slikt apevirus har ført til sykdommer. De påvisninger som er gjort av apevirus SV40 i visse sjeldne kreftformer hos mennesker, krever nærmere undersøkelser for å klarlegge betydningen av dette virus som en mulig årsak eller medvirkende årsak til utvikling av kreft. Ut fra kunnskaper vi har i dag, er det ikke grunnlag for å si at de personer som tidligere fikk forurenset poliovaksine, er mer utsatt enn andre for å få kreft.

Etter 1963 er det her i landet ikke brukt vaksine forurenset med apevirus SV40. I dag er fremstillingen av vaksine mye bedre enn for 30-40 år siden.

Når det gjelder kikhostevaksine, er det ikke tilstrekkelig grunnlag for å fastslå årsakssammenheng mellom den såkalte trippelvaksine og kronisk neurologisk skade. Derimot finnes det

Aftenposten 26.10.96



Amalgam Retten til å få vite

**Dato:** 19961026, **Utgave:** Aftenposten (Morgen), **Side:** 11

**Område:** Norge **Kategori:** Helse **Emne:** Tannpleie, Aln

Av Maryanne Rygg, informasjonssekretær i Forbundet Tenner og Helse

For noen måneder siden leste vi i Aftenposten om retten til å få vite. Det dreiet seg om myndigheter som holdt tilbake informasjon om melk som inneholdt ulovlig høye mengder radioaktive stoffer. Også på andre fronter har myndighetene og fagfolk holdt tilbake informasjon.

Amalgamproblematikken berører store deler av befolkningen. Skoletannleger har plassert amalgam i tennene på barna. Statens helsetilsyn fortiet informasjon om kobberamalgam (som inneholdt opp til 69% giftig kvikksølv) etter å ha sendt kun én advarsel til tannleger i 1981. Endel tannleger i flere fylker fortsatte å bruker kobberamalgam helt frem til 1994. Dette har siden vært batagellisert av Statens helsestilsyn. Vi er blitt fortalt at saken er "historie" fordi kobberamalgam ikke lenger er i bruk. Ingen har fulgt opp pasientene som fikk kobberamalgam for å se hvordan det har gått med dem siden.

Pasienter som fikk sitt amalgam av skoletannleger, får siden ingen hjelp hvis de mener at de har fått helseskader av det og vil fjerne amalgamet.

Terapi for avgiftning er også noe pasientene må finansiere selv. Det er ikke rart at helsemyndighetene ikke vil innrømme at så mange mennesker kan ha fått helseskade. Denne praksisen ble jo velsignet av helsemyndighetene og utført av skoletannleger. Det er allikevel etisk forkastelig, etter min mening.

1: *Am J Physiol* 1996 Oct;271(4 Pt 2):R941-5[Related Articles, Books](#)

## No evidence of renal toxicity from amalgam fillings.

**Sandborgh-Englund G, Nygren AT, Ekstrand J, Elinder CG**

Department of Dental Toxicology, Karolinska Institute, Huddinge, Sweden.

Dental amalgam continuously releases mercury. Studies of sheep [Boyd et al., *Am. J. Physiol.* 261 (Regulatory Integrative Comp. Physiol. 30): R1010-R1014, 1991] showed decreased renal function after placement of amalgam fillings. In this study, renal function was investigated in 10 healthy volunteers before and after amalgam removal. The subjects had an average of 18 tooth surfaces filled with amalgam, which was removed during one dental session. One week before and sixty days after removal, the glomerular filtration rate (GFR) was determined by <sup>51</sup>Cr-EDTA clearance technique. Blood and urine samples were collected for analysis of mercury, creatinine, beta 2-microglobulin, N-acetyl-beta-glucosaminidase (NAG), and albumin 1 wk before and 1, 2, and 60 days after amalgam removal. The plasma mercury concentration increased significantly 1 day after removal. Sixty days later, significantly lower mercury levels were found in blood, plasma, and urine. The GFR values were similar before and after mercury exposure (mean 94 and 94 ml/min per 1.73 m<sup>2</sup>, respectively). No detectable effects occurred on excretion of NAG, beta 2-microglobulin, or albumin. It is concluded that no signs of renal toxicity could be found in conjunction with mercury released from amalgam fillings.

### Comments:

- Comment in: *Am J Physiol* 1997 Sep;273(3 Pt 2):R1199-200

PMID: 8897985, UI: 97053473

Aftenposten 29.10.96



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Oppdatert: 29. oktober 1996 kl. 09:09

## Tannleger slås ut av plast-allergi

En av ti tannleger er plaget av allergiske reaksjoner på nye plaststoffer til fyllinger. Bivirkningsgruppen frykter at flere skal bli rammet.

JOHN HULTGREN

Bergen

Flere tannleger har fått så alvorlige allergiske reaksjoner av plastmaterialer at de har måttet slutte i jobben. Andre har trappet ned og omskolert seg.

- Dette er et veldig alvorlig og voksende problem. Spørsmålet er om vi nå er helt i startfasen når det gjelder å se hvilke reaksjoner plastfyllingsmaterialer kan gi, sier leder i Bivirkningsgruppen for odontologiske biomaterialer ved Universitetet i Bergen, professor Nils Roar Gjerdet.

### Herdes

Plast har i stor grad tatt over for amalgam som fyllingsmateriale i tennene våre. Fyllingene herdes med lys etter at de er lagt på plass i hullene. Stoffene i plastfyllingene er allergifremkallende før de herdes, og derfor er ikke pasientene like utsatt som tannlegene.

Før herdingen er stoffene svært reaktive, det vil si at de lett reagerer med andre stoffer. Hensikten er at de da skal sitte bedre på plass i hullene. Men paradoksalt nok er det nettopp denne evnen som gjør plaststoffene så utsatt for å skape allergiske reaksjoner, for stoffene reagerer også med hud.

Når tannlegene jobber med plastfyllinger, bruker de hansker for å hindre direkte kontakt, men det viser seg å ha svært begrenset effekt. Plaststoffene går igjennom hanskene i løpet av sekunder, og kommer dermed i direkte kontakt med huden. Allergien oppdages først som eksem på fingrene, og etterhvert kan den også spre seg til andre deler av kroppen, spesielt øynene.

- Dette er en type allergi som ettermat erstatning. Hvis en tannleg.../sperrtet/bivirk

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# Aftenposten 30.10.96



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Oppdatert: 30. oktober 1996 kl. 10:18

Helsetilsynet sjekker tennene:

## Frykter økt allergi fra plast

**Helsetilsynet frykter at plast i moderne tannfyllinger hos barn og unge kan utløse allergi.**

**BAKGRUNN**

TROND BØ

Stavanger

Helsetilsynet frykter at allergifremkallende stoffer fra plast i tannfyllinger kan bli et større problem om fem til ti år enn det vi aner i dag. Det opplyser fagsjef Ola Johan Basmo i Helsetilsynets avdeling for primærhelsetjeneste.

Fyllingsmaterialer som inneholder plaststoffer har de siste årene i stor grad erstattet amalgam for barn og unge mellom fem og 18 år. Dette fører til at denne aldersgruppen i årene som kommer, blir eksponert for mulige bivirkninger av de nye og svært sammensatte stoffene.

### Fremkaller allergi

En undersøkelse av erstatninger for amalgam som tannfyllingsmaterialer, laget for den offentlige Kemikalieinspeksjonen i Sverige, konkluderer med at plast eller "akrylater" er svært allergifremkallende. Tannhelsepersonell utsettes for en større risiko enn pasientene. Men formaldehyd og metakrylsyre lekker fra plastfyllingene, og kan gi giftvirkninger og allergiske reaksjoner hos pasienter, fremgår det av undersøkelsen.

- Vår bekymring er at de nye materialene til dels har en ukjent og veldig kompleks sammensetning som det er vanskelig å analysere, sier professor Nils Roar Gjerdet, leder i Bivirkningsgruppen for odontologiske biomaterialer ved Universitetet i Bergen.

[Tekstnavigering](#)

# NTF tidende 16. 96

- Er luften gått ut av den svenske amalgam ballongen?
- Ingen flere pasienter til behandlingssenter for amalgambivirkninger
- Påbudt advarsel om amalgam i California

1: *Psychosom Med* 1997 Jan-Feb;59(1):32-41

[Related Articles, Books, LinkOut](#)

## Physical and mental problems attributed to dental amalgam fillings: a descriptive study of 99 self-referred patients compared with 272 controls.

Malt UF, Nerdrum P, Oppedal B, Gundersen R, Holte M, Lone J

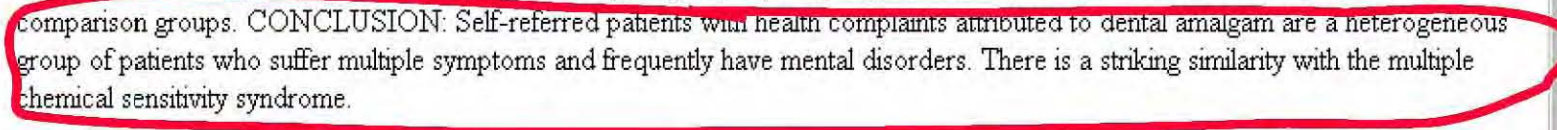
Department of Psychosomatic and Behavioural Medicine, National Hospital, Oslo, Norway.

**OBJECTIVE:** The physical and mental symptomatology of 99 self-referred patients complaining of multiple somatic and mental symptoms attributed to dental amalgam fillings were compared with patients with known chronic medical disorders seen in alternative (N = 93) and ordinary (N = 99) medical family practices and patients with dental amalgam fillings (N = 80) seen in an ordinary dental practice. **METHOD:** The assessments included written self-reports, a 131-item somatic symptom checklist, Eysenck Personality Questionnaire, the General Health Questionnaire, and Toronto Alexithymia Scale. **RESULTS:** The dental amalgam sample reported significantly more physical symptoms from all body regions. Self-reports suggested that 62% suffered from a chronic anxiety disorder (generalized anxiety disorder or panic). Forty-seven percent suffered from a major depression compared with 14% in the two clinical-comparison samples and none in the dental control sample. Symptoms suggesting somatization disorder were found in 29% of the dental amalgam sample compared with only one subject in the 272 comparison subjects. One third of the dental amalgam patients reported symptoms of chronic fatigue syndrome compared with none in the dental control sample and only 2 and 6%, respectively, in the two clinical-comparison samples. The dental amalgam group reported higher mean neuroticism and lower lie scores than the comparison groups. **CONCLUSION:** Self-referred patients with health complaints attributed to dental amalgam are a heterogeneous group of patients who suffer multiple symptoms and frequently have mental disorders. There is a striking similarity with the multiple chemical sensitivity syndrome.

PMID: 9021864, UI: 97173997



Malt et al., 1997





# Stortinget 12.3.97

Adresse http://www.stortinget.no/std/1996/s970312-01.html

Gå til

[Tove Kari Viken](#) (Sp) : "For to år siden vedtok Stortinget at Regjeringen skulle utrede og endre retningslinjene for refusjon av kostnadene ved utskifting av tannfyllinger, slik at pasienter med allergi også utenfor munnhulen skulle få refusjon for tannbehandling.

Er utredningen foretatt, og når vil statsråden fremme et eventuelt lovendringsforslag med rett til refusjon for slik kostnad?"

[\[Neste innlegg av Tove Kari Viken\]](#)

Statsråd [Gudmund Hernes](#) : Sosial- og helsedepartementet bad i 1996 Rikstrygdeverket om å utrede og foreslå slike retningslinjer som representanten [Tove Kari Viken](#) etterlyser. Rikstrygdeverket gjennomførte dette arbeidet i nært samarbeid med relevante fagnutlær, bl.a. Bivirkningsnemnda i Bergen.

Forslaget er nå til behandling i departementet, og jeg vil vurdere det i forbindelse med fremleggelsen av statsbudsjettet for 1998.

[\[Neste innlegg av Gudmund Hernes\]](#)

[Tove Kari Viken](#) (Sp) : Jeg er glad for at det nå endelig kanskje kan bli en vurdering og en hjelp til personer som har hatt store lidelser på grunn av at kroppen reagerer svært negativt på tannfyllinger, og spesielt gjelder dette i forhold til amalgam. Ulike personer står mot hverandre når det gjelder om det er vitenskapelig bevist at amalgam kan forårsake allergier også utenfor munnhulen. Men Statens helsetilsyn har jo innrømmet faren for kvikksølv damp ved at en har sendt ut rundskriv for flere år siden om at en må unngå amalgamfyllinger på gravide. I det siste har vi fått synliggjort hvor svak rettsikkerheten for pasientene er her i Norge, og derfor spør jeg: Hva vil statsministeren gjøre for kvikksølvpatientenes rettsikkerhet? Hva vil helseministeren gjøre for at disse pasientene blir undersøkt av toksikologer og indremedisinere istedenfor av tannleger når det skal vurderes hvilke skadevirkninger kvikksølv har på kroppen.

Statsråd [Gudmund Hernes](#) : Jeg registrerte vel på samme måte som presidenten at representanten spurte hva statsministeren ville gjøre. Jeg vil nok forsøke å unngå å beleme statsministeren med denne problemstillingen hvis jeg kan bidra til å løse den selv, og det vil jeg selvsagt også forsøke å gjøre.

Det som er helt klart, er at vi har en betydelig gruppe pasienter som har gitt uttrykk for at de er affisert av tannfyllinger, og spesielt da med reaksjoner på amalgam. Vi har en egen undersøkelse på dette. Den endelige rapporten er ikke kommet, men det er helt klart at den gruppen som har generelle allergier utenfor munnhulen, er en av de gruppene som vi nå vurderer i forbindelse med budsjettet for neste år, slik jeg sa. Jeg kan også nevne at det kan gjelde spesielle grupper av kreftpasienter, som også kan komme i en vanskelig situasjon ved bestråling av dette området av kroppen.



Laine et al mar 97

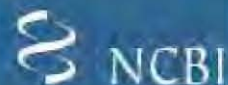
 **1:** *Contact Dermatitis* 1997 Mar;36(3):141-6[Related Articles, Books, LinkOut](#)**Contact allergy to dental restorative materials in patients with oral lichenoid lesions.****Laine J, Kalimo K, Happonen RP**

Department of Oral Diseases, University Central Hospital of Turku, Finland.

118 patients with oral lichenoid lesions (OLL) topographically related to dental fillings were patch tested (PT) to reveal contact allergy to restorative materials. 80 (67.8%) patients displayed positive PT reactions to metals of dental filling materials: 76 reactions were found to various mercury compounds, 4 to sodium aurothiosulphate, 3 to stannic chloride and 2 to silver nitrate. The positive patch test reactions appeared more commonly in patients with restricted contact lesions (85.1%, type-1 lesions) as compared to patients with lesions exceeding to the adjacent areas (38.6%, type-2 lesions). The replacement of dental fillings was carried out in 62/80 PT-positive and 15/38 PT-negative patients. 28 out of 62 (45.2%) PT-positive and 3/15 (20%) PT-negative patients showed complete healing of OLL after a mean follow-up time of 16 months. Complete healing occurred in 29/54 (54.0%) type-1 and 2/23 (8.7%) type-2 lesions. Topographical relation between the lesion and the filling material (restricted versus exceeding the contact area) indicated association of OLL lesion and the filling material, which could be further confirmed by patch testing in the majority of patients. The patch test series should include mercuric chloride (0.1%), mercury (0.5%) and mercury ammonium chloride (1.0%), each in pet.

PMID: 9145263, UI: 97290617




 1: *Int Dent J* 1997 Apr;47(2):105-9

[Related Articles, Books](#)

## Environmental issues in dentistry--mercury. FDI Commission.

Fan PL, Arenholt-Bindslev D, Schmalz G, Halbach S, Berendsen H

American Dental Association, Chicago, Illinois 60611-2678, USA.

One of the consequences of placing amalgam restorations is that mercury is required for the trituration process. In turn, this raises the issue of the possible environmental impact of mercury. This report considers ways in which any impact can be modified and reduced by careful attention to mercury usage and hygiene in the dental practice, the use of filters and separators in waste water pipes and the appropriate disposal of waste contaminated with amalgam. The total amount of mercury discharged into the environment varies considerably in different parts of the world due to both natural and human activities. The extent to which dentistry adds to this total also varies according to local circumstances and requirements. Recommendations are given for further development of ways to reduce mercury discharge and for further research into the environmental impact of the metal.

PMID: 9448795, UI: 98110245



# NTF tidende 5.97

- NR Gjerdet: Om virksomheten i Bivirkningsgruppen i 1996

Bjorkman et al 5.97

 1: *Toxicol Appl Pharmacol* 1997 May;144(1):156-62

[Related Articles, Books, LinkOut](#)


### Mercury in saliva and feces after removal of amalgam fillings.

Bjorkman L, Sandborgh-Englund G, Ekstrand J

Department of Basic Oral Sciences, Karolinska Institutet, Stockholm, Sweden.

The toxicological consequences of exposure to mercury (Hg) from dental amalgam fillings is a matter of debate in several countries. The purpose of this study was to obtain data on Hg concentrations in saliva and feces before and after removal of dental amalgam fillings. In addition Hg concentrations in urine, blood, and plasma were determined. Ten subjects had all amalgam fillings removed at one dental session. Before removal, the median Hg concentration in feces was more than 10 times higher than in samples from an amalgam free reference group consisting of 10 individuals (2.7 vs 0.23  $\mu\text{mol Hg/kg}$  dry weight,  $p < 0.001$ ). A considerable increase of the Hg concentration in feces 2 days after amalgam removal (median 280  $\mu\text{mol Hg/kg}$  dry weight) was followed by a significant decrease. Sixty days after removal the median Hg concentration was still slightly higher than in samples from the reference group. In plasma, the median Hg concentration was 4  $\text{nmol/liter}$  at baseline. Two days after removal the median Hg concentration in plasma was increased to 5  $\text{nmol/liter}$  and declined subsequently to 1.3  $\text{nmol/liter}$  by Day 60. In saliva, there was an exponential decline in the Hg concentration during the first 2 weeks after amalgam removal ( $t_{1/2} = 1.8$  days). It was concluded that amalgam fillings are a significant source of Hg in saliva and feces. Hg levels in all media decrease considerably after amalgam removal. The uptake of amalgam mercury in the GI tract in conjunction with removal of amalgam fillings seems to be low.

PMID: 9169079, UI: 97312638

(Jf. Innst.O.nr.96)

"Stortinget ber Regjeringen utrede hvorvidt Kystvakta bør legges inn under Justisdepartementets myndighetsområde."

[25. Referat](#)

# Stortinget 19.6.97

**Presidenten:** Den innkalte vararepresentant for Oslo, Børre Rognlien, har tatt sete.

## Valg av settepresident

**Presidenten:** Presidenten vil foreslå at det velges to settepresidenter for Stortingets møte i dag - og anser det som vedtatt.

Presidenten ber om forslag på settepresidenter.

[Tom Thoresen \(A\)](#) : Jeg foreslår [Gunnar Breimo](#) og [Oddbjørg Ausdal Starrfelt](#).

**Presidenten:** [Gunnar Breimo](#) og [Oddbjørg Ausdal Starrfelt](#) er foreslått som settepresidenter for dagens møte. - Andre forslag foreligger ikke, og [Gunnar Breimo](#) og [Oddbjørg Ausdal Starrfelt](#) anses enstemmig valgt som settepresidenter.

Representanten [Ola D Gletvold](#) vil fremsette to private forslag.

[Ola D Gletvold \(Sp\)](#) : Jeg skal på vegne av [Bjørge Hope Galtung](#), [Magnar Sortås-løkken](#), [Rolf Ketil Bjørn](#) og meg selv få framsette et forslag om å få utredet bruk av Dlydalen Skjutfelt i Sverige som alternativ til Forsvarets planer om et Regionfelt Østlandet.

Videre vil jeg framsette et forslag fra [Magnar Sortås-løkken](#), [Valgerd Svarstad Haugland](#) og meg selv om å få framlagt en grundig utredning når det gjelder bruk av **amalgam** som tannfyllingsmateriale, og hvilke bivirkninger som oppstår ved bruk av kvikksølv i menneskekroppen.

**Presidenten:** Forslagene vil bli behandlet på reglementsmessig måte.

Presidenten vil foreslå at sakene nr. 1-24 på dagens kart tas opp til samlet votering ved slutten av dagens møte. - Ingen innvendinger er kommet mot dette forslag, og det anses dermed vedtatt.

Etter ønske fra Presidentskapets medlemmer vil presidenten foreslå at sakene nr. 1 og 2 behandles mandag 19.6.97 og anser det som vedtatt.

# Aftenposten 24.6.97



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Aftenposten INTERAKTIV **INNENRIKS**

Oppdatert: 24. juni 1997 kl. 10:14

## Krever forbud mot bruk av amalgam

**Tre stortingspolitikere krever forbud mot bruk av amalgam som tannfyllingsmateriale, og vil fremme et privat lovforslag om dette til høsten.** **BAKGRUNN**

Bak forslaget står Valgerd Svarstad Haugland (Kr.F.), Magnar Sortåsløkken (SV) og Ola D. Gløtvold (Sp). Alle tre er medlemmer av Stortingets helse- og sosialkomite.

De tre politikerne krever at kvikksølvforgiftede personer blir tatt på alvor av helsevesenet, skriver Dagbladet. Svarstad Haugland, Sortåsløkken og Gløtvold mener det må utredes grundig hvilken innvirkning kvikksølv generelt har på folks helse.

De synes også det er viktig å finne akseptable alternativ til kvikksølv, som er et av de giftigste tungmetallene som finnes.  
(NTB)

- BAKGRUNN**
- [Velg tannfylling selv - 4.11.96](#)
  - [Amalgambruken mer enn halvert - 31.10.96](#)
  - [Amalgam Retten til å få vite - 26.10.96](#)

[Tekstnavigering](#)



# Nettavisen 24.6.97

## NETTAVISEN

Datert: kl 14:03  
8. Apr 2000

### Innenriks

HELSEFARLIG KVIKKSØLV:

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- ett på sak
- ult og kultur
- il
- ataspill
- restaurant
- bise
- lm
- usikk
- ropaganda

## Politikere krever amalgamforbud

Av: [Espen Brvnsrud](#) 24 jun 1997 5:23

**Tre stortingspolitikere slutt på bruk av amalgam som tannfyllingsmateriale. De krever også at kvikksølvforgiftede personer blir tatt på alvor av helsevesenet. Et privat lovforslag om dette kommer til høsten.**

De tre, Valgerd Svarstad Haugland (KrF), Magnar Sortåslokken (SV) og Ola D. Gløtvold (Sp) mener det må utredes grundig hvilken innvirkning kvikksølv generelt har på folks helse, skriver Dagbladet.

Det er på høy tid å finne å finne akseptable alternativer til kvikksølv, som er et av de giftigste tungmetallene som finnes, mener de tre medlemmene av Stortingets helse- og sosialkomite.

▲ Til toppen

### LANDET RUNDT

#### Dagens innenriks:

- [Gasslekkasje på Veslefrikk-feltet](#)
- (23.12.2000 00:28)
- [Evakuerte restaurant i Asker](#)
- (23.12.2000 00:20)
- [Vil spare millioner på buss](#)
- (23.12.2000 00:14)
- [Fagfolk roser kongeparet](#)
- (22.12.2000 23:50)
- [Ranere tapet butikkeier til bordet](#)
- (22.12.2000 22:05)
- [Omkom i frontkollisjon](#)
- (22.12.2000 21:59)
- [Anmelder far for omskiæring](#)
- (22.12.2000 21:52)
- [Jakter på brutale ranere](#)
- (22.12.2000 21:28)
- [Stressa julekunder besvimer i butikken](#)
- (22.12.2000 20:43)
- [Fem skadd i frontkollisjon](#)
- (22.12.2000 20:17)

Ansvarlig redaktør: [Odd Harald Hauge](#). Redaksjonssjef: [Ingvild Jensen](#).  
Teknisk redaktør: [Lars-Erik Hauge](#). Administrerende direktør: [Knut Ivar Skeid](#).

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Isacsson et al, 6.97

 1: *Eur J Oral Sci* 1997 Jun;105(3):251-7[Related Articles, Books, LinkOut](#)**Impact of nocturnal bruxism on mercury uptake from dental amalgams.**

Isacsson G, Barregard L, Selden A, Bodin L

Orofacial Pain Clinic, Postgraduate Dental Education Centre, Orebro County Council, Sweden. [goran.isacsson@pain.se](mailto:goran.isacsson@pain.se) [astral.se](mailto:goran.isacsson@astral.se)

The mercury (Hg) release from dental amalgam fillings increases by mechanical stimulation. The aim of this study was to investigate the possible impact of nocturnal bruxism on Hg exposure from dental amalgams and to evaluate the effect of an occlusal appliance. 88 female patients from an orofacial pain clinic with a complete maxillary and mandibular dentition, a normal frontal vertical overbite with cuspid guidance, and at least 4 occlusal amalgam fillings in contact with antagonists in intercuspidal position, were examined with the Bruxcore bruxism monitoring device to measure the level of on-going nocturnal bruxism. Based on the degree of abrasion recorded, the subjects were divided into a group defined as bruxists, (n = 29), another group defined as non-bruxists, (n = 32), serving as controls, the intermediate group being discarded. The Hg exposure was assessed from the Hg concentration in plasma and urine, corrected for the creatinine content. In a regression model with bruxism as the only explanatory variable, no significant effect of bruxism was found, but when the number of amalgam fillings, chewing gum use, and other background variables were taken into account, there was a limited impact of bruxism on Hg in plasma. The nocturnal use of an occlusal appliance did not, however significantly change the Hg levels. This study indicates that mechanical wear on amalgams from nocturnal bruxism may increase the Hg uptake, but the magnitude of this effect seems to be less than from the use of chewing gum.

PMID: 9249192, UI: 97390288



Bratel et al., 6.97

Adresse [http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&st\\_uid=9249190&opt=4&abstract](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&st_uid=9249190&opt=4&abstract) Gå tilSearch PubMed for  Go Clear

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 1: *Eur J Oral Sci* 1997 Jun;105(3):234-43[Related Articles, Books](#)**Potential side effects of dental amalgam restorations. (I). An oral and medical investigation.**

Bratel J, Haraldson T, Meding B, Yontchev E, Ohman SC, Ottosson JO

Department of Endodontology/Oral Diagnosis, Faculty of Odontology, Goteborg University, Sweden. John.Bratel@odontologi.gu.se

The aim of this study was to explore a possible association between health status and self-reported adverse effects related to dental amalgam restorations. A group of 50 consecutive patients (index group), referred for complaints self-related to dental amalgam restorations, was compared with a control group of individuals matched by age, sex and postal zip code. The patients underwent an oral, stomatognathic, medical and clinical chemistry examination. Mercury levels were examined in blood, urine and hair. The results revealed that somatic diseases were more common in the index group (38% versus 6%). Symptoms related to cranio-mandibular dysfunction were reported by 74% of the patients in the index group versus 24% in the control group, and were diagnosed in 62% and 36%, respectively. The oral health status and the number of amalgam surfaces were similar in the 2 groups. No positive skin patch test to mercury was found in any of the groups. The estimated mercury intake from fish consumption, occupational exposure, and mercury levels in blood and urine were also similar and far below levels, where negative health effects would be expected. The correlation between the number of amalgam surfaces and mercury levels in plasma and urine ( $r=0.43$ ) indicated a release of mercury from dental amalgam restorations in both groups. Since the mercury levels were similar among index patients and controls, mercury was not a likely cause of the impaired health reported by the patients.

PMID: 9249190, UI: 97390286

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Bratel et al., 6.97b

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 1: *Eur J Oral Sci* 1997 Jun;105(3):244-50[Related Articles](#), [Books](#), [LinkOut](#)**Potential side effects of dental amalgam restorations. (II). No relation between mercury levels in the body and mental disorders.**

Bratel J, Haraldson T, Ottosson JO

Department of Endodontology/Oral Diagnosis, Faculty of Odontology, Goteborg University, Sweden. John.Bratel@odontologi.gu.se

A group of 50 consecutive patients, referred for self-reported complaints which they related to dental amalgam restorations, was compared with control patients matched by age, sex and postal zip code. All patients were subjected to a psychiatric examination and a set of rating scales and questionnaires, and the symptoms were related to the mercury levels in blood, urine and hair. A psychiatric diagnosis was established in 70% of the patients in the index group versus 14% in the control group. The prevailing symptoms were anxiety, asthenia and depression. Mercury levels in blood, urine and hair were similar among index cases and controls, and were far below critical levels of mercury intoxication. There was no correlation between mercury levels and the severity of the reported symptoms. Therefore, mercury was not a likely cause of the complaints. Instead, the reported symptoms were part of a broad spectrum of mental disorders.

PMID: 9249191, UI: 97390287

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 1: *Scand J Work Environ Health* 1997;23 Suppl 3:65-7[Related Articles, Books, LinkOut](#)**Experiences from the amalgam unit at Huddinge hospital--somatic and psychosomatic aspects.**

Langworth S

Institute of Occupational Medicine, Karolinska Institute, Huddinge University Hospital, Sweden.

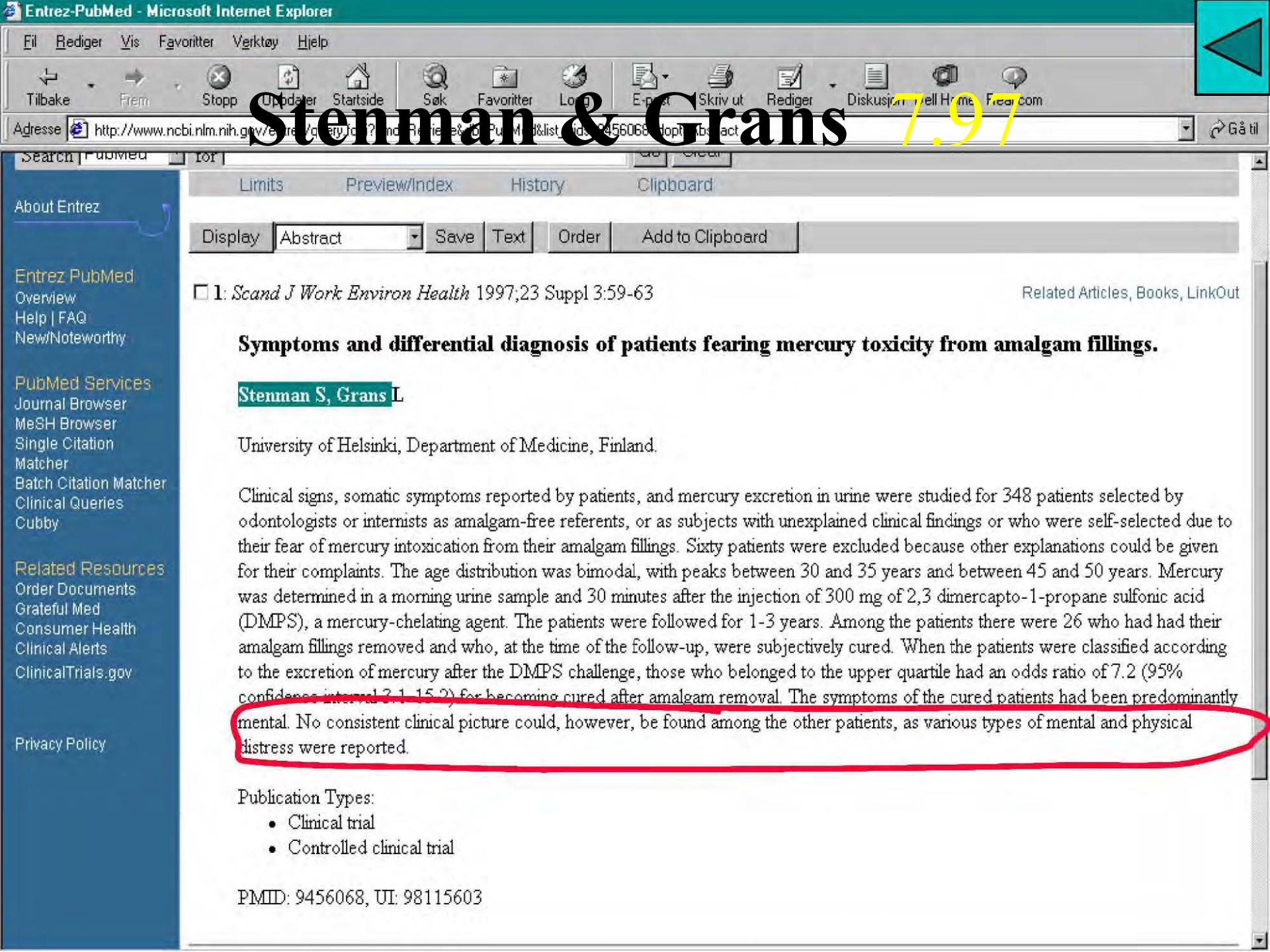
The "amalgam unit" at the Huddinge University Hospital in Sweden examined 379 of 1300 patients referred for health problems which the patients related to amalgam tooth fillings. Toxicologic, clinical, odontological, and psychiatric examinations were performed. More than 30% had medical causes for their complaints; 7% had severe diseases which had been unrecognized. The most common symptoms were diffuse pain, general weakness, fatigue, headache, and difficulties in concentrating. Anxiety and depression were the most prevalent psychiatric complaints. The psychological examination revealed a high prevalence of somatization. The treatment was information about mercury and amalgam, appropriate odontological routines without removal of intact amalgam fillings, medical therapy when necessary, and strengthening of the patients' social network. ~~Ninety percent were satisfied with the treatment. The results indicate that there are various explanations for the complaints of patients fearing "amalgam disease". No cases of mercury intoxication were found.~~

Publication Types:

- Review
- Review, tutorial

PMID: 9456069, UI: 98115604

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# Stenman & Grans

7.97

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1: *Scand J Work Environ Health* 1997;23 Suppl 3:59-63 Related Articles, Books, LinkOut

## Symptoms and differential diagnosis of patients fearing mercury toxicity from amalgam fillings.

**Stenman S, Grans L**

University of Helsinki, Department of Medicine, Finland.

Clinical signs, somatic symptoms reported by patients, and mercury excretion in urine were studied for 348 patients selected by odontologists or internists as amalgam-free referents, or as subjects with unexplained clinical findings or who were self-selected due to their fear of mercury intoxication from their amalgam fillings. Sixty patients were excluded because other explanations could be given for their complaints. The age distribution was bimodal, with peaks between 30 and 35 years and between 45 and 50 years. Mercury was determined in a morning urine sample and 30 minutes after the injection of 300 mg of 2,3 dimercapto-1-propane sulfonic acid (DMPS), a mercury-chelating agent. The patients were followed for 1-3 years. Among the patients there were 26 who had had their amalgam fillings removed and who, at the time of the follow-up, were subjectively cured. When the patients were classified according to the excretion of mercury after the DMPS challenge, those who belonged to the upper quartile had an odds ratio of 7.2 (95% confidence interval 2.1-15.2) for becoming cured after amalgam removal. The symptoms of the cured patients had been predominantly mental. No consistent clinical picture could, however, be found among the other patients, as various types of mental and physical distress were reported.

- Publication Types:
- Clinical trial
  - Controlled clinical trial

PMID: 9456068, UI: 98115603

1: *J Occup Environ Med* 1997 Aug;39(8):707-14[Related Articles, Books, LinkOut](#)

## Placebo response in environmental disease. Chelation therapy of patients with symptoms attributed to amalgam fillings.

Grandjean P, Guldager B, Larsen IB, Jorgensen PJ, Holmstrup P

Department of Environmental Medicine, Odense University, Denmark.

Treatment of patients who attribute their environmental illness to mercury from amalgam fillings is largely experimental. On the Symptom Check List, overall distress, and somatization, obsessive-compulsive, depression, and anxiety symptom dimensions, were increased in 50 consecutive patients examined, and Eysenck Personality Questionnaire scores suggested less extroversion and increased degree of emotional lability. Succimer (meso-2, 3-dimercaptosuccinic acid) was given at a daily dose of 30 mg/kg for five days in a double-blind, randomized placebo-controlled trial. Urinary excretion of mercury and lead was considerably increased in the patients who received the chelator. Immediately after the treatment and 5 to 6 weeks later, most distress dimensions had improved considerably, but there was no difference between the succimer and placebo groups. These findings suggest that some patients with environmental illness may substantially benefit from placebo.

### Publication Types:

- Clinical trial
- Randomized controlled trial

PMID: 9273873, UI: 97419307



Grandjean et al, 8.97

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Laine et al sept 97

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1: *J Oral Pathol Med* 1997 Sep;26(8):362-6[Related Articles, Books, LinkOut](#)

### **In vitro lymphocyte proliferation test in the diagnosis of oral mucosal hypersensitivity reactions to dental amalgam.**

Laine J, Happonen RP, Vainio O, Kalimo K

Department of Oral Diseases, University Central Hospital of Turku, Finland.

Patch testing was carried out in 23 patients with oral lichenoid lesions (OLL) topographically related to dental amalgam fillings. Twelve patients displayed positive reactions to several mercury compounds, whereas 11 patients were negative. An in vitro lymphocyte proliferation (LyPro) test was carried out using different mercury compounds and other metal salts. Mercuric chloride and phenyl mercuric acetate caused positive proliferation in 3/12 patch test-positive and in 5/11 negative patients. One out of seven healthy control subjects had a positive LyPro result. The mean stimulation index (SI) values between the patient groups or compared with the control subjects did not differ significantly. Zinc, tin, copper or silver salts caused in vitro lymphocyte stimulation in most of the patients and in healthy control people. Total (14) or partial (4) replacement of amalgam fillings was carried out in 18 patients. Complete healing of lichenoid lesions was seen in 4/6 LyPro test-positive and in 5/10 patch test-positive patients at follow-up examinations 12 months after the replacement of amalgam fillings. The in vitro proliferation assay seems not to be a specific test for identifying the patients who would benefit from amalgam replacement.

PMID: 9379425, UI: 98021188

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[1: Dent Mater 1997 Sep;13\(5\):297-304](#)
[Related Articles, Books](#)

## Mercury levels in plasma and urine after removal of all amalgam restorations: the effect of using rubber dams.

Berglund A, Molin M

Department of Dental Materials Science, Umea University, Sweden. [Anders.Berglund@denmatisc.umu.se](mailto:Anders.Berglund@denmatisc.umu.se)

**OBJECTIVE:** The aim of the present study was to determine whether removal of all amalgam restorations might significantly affect mercury levels in plasma and urine and whether the use of rubber dams might reduce patient exposure to mercury during amalgam removal. **METHODS:** All amalgam restorations were removed from 18 subjects during a single treatment session in which a rubber dam was used and from 10 subjects when a rubber dam was not used. All amalgam restorations were removed by the same dentist using high-speed cutting, water coolant, and high-volume evacuation. The levels of mercury in plasma and urine were analyzed both before and during the subsequent twelve months after amalgam removal. In order to determine whether removal of all amalgam restorations might cause an exposure large enough to significantly increase the mercury levels in two indicator media for mercury exposure, i.e., plasma and urine, and to determine if the removal might cause a significant decrease in the mercury levels found over time, the one-tailed, paired Students' t-test was used. For each individual, the pre-removal levels were compared with both the levels found in plasma on d 1 and in urine on d 10, and also with the levels found 1 y after removal. Furthermore, in order to examine whether the use of rubber dams had any effect on the mercury levels found after removal, the changes in the mercury levels found were compared between the groups using the Wilcoxon-Mann-Whitney rank sum test. **RESULTS:** After removal of all amalgam restorations, only the non-rubber dam group showed significant increases in the mercury levels found in plasma ( $p = 0.012$ ) and urine ( $p = 0.037$ ). However, one year later, the mercury levels in plasma and urine had sunk significantly below the pre-removal levels for both groups. When the changes in the mercury levels found were compared between the groups, the non-rubber dam group showed a significantly higher increase of mercury in plasma than the rubber dam group the day after removal ( $p = 0.0010$ ). Compared to the pre-removal mercury levels in plasma and urine, the levels found 1 y after removal of all amalgam restorations were on average 52 +/- 23% (range 4-89%) lower in plasma and 76 +/- 21% (range 20-94%) lower in urine. **SIGNIFICANCE:** The study showed that dental amalgam had a statistically significant impact on the mercury levels found in plasma and urine in the patients tested, and that the use of a rubber dam during removal of all amalgam restorations significantly reduced the peak of mercury in plasma following removal.

PMID: 9823088, UI: 99040423



# CETS, Canada Oct 97

Report CETS 97-3-RE  
THE SAFETY OF DENTAL AMALGAM: A STATE OF THE ART REVIEW  
Montreal: CETS, 1997. xi-90 p.  
(ISBN 2-550-31684-3)

## Summary

### *Introduction*

Dental amalgam--a mixture of elemental mercury and a silver-dominated metal alloy powder- has been the most widely used dental filling material for well over a century. It is durable, easy for dentists to use, and inexpensive. Although the toxic effects of occupational mercury exposure have long been known, it was not until about 1980 that serious consideration was given to the possibility that mercury vapour escaping from dental amalgam might be adversely affecting the health of people with amalgam fillings.

It is now accepted that elemental mercury does escape from intact amalgam fillings and is absorbed, at least some of it entering the central nervous system. The general question explored in this review is whether amalgam fillings pose any significant risk to health. More specifically, does the scientific evidence support restricting the use of dental amalgam, removing existing amalgams, or other measures?

### *The scientific evidence*

The mainstream scientific view holds that mercury exposure, even the very low levels attributable to dental amalgam, might be affecting people adversely, but the evidence currently available is inadequate to determine if this is the case. The types of effects considered plausible are subtle, subclinical impairments of the central nervous system and the peripheral nerves. Central nervous system effects mediated through the brain (e.g., minor deficits in short-term memory) and direct effects on peripheral nerves (measured as slowed nerve conduction) are the most prominent consequences of occupational exposure to mercury at levels considered relatively low for the workplace (though these levels still are far higher than mercury exposure from dental amalgam). These effects have also been found in dentists and others who work in dental offices, individuals whose exposure levels are above those from dental fillings alone, but well below those in industrial settings. Because the effects are subclinical, they can be detected only using specialized testing equipment and procedures.

To date, no large studies of people whose main exposure is from dental amalgam have been carried out using these research tools. Therefore, the existing evidence is weak, but the information base is inadequate to conclude that dental amalgam has no effects that might be of concern. Epidemiologic studies currently under way may reduce the uncertainty surrounding the possible effects of dental amalgam, but even if successful, these studies may not provide adequate information on which to base firm public policy decisions.

Groups identified generally as "anti-amalga-mists" support the view that a large number of diseases may result from dental amalgam, including Alzheimer's disease, multiple sclerosis, and various immune system problems. These conditions that not been associated with higher, occupational levels of mercury exposure, and current evidence suggests that they are very unlikely to be caused by amalgam fillings.

### *Alternatives to amalgam*

Materials other than dental amalgam are available for dental restorations--composite resins, glass ionomers, gallium alloys, gold, cast metals, and porcelain. For certain applications, some of these



...søk i dag!

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# Tannlegesekretær til søksmål for kvikksølv-forgiftning

**BØ i Telemark (NTB):** En tidligere tannlegesekretær i Bø i Telemark har gått til søksmål mot staten fordi hun mener hun er blitt kvikksølvforgiftet av amalgam.

Dette er den første rettssaken i Skandinavia som dreier seg om helseskader på grunn av arbeid med tannfyllinger, melder NRK Telemark. Tannlegesekretærens jobb var blant annet å lage fyllinger med amalgam som tannlegen puttet i tennene på pasientene. Amalgam inneholder blant annet kvikksølv.

**Svimmel, kvalm og hukommelsestap**  
**Tannlegesekretæren mener hun har fått samme type helseskader som personer som har vært utsatt for kvikksølv: svimmelhet, kvalme og hukommelsestap.**

Tannlegesekretæren fikk helseproblemer på begynnelsen av 1980-tallet, og gikk over i halv stilling. I 1991 måtte hun slutte i jobben på grunn av dårlig helse. Saken kommer opp for Nedre Telemark herredsrett i slutten av oktober.

Aftenposten 28 oktober 97



Hva er du interessert i?

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INNEENRIKS

Oppdatert: 28. oktober 1997 kl. 23:08

## Staten tror ikke helseplager skyldes amalgam

Staten mener det ikke er noen sammenheng mellom skadene som Tordis Klausen har fått og hennes arbeid som tannlegesekretær.

BAKGRUNN

JOHN HULTGREN

på Gvarv

Klausen har gått til søksmål mot staten og fylkeskommunen fordi hun mener hun er blitt kvikksølvforgiftet i løpet av sine 23 år som tannlegesekretær ved en tannklinikk i Bø. I Nedre Telemark herredsrett har hun hevdet at et uforsvarlig dårlig arbeidsmiljø gjorde at hun daglig pustet inn store mengder kvikksølv- og kobberdamp mens hun preparerte amalgamfyllinger.

Men det benekter staten. I går var det statens prosessfullmektig, advokat Christian Galtung hos Regjeringsadvokaten, som startet sitt innledningsforedrag.

- Det er ingen årsakssammenheng mellom det hun mener er et klanderverdig arbeidsmiljø og de skadene hun har fått. Ut i fra symptomene som hun har beskrevet, tyder det mer på depresjoner eller angstsykdommer enn kvikksølvforgiftning, hevdet Galtung. Han mener at dosene av kvikksølv damp hun har vært utsatt for ikke er spesielt høye i forhold til hva andre yrkesgrupper utsettes for, og han bestrider også at Klausen har fått hjerneskade som følge av kvikksølv- og kobberdampen. Galtung hevdet i retten i går at Klausens sak dessuten er foreldt. Det gjelder to årsrødeligheter, en for å få skadetokumentasjon og en for når den skadelidte fikk nødvendig kunnskap om årsaken til skadene. Den

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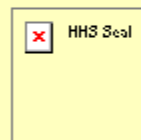
Dental amalgam and alternative  
direct restorative materials.

Mjör IA, Pakhomov GN (eds).  
Oral Health, Division of  
Noncommunicable Diseases.  
WHO, Geneva.

# Dental Amalgam and Alternative Restorative Materials

An Update Report to the Environmental Health Policy Committee

From the Working Group on Dental Amalgam  
October 1997



U.S. Department of Health and Human Services  
Public Health Service



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Mackert &amp; Berglund, 97

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[ClinicalTrials.gov](#)[Privacy Policy](#) 1: *Crit Rev Oral Biol Med* 1997;8(4):410-36[Related Articles, Books, LinkOut](#)**Mercury exposure from dental amalgam fillings: absorbed dose and the potential for adverse health effects.**

Mackert JR Jr, Berglund A

Medical College of Georgia, Augusta 30912-1260, USA.

This review examines the question of whether adverse health effects are attributable to amalgam-derived mercury. The issue of absorbed dose of mercury from amalgam is addressed first. The use of intra-oral Hg vapor measurements to estimate daily uptake must take into account the differences between the collection volume and flow rate of the measuring instrument and the inspiratory volume and flow rate of air through the mouth during inhalation of a single breath. Failure to account for these differences will result in substantial overestimation of the absorbed dose. Other factors that must be considered when making estimates of Hg uptake from amalgam include the accurate measurement of baseline (unstimulated) mercury release rates and the greater stimulation of Hg release afforded by chewing gum relative to ordinary food. The measured levels of amalgam-derived mercury in brain, blood, and urine are shown to be consistent with low absorbed doses (1-3 micrograms/day). Published relationships between the number of amalgam surfaces and urine levels are used to estimate the number of amalgam surfaces that would be required to produce the 30 micrograms/g creatinine urine mercury level stated by WHO to be associated with the most subtle, pre-clinical effects in the most sensitive individuals. From 450 to 530 amalgam surfaces would be required to produce the 30 micrograms/g creatinine urine mercury level for people without any excessive gum-chewing habits. The potential for adverse health effects and for improvement in health following amalgam removal is also addressed. Finally, the issue of whether any material can ever be completely exonerated of claims of producing adverse health effects is considered.

## Publication Types:

- Review
- Review, tutorial

PMID: 9391753, UI: 98053241

# NTF tidende 17. 97

Har tannlegeassistenter økt risiko for å få barn med hjerneskader?

Halbach et al, 11.97

 1: *Hum Exp Toxicol* 1997 Nov;16(11):667-72

[Related Articles, Books, LinkOut](#)

### Compartmental transfer of mercury released from amalgam.

Halbach S, Kremers L, Willruth H, Mehl A, Welzl G, Wack FX, Hickel R, Greim H

Institute of Toxicology, GSF-National Research Center for the Environment and Health, Neuherberg, Germany.

The number of amalgam-covered surfaces and the occlusal area of the fillings, the concentrations of total mercury in plasma, erythrocytes and urine, the urinary excretion rate, and the absorbed daily doses estimated by two separate methods from intra-oral Hg emission were determined in 29 volunteers with a low amalgam load. The transfer of Hg from the fillings via the oral cavity and blood to urinary excretion was evaluated by multiple correlations between these variables. In addition, the combination of variables most representative of the entire compartmental transfer of amalgam Hg was determined. Urinary excretion (1), Hg concentration in plasma (2) and absorbed dose (3) were most closely correlated to each other, followed by correlations with the variables of the fillings (4). Correlation coefficients were 0.75 for variables 1 vs 2 and 2 vs 3, and 0.49 for variables 3 vs 4. It was concluded that variables 1-3 best reflected the transfer of mercury from amalgam fillings throughout the organism and that they were relatively insensitive to dietary mercury. The determination of total mercury in plasma and of its urinary excretion rate appears, under practical aspects, most suitable for the investigation of Hg uptake from amalgam.

PMID: 9426369, UI: 98087749



# Aftenposten 6.11.97

“Foreldres yrke kan gi barn misdannelser”



1: *Acta Psychiatr Scand* 1997 Dec;96(6):475-82

[Related Articles](#), [Books](#), [LinkOut](#)

## A multidisciplinary clinical study of patients suffering from illness associated with mercury release from dental restorations: psychiatric aspects.

**Bagedahl-Strindlund** M, Ilie M, Furhoff AK, Tomson Y, Larsson KS, Sandborgh-Englund G, Torstenson B, Wretling K

Division of Psychiatry, Huddinge University Hospital, Sweden.

The aim of this study was to map the psychological/psychiatric, odontological and medical aspects of patients with symptoms allegedly related to the side-effects of mercury in dental fillings. A total of 67 consecutive patients and 64 controls matched for age, sex and residential area were included in the study. The most striking result was the high prevalence of psychiatric disorders in the patients (89%) compared to the controls (6%), predominantly somatoform disorders. The personality traits differentiating the patients according to the Karolinska Scales of Personality (KSP) were somatic anxiety, muscular tension, psychasthenia and low socialization. More patients than controls showed alexithymic traits. The prevalence of diagnosed somatic diseases was higher, but not sufficiently so to explain the large difference in perceived health. The multiple symptoms and signs of distress displayed by the patients could not be explained either by the odontological data or by the medical examination. Our data indicate that the patients show sociodemographic and clinical patterns similar to those of somatizing patients. The medicalization of the suffering of these patients and the neglect of psychiatric problems prevent the use of appropriate psychotherapeutic approaches.

PMID: 9421345, UI: 98081698





Små mengder uorganisk kvikksølv avgis kontinuerlig fra amalgamfyllinger og tas opp i kroppen, og kvikksølv i urin (u-Hg) kan brukes som et mål på opptak. Konsentrasjonen hos ikke-yrkesmessig eksponerte nordmenn er om lag 2-3  $\mu\text{g/g}$  kreatinin (tilnærmet 1-2 nmol/mmol kreatinin), og største delen kommer fra tannfyllinger. Klassiske tegn på kvikksølvforgiftning observeres først ved langvarig eksponering, med u-Hg-nivå over 100  $\mu\text{g/g}$  kreatinin (56 nmol/mmol kreatinin). Diskrete effekter på nyrene eller sentralnervesystemet av uklar klinisk betydning kan påvises i gruppeundersøkelser av yrkesmessig eksponerte ved et u-Hg-nivå på rundt 20-35  $\mu\text{g/g}$  kreatinin (tilnærmet 11-20 nmol/mmol kreatinin).

**Nåværende kunnskap om sammenhengen mellom eksponering og effekt taler ikke for at opptaket av kvikksølv fra tannfyllinger påvirker helsen. Studier av sammenhengen mellom mengden amalgam og ulike symptomer gir heller ikke støtte for at det har noen negativ helseeffekt.**

Pasienter som oppsøker lege og som på forhånd har "diagnostisert" seg som amalgamforgiftet, skal gjennomgå adekvat medisinsk utredning, med tilstrekkelig tid til en nøyaktig anamnese og somatisk undersøkelse og eventuelle laboratorieprøver.

# Aftenposten, 19.1.98

Marianne Rygh: Leserbrev,  
Helse Miljø og Sikkerhet -  
irrelevant i praksis?

# - Amalgam bra for helse

Folk med mye amalgam i tennene har bedre helse enn de med få amalgam-fyllinger. Det er konklusjonen i en undersøkelse foretatt av en forskergruppe i Göteborg.

Av [TORE NESET](#)

Danmark har allerede vedtatt amalgamforbud, mens svenske myndigheter har som målsetting at all bruk av amalgam skal opphøre innen år 2000.

Her i landet er amalgam fortsatt det vanligste tannfyllingsmaterialet, også hos små barn.

**Tannlegene har avvist amalgamkritikken som tøv. Flere norske politikere - blant dem barne- og familiminister Valgerd Svarstad Haugland - har engasjert seg for å få til et forbud også i Norge.**

Nå kan det altså se ut som om tannlegene kan ha rett.

## Stort materiale

Grunnlagsmaterialet for den svenske undersøkelsen, som blir referert av den svenske dagsavis Göteborgsposten i dag, er en studie av 1500 kvinner.

Undersøkelsen ble satt i gang så tidlig som i 1968, og konklusjonene er helt klare:

**De som hadde få amalgamfyllinger, viste seg å ha flere lidelser og til og med døde tidligere enn dem som hadde mye amalgam i munnen.**

Både når det gjaldt nerveproblemer, søvnløshet, kreft, hjertesykdommer, sukkersyke, nyreplager, blodsykdommer og leversykdommer slo de med mye amalgam i tennene entydig bedre ut på statistikken.

## Uten tenner

Resultatene blir noe moderert av at noen av de eldre kvinnene i undersøkelsen hadde dårlig helse på tross av at de ikke hadde amalgam-fyllinger. Årsak: de hadde rett og slett ikke hadde egne tenner lenger!

Det er en kjent sak at det er sammenheng mellom manglende tenner og dårlig helse - akkurat som det er sammenheng mellom manglende tenner og høy alder...

## - Ikke skadelig

**Undersøkelsen tilbakeviser ikke at enkelte kan ha plager som følge av amalgam.**

## NTF tidende 2.98

- Har tannlegeassistenter økt risiko for å få barn med hjernedannelser?
- Marit L Olstad: Usikker konklusjon etter datakobling
- Svar: Resultatene må tolkes med forsiktighet

# Drasch et al., mar 98

1: *J Trace Elem Med Biol* 1998 Mar;12(1):23-7

Related Articles, Books, LinkOut

## Mercury in human colostrum and early breast milk. Its dependence on dental amalgam and other factors.

Drasch G, Aigner S, Roeder G, Staiger F, Lipowsky G

Institute of Forensic Medicine, Munich, Germany.

The mercury concentration in 70 breast milk samples (Hg-M) from 46 mothers, collected within the first 7 days after delivery, was determined by cold vapour atomic absorption spectrometry. For comparison, 9 formula milk samples (reconstituted with Hg-free water) were investigated. The Hg-M in the human milk samples ranged from < 0.2 to 6.86 micrograms/L (median 0.37), in the formula milk samples from 0.4 to 2.5 micrograms/L (median 0.76). The Hg-M in the breast milk samples correlates positively with the number of maternal teeth with dental amalgam. The mean Hg-M of amalgam-free mothers was < 0.2 microgram/L, while milk from mothers with 1-4 amalgam fillings contained 0.57 microgram/L, with 5-7 fillings 0.50 microgram/L and with more than 7 fillings 2.11 micrograms/L. Hg-M correlated negatively to the day after delivery. Frequency of fish consumption tends to influence Hg-M positively, while the age of the mother shows no significant correlation. In the first 2 to 3 days after delivery some colostrum samples with Hg-M higher than in formula milk were found. Later on, the Hg-concentration in the breast milk was equal or even lower to that in formula milk. The higher Hg burden of infants' tissues from mothers with dental amalgam, as reported previously, must be explained (1) by a prenatal transfer of Hg from the mother's fillings through the placenta to the fetus, followed by a redistribution of this Hg in the body of the newborn, and (2) an additional burden via breast milk. Nevertheless, the comparison of Hg-M in breast and formula milk, the relatively moderate Hg burden in both kinds of milk, and the multiple manifest advantages of breast feeding speak against any limitation of nursing, even for mothers with a large number of dental amalgam fillings.

PMID: 9638609, UT: 98302455

# Kingman et al., mar 98

1. *J Dent Res* 1998 Mar;77(3):660-71

[Related Articles, Books, LinkOut](#)

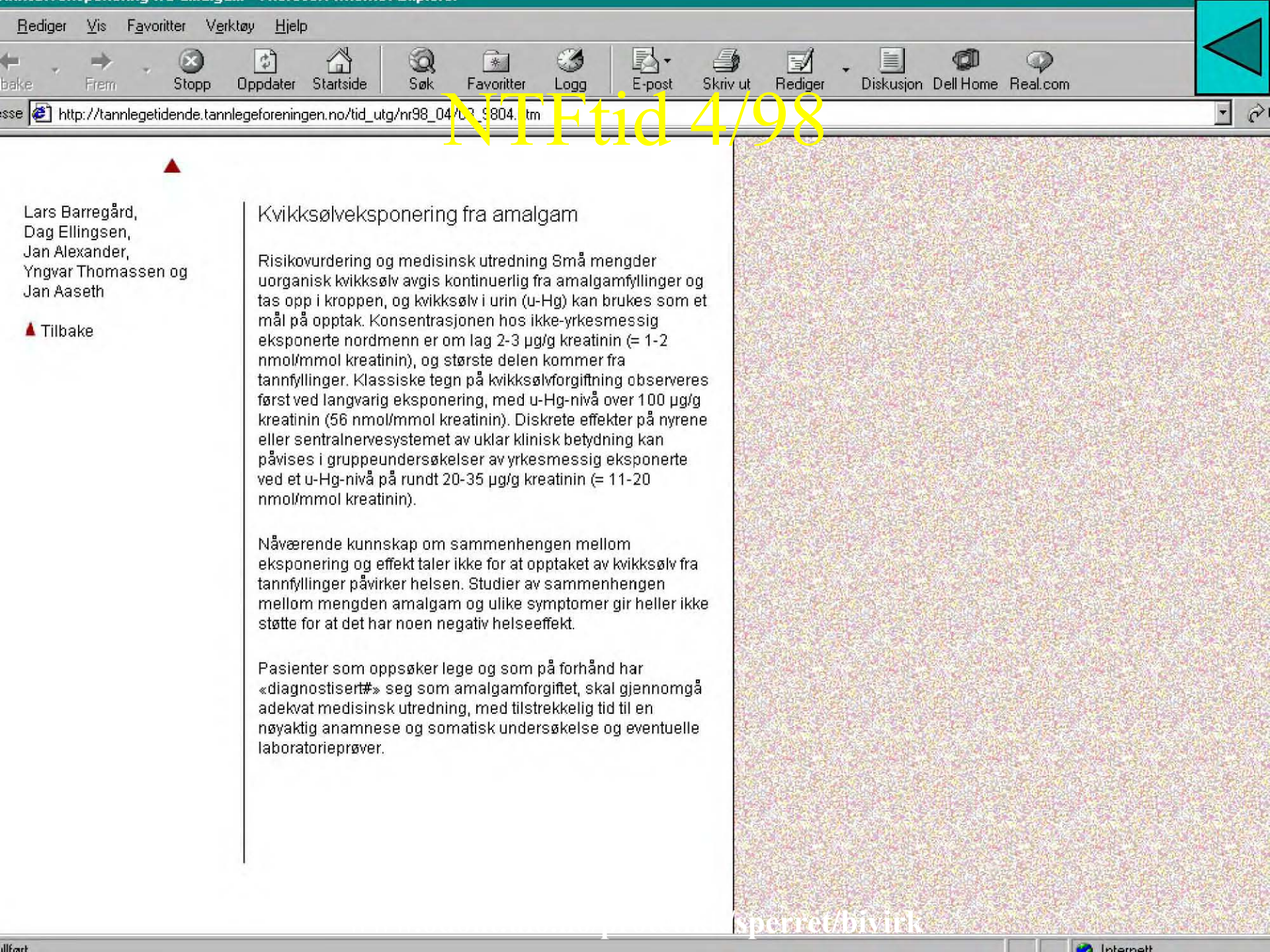
## Mercury concentrations in urine and whole blood associated with amalgam exposure in a US military population.

**Kingman** A, Albertini T, Brown LJ

Oral Health Promotion, Risk Factors and Molecular Epidemiology Branch, National Institute of Dental Research, Bethesda, Maryland 20892, USA.

Minute amounts of mercury vapor are released from dental amalgams. Since mercury vapor is known to be associated with adverse health effects from occupationally exposed persons, questions regarding the margin of safety for exposure to mercury vapor in the general population continue to be raised. To address this issue, one needs information regarding exposure to mercury vapor from dental amalgam fillings and its possible consequences for health in the general population. The NIDR Amalgam Study is designed to obtain precise information on amalgam exposure and health outcomes for a non-occupationally-exposed population of US adults. One hypothesis was that in a generally healthy population a significant association between amalgam exposure and Hg levels in urine and/or whole blood could be detected. The cohort investigated was an adult military population of 1127 healthy males. Their average age was 52.8 years, and their ages varied from 40 to 78 years. Ninety-five percent of the study participants were white males, and slightly over 50% had some college education. Five percent were edentulous. The dentate participants, on average, had 25 natural teeth, 36.9 decayed or filled surfaces (DFS), and 19.9 surfaces exposed to amalgam, with amalgam exposure varying from 0 to 66 surfaces. Their average total and inorganic urinary mercury concentrations were 3.09 microg/L and 2.88 microg/L. The average whole-blood total and inorganic mercury concentrations were 2.55 microg/L and 0.54 microg/L. Significant correlations were detected between amalgam exposure and the total ( $r = 0.34$ ,  $p < 0.001$ ) and inorganic ( $r = 0.34$ ,  $p < 0.001$ ) urinary mercury concentrations on the original scale. Stronger correlations were found for total ( $r = 0.44$ ,  $p < 0.001$ ) and inorganic ( $r = 0.41$ ,  $p < 0.001$ ) urinary Hg on the log scale, as well as for creatinine-corrected total ( $r = 0.43$ ,  $p < 0.001$ ) and inorganic ( $r = 0.43$ ,  $p < 0.001$ ) urine concentrations. In whole blood, statistically significant, but biologically weak, correlations were detected for total ( $r = 0.09$ ,  $p = 0.005$ ) and inorganic ( $r = 0.15$ ,  $p < 0.001$ ) Hg concentrations, respectively. Based on these cross-sectional data, it is estimated that, on average, each ten-surface increase in amalgam exposure is associated with an increase of 1 microg/L mercury in urine concentration.

PMID: 9496919, UI: 98156633



NTFtid 4/98

Lars Barregård,  
Dag Ellingsen,  
Jan Alexander,  
Yngvar Thomassen og  
Jan Aaseth

▲ Tilbake

### Kvikksølveksponering fra amalgam

Risikovurdering og medisinsk utredning Små mengder uorganisk kvikksølv avgis kontinuerlig fra amalgamfyllinger og tas opp i kroppen, og kvikksølv i urin (u-Hg) kan brukes som et mål på opptak. Konsentrasjonen hos ikke-yrkesmessig eksponerte nordmenn er om lag 2-3 µg/g kreatinin (= 1-2 nmol/mmol kreatinin), og største delen kommer fra tannfyllinger. Klassiske tegn på kvikksølvforgiftning observeres først ved langvarig eksponering, med u-Hg-nivå over 100 µg/g kreatinin (56 nmol/mmol kreatinin). Diskrete effekter på nyrene eller sentralnervesystemet av uklar klinisk betydning kan påvises i gruppeundersøkelser av yrkesmessig eksponerte ved et u-Hg-nivå på rundt 20-35 µg/g kreatinin (= 11-20 nmol/mmol kreatinin).

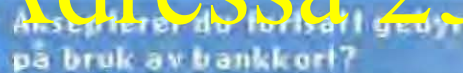
Nåværende kunnskap om sammenhengen mellom eksponering og effekt taler ikke for at opptaket av kvikksølv fra tannfyllinger påvirker helsen. Studier av sammenhengen mellom mengden amalgam og ulike symptomer gir heller ikke støtte for at det har noen negativ helseeffekt.

Pasienter som oppsøker lege og som på forhånd har «diagnostisert» seg som amalgamforgiftet, skal gjennomgå adekvat medisinsk utredning, med tilstrekkelig tid til en nøyaktig anamnese og somatisk undersøkelse og eventuelle laboratorieprøver.

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## - Amalgam er ikke farlig!

- Innen fagmiljøet er det i dag så godt som unison enighet om at amalgam ikke er farlig, hevder inviterte forelesere ved Sør-Trøndelag tannlegeforenings årsmøte i Trondheim.

De to svenske forskerne, Percy Milleding og Thomas Jacobsen, som begge bidrar med innlegg over temaet bruk av amalgam i tannfyllinger, oppsummerer og slår fast at amalgam ufortjent har fått et dårlig rykte på seg. - Det finnes i dag ingen vitenskapelige bevis for at amalgam er helseskadelig, sier de, og viser til den omfattende internasjonale forskning som har funnet sted. Men de reserverer et lite forbehold: Det finnes trolig noen få personer med lavere terskel som kan få uønskede virkninger. De to er også enige om at det i dag ikke finnes noen erstatning for amalgam. - Bruk av plastfyllinger kan derimot være et alternativ, men ikke for hvem som helst, særlig ikke for eldre mennesker som fra før har store fyllinger. Kanskje passer denne behandlingsmetoden best for de unge. Metoden stiller store krav til utførelsen for å være vellykket, og den koster to til tre ganger så mye som behandling med amalgam. Plastfyllinger er heller ikke så holdbare som tradisjonelle fyllinger. Vanligvis varer en amalgamfylling i åtte år, mens komposittfyllinger, eller plast, varer halvparten så lenge, fremholder de to forskerne. Forbud? Det er i flere år reist innvendinger mot bruk av amalgam i tannfyllinger. Amalgam består av ca 50 prosent kvikksølv, som regnes som et av de giftigste tungmetallene. Kritikerne har ment at det kvikksølv som avgis til kroppen er årsak til en



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 1: *J Am Dent Assoc* 1998 Apr;129(4):494-503[Related Articles, Books](#)

### Dental amalgam: update on safety concerns. ADA council on Scientific Affairs.

This report of the Council on Scientific Affairs reviews and discusses recent studies concerning the safety of dental amalgam, with an emphasis on studies that have been published since the 1993 review of dental amalgam by the U.S. Public Health Service Committee to Coordinate Environmental Health and Related Programs. The Council concludes that, based on currently available scientific information, amalgam continues to be a safe and effective restorative material.

#### Publication Types:

- Review
- Review literature

PMID: 9573704, UI: 98234788

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1: *Eur J Oral Sci* 1998 Apr;106(2 Pt 1):671-4

[Related Articles](#), [Books](#), [LinkOut](#)

## **Influence of low frequency magnetic fields on the intra-oral release of mercury vapor from amalgam restorations.**

**Berglund A, Bergdahl J, Hansson Mild K**

Department of Dental Materials Science, Faculty of Odontology, Umea University, Sweden.  
Anders.Berglund@denmat.sc.umu.se

Since the results of a preliminary study have shown that the magnetic fields of some visual display units (VDUs) increased the release of mercury from amalgam specimens, the aim of the present study was to examine whether exposure to magnetic fields might affect the mercury vapor release from amalgam restorations in humans. The test group consisted of five subjects with an average of 31.4 amalgam surfaces (range 13-48). In each of the subjects tested, the intra-oral release of mercury vapor was measured during three 9-h periods at intervals of 30 to 90 min, using a standardized schedule and standardized food. During the first 9-h period which served as control, no intentional magnetic fields were applied. During the second and the third 9-h period, magnetic fields with flux densities of 20 microT at 30 kHz or 500 microT at 50 Hz, respectively, were applied. Although these flux densities were one thousand times higher than those caused by VDUs, no effects could be found on the release of mercury vapor from the amalgam restorations. The results of the present study do not support the assumption that exposure to magnetic fields increases the mercury vapor release from amalgam restorations in humans.

PMID: 9584915, UI: 98244306

1: *J Dent Res* 1998 Apr;77(4):615-24

[Related Articles, Books](#)

## Mercury in biological fluids after amalgam removal.

**Sandborgh-Englund G, Elinder CG, Langworth S, Schutz A, Ekstrand J**

Department of Basic Oral Sciences, Karolinska Institutet, Huddinge, Sweden.

Dental amalgam is the major source of inorganic mercury (Hg) exposure in the general population. The objective of the present study was to obtain data on changes in Hg levels in blood, plasma, and urine following removal of all amalgam fillings during one dental session in 12 healthy subjects. The mean number of amalgam surfaces was 18 (range, 13 to 34). Frequent blood sampling and 24-hour urine collections were performed up to 115 days after amalgam removal, and in eight subjects additional samples of plasma and urine were collected up to three years after amalgam removal. A transient increase of Hg concentrations in blood and plasma was observed within 48 hours after amalgam removal. In plasma, the peak concentrations significantly exceeded the pre-removal plasma Hg levels by, on average, 32% (1.3 nmol/L; range, 0.1 to 4.2). No increase in the urinary Hg excretion rate was apparent after amalgam removal. An exponential decline of Hg was seen in all media. Sixty days after the amalgam removal, the Hg levels in blood, plasma, and urine had declined to approximately 60% of the pre-removal levels. In seven subjects, who were followed for up to three years, the half-lives of Hg in plasma and urine were calculated. In plasma, a bi-exponential model was applied, and the half-life was estimated at median 88 days (range, 21 to 121). The kinetics of Hg in urine (nmol/24 hrs) fit a mono-exponential model with a median half-life of 46 days (range, 35 to 67). It is concluded that the process of removing amalgam fillings can have a considerable impact on Hg levels in biological fluids. After removal, there was a considerable decline in the Hg levels of blood, plasma, and urine, which slowly approached those of subjects without any history of amalgam fillings.

PMID: 9539465, UI: 98198872

# Arenholt-Bindslev

, april 98

PubMed Nucleotide Protein Genome Structure PopSet Taxonomy OMIM

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1: *Eur J Oral Sci* 1998 Apr;106(2 Pt 2):713-20

Related Articles, Books

## Environmental aspects of dental filling materials.

### Arenholt-Bindslev ID

University of Aarhus, Faculty of Health Sciences Dental School, Denmark. dbindslev@odont.aau.dk

In recent years, the possible environmental impact caused by certain routines in dental practice has attracted attention among regulators. As part of point source reduction strategies, the discharge of mercury/amalgam-contaminated wastes has been regulated in a number of countries, even though it has been documented that by adopting appropriate mercury hygiene measures, including installation of amalgam-separating devices, the environmental impact of amalgam use in dentistry is minimal. There are, so far, no data indicating the environmental impact of methacrylate-based dental filling materials. As to the occupational environment, recent reports have stated that when normal occupational recommendations for proper mercury hygiene routines are followed (e.g., water spray coolant and high vacuum suction during removal of amalgam restorations), no occupational health risk can be assumed. An increasing number of reports on occupational allergic reactions to components of polymer-based dental filling materials call for attention to the sensitizing potential of certain ingredients in these products.

### Publication Types:

- Review
- Review, tutorial

Filling Materials  
(Patients and to Environment?)



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er Health  
Alerts  
rials.gov

Policy

1: *Eur J Oral Sci* 1998 Apr;106(2 Pt 2):678-86

[Related Articles, Books](#)

## Toxicological aspects on the release and systemic uptake of mercury from dental amalgam.

**Ekstrand J, Bjorkman L, Edlund C, Sandborgh-Englund G**

Department of Basic Oral Sciences, Faculty of Dentistry, Karolinska Institutet, Huddinge, Sweden.

Jan.A.Ekstrand@ofa.ki.se

This paper summarizes some recent reports on mercury release from amalgam fillings and resulting concentrations in biological fluids, development of antibiotic resistance, and kidney function. In a series of studies of subjects with amalgam fillings, mercury (Hg) levels were followed in saliva, feces, blood, plasma, and urine before and until 60 d after removal of all of the fillings. The Hg concentrations in saliva remained elevated for at least 1 wk, suggesting that dissolved Hg vapor is not the major source of mercury in mixed saliva. An absorption phase of Hg was seen in plasma during 24 h after amalgam removal. After 60 d the plasma Hg concentration was reduced to 40% of the baseline level. The decrease per amalgam surface was 0.11 nmol/l (range 0.02-0.40). The Hg level in feces increased two orders of magnitude two days after amalgam removal. At day 60, the median Hg concentration was still slightly higher than the median value of the amalgam free control group. The resistance patterns of the oral and intestinal microflora in these subjects were also studied. In the intestinal microflora, the relative amount of intestinal microorganisms resistant to 50 microM HgCl<sub>2</sub> peaked 7 d after removal of the amalgam fillings, with a median value per sample of 6.1%, compared to 1.3% in samples collected prior to the Hg exposure. However, no statistical differences in the resistance pattern of the oral microflora were detected between the control and the experimental groups. A number of sensitive kidney function parameters were measured 1 wk before and 1, 2, and 60 d after amalgam removal. No effects on the various kidney parameters studied were recorded. According to the conclusions of independent evaluations from different state health agencies, the release of mercury from dental amalgam does not present any non-acceptable risk to the general population.

Publication Types:



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# Bergdahl et al, april 98

1: *Environ Res* 1998 Apr;77(1):20-4

Related Articles, Books, LinkOut



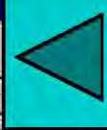
## Methylmercury and inorganic mercury in serum—correlation to fish consumption and dental amalgam in a cohort of women born in 1922.

**Bergdahl IA, Schutz A, Ahlqwist M, Bengtsson C, Lapidus L, Lissner L, Hulthen B**

Department of Occupational and Environmental Medicine, Lund University, Sweden.

Methylmercury in serum (S-MeHg) was assessed from serum concentrations of total (S-TotHg) and inorganic mercury (S-InoHg), determined by cold vapor-atomic absorption spectrometry. The samples were collected from 135 women on two occasions, in 1968-1969 and 1980-1981. In a subgroup of 29 women, an association was found between S-MeHg and the amount of fish consumed in 1968-1969 ( $r = 0.38$ ,  $P = 0.04$ ). The association was stronger ( $r = 0.50$ ;  $P = 0.006$ ) when the individuals' mean S-MeHg from 1968-1969 and 1980-1981 were plotted vs fish consumption 1968-1969. In the group, as a whole, there was an association between S-InoHg and number of dental amalgam surfaces, in both 1968-1969 ( $r = 0.48$ ,  $P = 0.0001$ ) and 1980-1981 ( $r = 0.57$ ,  $P < 0.0001$ ). The S-InoHg increased by approximately 0.1 nmol/L per amalgam tooth surface, corresponding to an uptake of approximately 0.2 microgram/day per amalgam surface, but with considerable interindividual differences. The levels were lower in 1980-1981 than in 1968-1969 for both MeHg and InoHg. The medians and ranges (nmol/L) were for MeHg 1968-1969: 3.6 (0.3-11.9); MeHg 1980-1981, 2.0 (-0.4-8.7); InoHg 1968-1969, 3.3 (0.7-11.8); InoHg 1980-1981, 1.7 (0.1-11.8); TotHg 1968-1969, 7.2 (1.9-18.8); and TotHg 1980-1981, 3.9 (1.0-14.2). The decrease in S-MeHg is probably due to a decreased consumption of MeHg via contaminated fish. The decrease in S-InoHg may reflect a decrease in environmental exposure, but the possibility of contamination of the 1968-1969 samples at sampling and/or storage cannot be excluded.

PMID: 9593624, UI: 98262961



# Solea et al, april 98

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1: *G Ital Med Lav Ergon* 1998 Apr-Jun;20(2):75-81

[Related Articles, Books](#)

## **The influence of amalgam fillings on urinary mercury excretion in subjects from Apulia (southern Italy).**

**Soleo L, Elia G, Apostoli P, Vimercati L, Pesola G, Gagliardi T, Schiavulli N, Drago I, Lasorsa G, Russo A**

Dipartimento di Medicina Interna e del Lavoro, Universita di Bari.

The purpose of this study was to assess the role of dental amalgams and diet upon urinary mercury (U-Hg) excretion. 98 subjects (50 men and 48 women) not exposed to inorganic mercury, for either occupational or environmental reasons, and living in coastal and inland districts of Apulia (Southern Italy) were considered. All the subjects were administered a questionnaire with questions concerning life style, medical history, and occupational activity. Dental amalgams were evaluated with respect to their number and their surface areas. Urinary mercury was measured by the cold vapour atomic absorption technique. Expressed in terms of arithmetic mean, U-Hg excretion was found to amount to 1.03 micrograms/g creatinine (5th and 95th percentile: 0.31 and 2.40; range 0.30-3.25). Multiple linear regression analysis showed that, of the several tested independent variables (dental amalgams, age, body mass index, consumption of tuna, bass, swordfish, etc.), only the number of amalgam fillings ( $T = 5.25$ ;  $p = 0.025$ ) and the number of restored surfaces ( $T = 2.33$ ,  $p = 0.020$ ) were found liable to affect urinary mercury excretion in a significant manner.

In conclusion, the results of this study confirm the primary role of amalgam fillings in affecting urinary mercury excretion in those subjects who are not occupationally exposed to inorganic mercury. The resulting urinary mercury levels can no doubt be taken as the reference values for the population of Apulia.

PMID: 9658238, UI: 98322374





Lygre al, april 98

# Kvikksølv og amalgamfyllinger

## Sammendrag

Amalgamets mulige effekter på helsen er omdiskutert. Denne undersøkelsen omfatter 169 pasienter (112 kvinner og 57 menn) med et stort spekter av plager som var satt i forbindelse med nåværende eller tidligere amalgamfyllinger. Pasientene var henvist til Bivirkningsgruppen for odontologiske biomaterialer ved Universitetet i Bergen. De fleste pasientene hadde amalgamfyllinger, 19 hadde fjernet alle og 14 var i ferd med å skifte ut fyllingene med fyllinger av andre materialer.

Kvikksølvkonsentrasjon og kreatininnivå i morgenurin ble målt og mengden av amalgam i tennene ble bestemt. Pasientens subjektive plager og objektive funn ble registrert.

Resultatene viste en statistisk signifikant sammenheng mellom mengden av amalgam og kreatininjustert kvikksølvkonsentrasjon i urin. Pasientene med amalgamfyllinger hadde signifikant høyere kvikksølvkonsentrasjon i urin enn dem som hadde byttet til annen type fyllingsmateriale. Det var derimot ikke mulig å påvise sammenheng mellom kvikksølvverdiene og antall subjektive symptomer eller antall objektive funn for de aktuelle pasientene.

Denne undersøkelsen tyder på at det ikke er et enkelt og direkte dose-effekt-forhold mellom symptomer som er satt i forbindelse med amalgamfyllinger og kvikksølvkonsentrasjon i urin.

*Tidsskr Nor Lægeforen 1998; 118: 1698-701*

# NTFtid 5/98

Produsent med strenge  
kontraindikasjoner angående  
amalgam



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# VG 30.04.98

INNENRIKS

## Tisser kvikksølv

Av *YVONNE OLSEN*

**Jo flere hull i tennene, jo mer kvikksølv i urinen. Amalgam-fyllinger i munnen skiller ut kvikksølv som forskerne blant annet finner igjen i urinen.**

Det er konklusjonen fra en undersøkelse som er gjengitt i siste nummer av Tidsskrift for Den norske lægeförening.

Men selv om det er sikkert at du tisser kvikksølv hvis du har amalgam-fyllinger i tennene, er det ikke bevist at det er farlig.

- Vi har ikke klart å finne noen direkte sammenheng mellom mengden amalgam i tennene og helseplager, sier tannlege Gunvor Bentung Lygre.

Hun arbeider i bivirkningsgruppen for odontologiske biomaterialer, og har sett nærmere på 169 personer med plager de selv mener skyldes amalgam i tennene. Samtlige hadde en rekke plager som smerter i muskler og ledd, hodepine, svimmelhet og tretthet.

### Ungå hull

- Det er et uavklart spørsmål om kvikksølv kan gi helseplager hos mennesker som er disponert for det, sier hun.

Men Bentung Lygre vil ikke anbefale syke mennesker å skifte ut fyllingene uten nærmere undersøkelser.

- Man kan få bivirkninger fra alle typer fyllinger. Noen av dem som skifter sine gamle, blir skuffet fordi de ikke alltid blir kvitt plagene. Det beste råd jeg kan gi, er å ikke få flere hull i tennene, sier hun.

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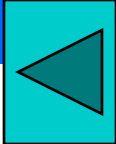
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# AMALGAM OCH HÄLSA

– risker i ny belysning

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dentalimplantat er säker**

**Sällsynta bieffekter  
inskränker sig till  
plombnära inflammationer  
i munhålan utan att någon  
vetenskapligt visad  
koppling finns till vidare  
medicinska systemeffekter**

**Avlägsnandet av dentala  
amalgamimplantat inte  
vetenskapligt visats  
medföra någon varaktig  
förbättring av det allmänna  
hälsotilståndet...**

98.22

erret/bivirk

# Stortinget 18.5.98



## STORTINGET

### Stortinget

Møte mandag den 18. mai kl. 11 1998

#### Sak nr. 4

Interpellasjon fra representanten [Olav Gunnar Ballo](#) til helseministeren:

"Mens utgiftene til legekonsultasjoner begrenses av et egenandelstak, kan kostnadene til tannbehandling bli betydelige, slik at mange i befolkningen ikke ser seg økonomisk i stand til å foreta den påkrevde behandlingen. Noen utgifter til tannbehandling refunderes til visse grupper, men det foreligger likevel ganske begrensede refusjonsordninger knyttet til den generelle tannbehandlingen. Det skille i refusjonsordning som er skapt mellom tannbehandling og øvrig medisinsk behandling, kan synes kunstig, idet dårlig tannhelse også vil ha sterk innvirkning på den enkeltes generelle helse, eksempelvis gjennom ernæringsproblemer eller gjennom infeksjoner i munnhulen.

Hvordan ser helseministeren på denne forskjellsbehandlingen mellom de to delene av vårt helsevesen, og ser helseministeren for seg tiltak som over tid vil kunne bidra til å virke utjevnende på disse forskjellene?"

#### TALERE:

- [Olav Gunnar Ballo \(SV\)](#)
- [Dagfinn Høybråten](#)
- [Einar Olav Skogholt \(A\)](#)
- [Harald Tom Nesvik \(Frp\)](#)
- [Sverre J Hoddevik \(H\)](#)
- [Ola D Gjetvold \(Sp\)](#)
- [Britt Hildeng \(A\)](#)
- [Reidun Gravdahl \(A\)](#)
- [Votering](#)

1: *Toxicol Appl Pharmacol* 1998 May;150(1):146-53

Related Articles, Books, LinkOut



## The absorption, blood levels, and excretion of mercury after a single dose of mercury vapor in humans.

**Sandborgh-Englund G, Elinder CG, Johanson G, Lind B, Skare I, Ekstrand J**

Department of Basic Oral Sciences, Karolinska Institutet, Huddinge, Sweden.

Nine healthy volunteers without amalgam fillings were exposed to 400 micrograms/m<sup>3</sup> mercury vapor (Hg<sub>0</sub>) for 15 min, corresponding to 5.5 nmol Hg<sub>0</sub>/kg body wt (median range: 4.4-7.2). Frequent sampling of blood, urine, and exhaled air was performed for 30 days after exposure. The median retention of Hg<sub>0</sub> was 69% of the inhaled dose. During the first 3 days after exposure 7.5-12% of the absorbed dose was lost by exhalation, with the median half time of Hg<sub>0</sub> in expired breath being 2.0 days. In blood and plasma, a rapid absorption phase of Hg was seen, followed by a biexponential decline of the curves in both media. A substantial interindividual variation was observed in the area under the concentration-time curves of Hg in blood and plasma. In plasma the median half time of the second phase was 10 days. About 1.0% of the absorbed Hg was excreted via urine during the first 3 days after exposure, whereas the estimated amount excreted during 30 days ranged from 8 to 40%. In order to evaluate the chronic exposure to mercury from dental amalgam in the general population, the daily Hg dose from the fillings were estimated based on the plasma Hg levels found in subjects with amalgam fillings and on the plasma Hg clearance obtained in the present study. The daily Hg dose was estimated to 5-9 micrograms/day in subjects with an ordinary number of amalgam fillings.

### Publication Types:

- Clinical trial

PMID: 9630463, UI: 98294202

# Drexler & Schaller , may 98

1: *Environ Res* 1998 May;77(2):124-9

Related Articles, Books, LinkOut



## The mercury concentration in breast milk resulting from amalgam fillings and dietary habits.

**Drexler H, Schaller KH**

Institute and Out-patient Clinic for Occupational, Social and Environmental Medicine of the University Erlangen-Nuremberg, Schillerstrasse 25/29, Erlangen, D-91054, Germany.

Health risks from amalgam fillings are a subject of controversy. In Germany it is not advised to use amalgam fillings during breast feeding. Objectives of this study were to examine the concentration of mercury in human breast milk and the confounders which may modify the mercury levels. Women who gave birth between August 1995 and May 1996 in a district hospital were asked to participate in the study. The examination included a standardized anamnesis and an inspection of the teeth by a dentist. Blood and urine samples of 147 women and breast milk samples of 118 women were collected in the first week after birth. After 2 months of breast feeding a second breast milk sample was collected from 85 of women. Mercury was measured by cold-vapor atomic absorption spectrometry. The concentration of mercury in the breast milk collected immediately after birth showed a significant association with the number of amalgam fillings as well as with the frequency of meals. Urine mercury concentrations correlated with the number of amalgam fillings and amalgam surfaces. In the breast milk after 2 months of lactation, the concentrations were lower (mean: <0.25 microg/L; range <0.25-11.7 microg/L) compared with the first sample (mean: 0.90 microg/L, range <0.25-20.2 microg/L) and were positively associated with the fish consumption but no longer with the number of the amalgam fillings. Accordingly, the additional exposure to mercury of breast-fed babies from maternal amalgam fillings is of minor importance compared to maternal fish consumption.

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PMID: 9600805, UI: 98263199

# Halbach et al, may 98

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1: *Environ Res* 1998 May;77(2):115-23[Related Articles](#), [Books](#), [LinkOut](#)

## Systemic transfer of mercury from amalgam fillings before and after cessation of emission.

**Halbach S, Kremers L, Willruth H, Mehl A, Welzl G, Wack FX, Hickel R, Greim H**

Institute of Toxicology, Institute of Biomathematics and Biometry, GSF-National Research Center for Environment and Health, Neuherberg, Oberschleissheim, D-85758, Germany.

In 29 volunteers with a low amalgam load, the number of amalgam-covered tooth surfaces and the occlusal area of the fillings were determined. Concentrations of total mercury were measured in plasma and erythrocytes as well as in urine together with the excretion rate. Absorbed daily doses were estimated from intraoral Hg emission by two separate methods. The transfer of Hg from the fillings via the oral cavity and blood to urinary excretion was evaluated according to the most representative combination of parameters. This consisted of urinary excretion (1), Hg concentration in plasma (2), absorbed dose (3), and occlusal area (4). Pairwise correlation coefficients were 0.75 for parameters 1 vs 2 and 2 vs 3 and 0.49 for parameters 3 vs 4. Within 9 days after removal of the fillings, a transient increase was observed in plasma Hg levels only. This was reduced in those volunteers to whom a rubber dam had been applied during removal. Peak plasma Hg was 0.6 ng/ml on average and decreased with half-times between 5 and 13 days. A significant decrease in Hg excretion was noted not before 100 days after removal. Being relatively insensitive to dietary mercury, the determination of total mercury in plasma and of its urinary excretion rate appears, under practical aspects, most suitable for the investigation of Hg uptake from amalgam. Copyright 1998 Academic Press.

PMID: 9600804, UI: 98263198





NRK 9.6.98

# Brennpunkt

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09. juni 1998

## Amalgamets pris

**Vet du at amalgamfyllingene i tennene dine består av 50% av tungmetallet kvikksølv, en av naturens farligste giftstoffer? Tusenvis av nordmenn tilhører den såkalte "fyllingsgenerasjonen", der amalgam har vært det mest brukte tannfyllingsmaterialet i kampen mot karies. Også i dag betrakter tannleger og helsemyndigheter amalgam som et godt tannfyllingsmateriale, til tross for at stadig flere pasienter hevder at de blir syke av kvikksølvet fra amalgamfyllingene.**

I Brennpunkt-programmet "Amalgamets pris" setter Hege Løvstad og journalist Arne Eriksen spørsmålstegn ved amalgams fortreffelighet som tannfyllingsmateriale. Søkelyst rettes mot de medisinske, historiske og økonomiske sidene ved det omstridte materialet. Vi møter tannleger, helsepersonell, forskere og privatpersoner som alle har en oppfatning om amalgam, enten som forkjempere, motstandere eller pasienter.

- Brennpunkt gir deg avsløringene om hvordan det offentlige ansvaret for å kontrollere de helseskadelige effektene av amalgam er "kokt bort i kålen".

- Vi spør Arild Vangstein, president i Den Norske Tannlegeforening om hvorfor foreningen gjennom mere enn 60 år har produsert og solgt amalgam til inntekt for foreningens egne medlemmer.

- Brennpunkt forteller om ny forskning som viser at kvikksølv fra amalgam kan skade både foster, barn og voksne.

Et FAKTA-program fra NRK, produsert ved NRK Tromsø.

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# Melchart et al. 6.98

 1: *Eur J Oral Sci* 1998 Jun;106(3):770-7

[Related Articles, Books](#)

## **A multicenter survey of amalgam fillings and subjective complaints in non-selected patients in the dental practice.**

**Melchart** D, Wuhr E, Weidenhammer W, Kremers L

Munchener Modell, Centre for Complementary Medicine Research, II. Medical Clinic, Technische Universität München, Munich, Germany.

The aims of this study were to examine whether there is a difference in symptoms between patients with amalgam fillings and patients without such restorations, to investigate the relationship between particular symptoms and the number of amalgam filled surfaces, and the differences in symptoms between patients with and without removal of amalgam fillings. Data from 6744 consecutive patients in 34 dental offices located throughout Germany were documented. Patients completed a questionnaire answering 48 items, and the current oral findings in the patients were registered. The analysis was restricted to 4 787 patients aged 21 to 60 yr because of special dental conditions in children and elderly persons. The study did not show any significant correlation between the intensity of complaints or particular groups of symptoms and the number of amalgam-filled surfaces. A higher number of symptoms as well as a higher intensity of symptoms were found in patients before amalgam removal compared to the remaining patients. The question remains open whether or not there may be a certain kind of relationship between the complaints and amalgam fillings in individual patients.

Publication Types:

- Multicenter study

PMID: 9672099, UI: 98335820



1: *Lakartidningen* 1998 Jun 17;95(25):2946-9

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**[New dental materials a health risk for dental staff. Acrylates can cause contact allergy and other problems].**

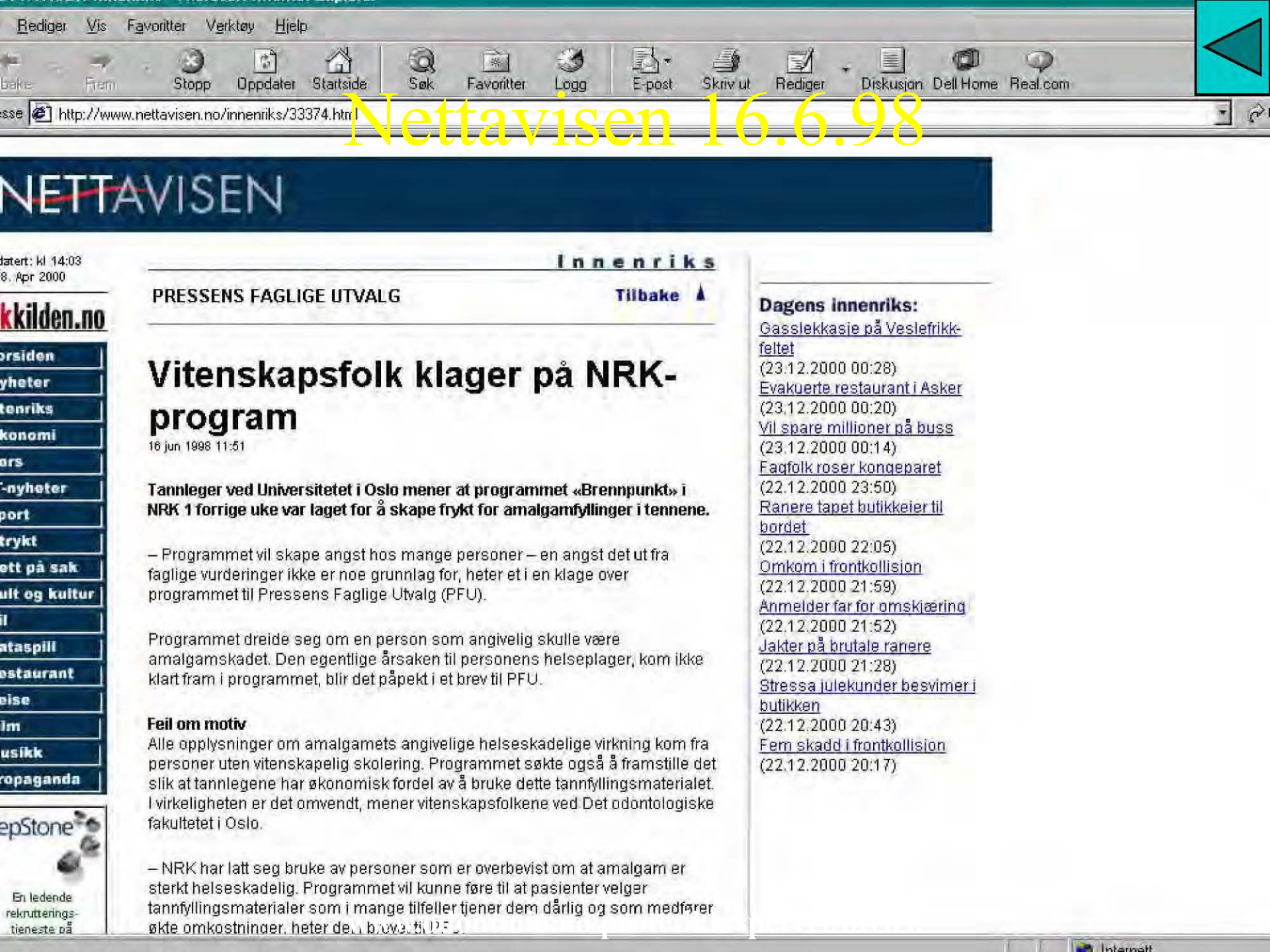
[Article in Swedish]

**Ekstrand J, Bjorkman L, Liu Y, Skoldqvist B, Bjorkner B**

Avdelningen for odontologisk toxikologi, odontologiska fakulteten, Karolinska institutet, Huddinge sjukhus.

The acrylic content of modern dental materials poses a risk of adverse reactions. Although the quantities of the substances released are normally too small to cause systemic reactions, local reactions may occur resulting in damage to the skin. A study, in which 81 dental workers referred to dermatologists for a variety of adverse reactions were patch tested, showed work-related dermatoses to represent a serious problem for dental staff, sometimes entailing occupational disability and re-schooling. Much of this could be avoided by observing special precautions to prevent direct contact with the sensitising substances in composite materials used in dental surgery. Since the use of dental amalgam has been reduced to about 10 per cent of all fillings in Sweden, the prevalence of adverse local reactions to the acrylic composite materials which are used instead may be expected to increase.

PMID: 9674364, UI: 98339169



# Nettavisen 16.6.98

Datert: kl 14:03  
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### Innenriks

#### PRESENS FAGLIGE UTVALG

Tilbake ▲

## Vitenskapsfolk klager på NRK-program

16 jun 1998 11:51

**Tannleger ved Universitetet i Oslo mener at programmet «Brennpunkt» i NRK 1 forrige uke var laget for å skape frykt for amalgamfyllinger i tennene.**

– Programmet vil skape angst hos mange personer – en angst det ut fra faglige vurderinger ikke er noe grunnlag for, heter et i en klage over programmet til Pressens Faglige Utvalg (PFU).

Programmet dreide seg om en person som angivelig skulle være amalgamskadet. Den egentlige årsaken til personens helseplager, kom ikke klart fram i programmet, blir det påpekt i et brev til PFU.

#### Feil om motiv

Alle opplysninger om amalgamets angivelige helseskadelige virkning kom fra personer uten vitenskapelig skolering. Programmet søkte også å framstille det slik at tannlegene har økonomisk fordel av å bruke dette tannfyllingsmaterialet. I virkeligheten er det omvendt, mener vitenskapsfolkene ved Det odontologiske fakultetet i Oslo.

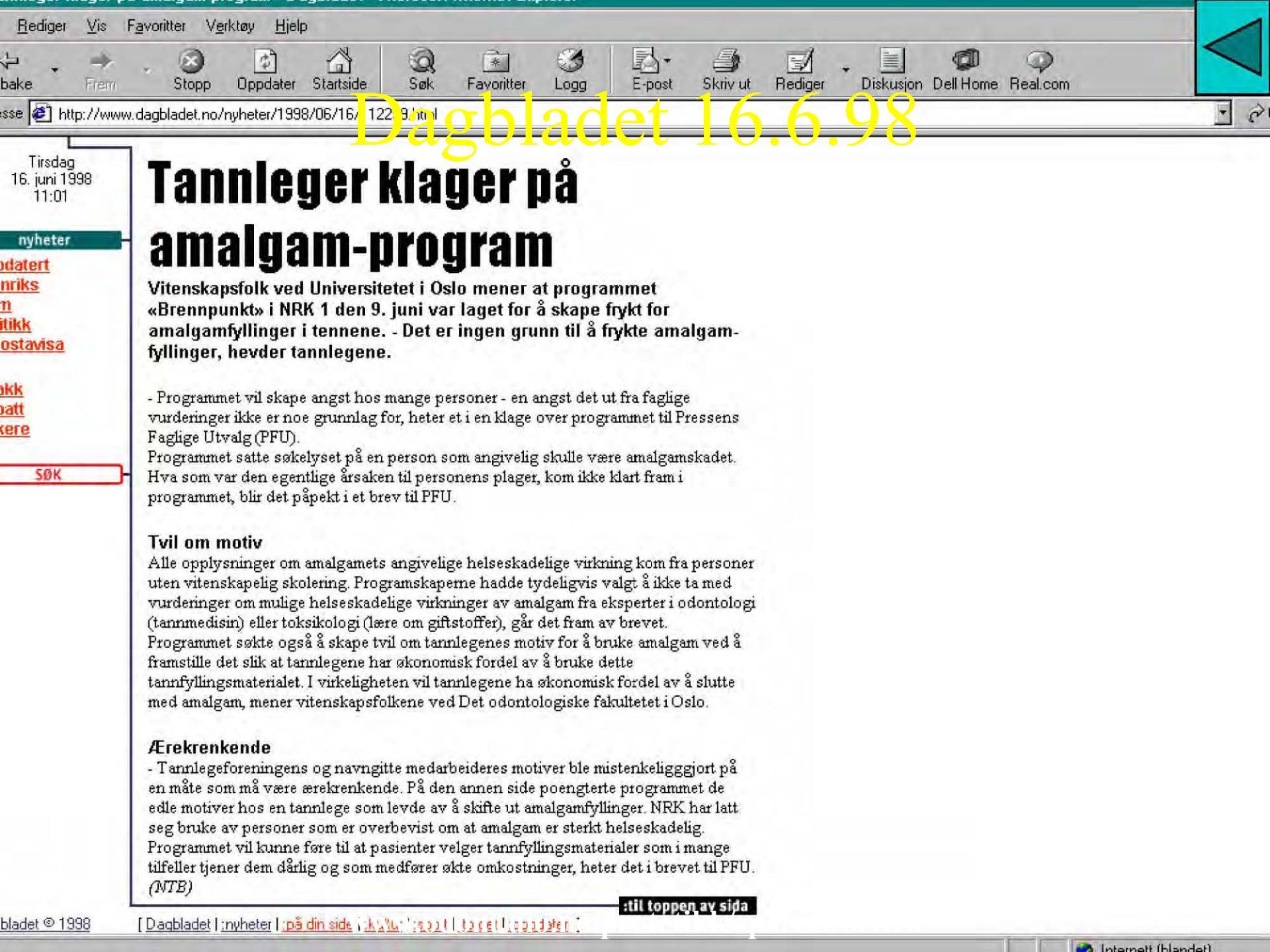
– NRK har latt seg bruke av personer som er overbevist om at amalgam er sterkt helseskadelig. Programmet vil kunne føre til at pasienter velger tannfyllingsmaterialer som i mange tilfeller tjener dem dårlig og som medfører økte omkostninger, heter det i brevet til PFU.

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# Tannleger klager på amalgam-program

Vitenskapsfolk ved Universitetet i Oslo mener at programmet «Brennpunkt» i NRK 1 den 9. juni var laget for å skape frykt for amalgamfyllinger i tennene. - Det er ingen grunn til å frykte amalgamfyllinger, hevder tannlegene.

- Programmet vil skape angst hos mange personer - en angst det ut fra faglige vurderinger ikke er noe grunnlag for, heter et i en klage over programmet til Pressens Faglige Utvalg (PFU).

Programmet satte søkelyset på en person som angivelig skulle være amalgamskadet. Hva som var den egentlige årsaken til personens plager, kom ikke klart fram i programmet, blir det påpekt i et brev til PFU.

## Tvil om motiv

Alle opplysninger om amalgamets angivelige helseskadelige virkning kom fra personer uten vitenskapelig skoleing. Programskaperne hadde tydeligvis valgt å ikke ta med vurderinger om mulige helseskadelige virkninger av amalgam fra eksperter i odontologi (tannmedisin) eller toksikologi (lære om giftstoffer), går det fram av brevet.

Programmet søkte også å skape tvil om tannlegenes motiv for å bruke amalgam ved å framstille det slik at tannlegene har økonomisk fordel av å bruke dette tannfyllingsmaterialet. I virkeligheten vil tannlegene ha økonomisk fordel av å slutte med amalgam, mener vitenskapsfolkene ved Det odontologiske fakultetet i Oslo.

## Ærekrenkende

- Tannlegeforeningens og navngitte medarbeideres motiver ble mistenkeligggjort på en måte som må være ærekrenkende. På den annen side poengterte programmet de edle motiver hos en tannlege som levde av å skifte ut amalgamfyllinger. NRK har latt seg bruke av personer som er overbevist om at amalgam er sterkt helseskadelig. Programmet vil kunne føre til at pasienter velger tannfyllingsmaterialer som i mange tilfeller tjener dem dårlig og som medfører økte omkostninger, heter det i brevet til PFU. (NTB)

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## Strupetak på amalgam i Sverige

I Sverige er det gjennom årene blitt gjort flere amalgamutredninger. Disse har hovedsakelig hatt et medisinsk og odontologisk utgangspunkt. Den nest siste er fra 1994 og ble gjort i regi av Medicinska Forskningsrådet. Den svenske regjeringen ga i 1997 et oppdrag om å utrede «amalgamfrågan» til Forskningsrådsnämnden - en institusjon som skal planlegge og koordinere forskning i Sverige. Dette ligner Norges Forskningsråd.

Gjennom fire seminarserier har Forskningsrådsnämnden belyst amalgamproblematikken fra svært ulike sider. Det dreier seg blant annet om risikoanalyse, omtale av vitenskapelige kontroverser, epidemiologi, politiske vurderinger med mer. Aktørene dekket et svært bredt spekter, men med amalgamrelatert problematikk som gjennomgangstema.

På slutten av rapporten er det to selvstendige arbeider av forskerne G Mark Richardson og Maths Berlin. Richardson redegjør for sine beregningsmodeller for risiko ved kvikksølv fra amalgam. Disse er kjent fra amalgamutredningen som ble gjort av kanadiske helsemyndigheter i 1986.

Maths Berlin på sin side, har arbeidet mye med kvikksølv i hjernen og nervesystemet for øvrig. I denne rapporten gir han en miljømedisinsk risikoanalyse som han oppsiktsvekkende avslutter med å skrive at mellom 0,1 og 10 % av amalgambærere kan ha bieffekter på nervesystemet, immunsystemet og nyrene som kan ha forbindelse med kvikksølv fra amalgam. Han sier videre at denne risiko kan innebære store kostnader for samfunnet, som sosiale kostnader og sosiale forstyrrelser - og nevner kriminalitet og narkotikamisbruk i denne sammenhengen.

## Kvikksølv og amalgamfyllinger

### Kvikksølv i urin, subjektive symptomer og objektive funn

Amalgamets mulige helseeffekter er omdiskutert. Denne undersøkelsen omfatter 169 pasienter (112 kvinner og 57 menn) med et stort spekter av plager som var satt i forbindelse med nåværende eller tidligere amalgamfyllinger. Pasientene var henvist til «Bivirkningsgruppen for odontologiske biomaterialer» ved Universitetet i Bergen. De fleste pasientene hadde amalgamfyllinger, 19 hadde fjernet alle og 14 var i ferd med å skifte ut fyllingene med fyllinger av andre materialer.

Kvikksølvkonsentrasjon og kreatininnivået i morgenurin ble målt og mengden av amalgam i tennene ble bestemt. Pasientens subjektive plager og objektive funn ble registrert.

Resultatene viste en statistisk signifikant sammenheng mellom mengden av amalgam og kreatinjustert kvikksølvkonsentrasjon i urin. Pasientene med amalgamfyllinger hadde signifikant høyere kvikksølvkonsentrasjon i urin enn de som hadde byttet til annen type fyllingsmateriale. Det var derimot ikke mulig å påvise sammenheng mellom kvikksølvverdiene og antall subjektive symptomer eller antall objektive funn for de aktuelle pasientene.

Denne undersøkelsen tyder på at det ikke er et enkelt og direkte dose-effekt-forhold mellom symptomer som er satt i forbindelse med amalgamfyllinger og kvikksølvkonsentrasjon i urin.



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## Danskene utsetter amalgamforbud

Århus: Danske myndigheter vil trolig utsette innføringen av det planlagte forbudet mot amalgam i tannfyllinger på ubestemt tid.

Forbudet skulle ha trådt i kraft fra kommende årsskifte, men etter henvendelser fra tannleger og andre har det danske helsedirektoratet bedt miljøverndepartementet om å utsette saken, skriver avisen Jyllands-Posten.

Begrunnelsen for utsettelsesforslaget er at det ennå ikke er lyktes å utvikle et materiale som fullt ut kan erstatte det kvikksølvholdige amalgamet i tannfyllingene.

I Norge såvel som i Danmark og Sverige har tannlegenes organisasjoner hittil avvist påstander om at kvikksølv er svært farlig såvel for mennesker som for naturen. Likevel har den svenske Riksdagen vedtatt å avskaffe alle tilskudd til amalgamfyllinger fra neste år av, og å innføre et totalforbud mot slike fyllinger innen to år - dersom EUs regelverk tillater et slikt forbud.

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# Hjernesydd av mors tannfyllinger

## Skremmende rapport om amalgam:

Amalgam bør forbys brukt på gravide og små barn. Det er den krystallklare meldingen fra den svenske forskeren Magnus Nylander. I en fersk rapport konkluderer han med at mors amalgamfyllinger kan gi alvorlige og varige hjernesker hos barn.

Av HELENE SANDVIG

Rapporten er nylig publisert i den over 300 sider tjukke boka «Fri fra amalgam». Resultatene har skaket opp svenske helsemyndigheter. Forskeren ved Karolinska Institutet i Stockholm fokuserer særlig på kvikksølvets virkninger på barns hjerne, og nevner konsentrasjonsvansker, dårlig hukommelse og lærevansker som eksempler. Nylander er ikke lenger i tvil om at lekkasjer fra mors amalgamfyllinger kan forårsake alvorlige og varige hjerne- og nyreskader hos barnet.

**- Bruken av amalgam er et hasardiøst spill med menneskers helse. I dag finnes det data som klart viser amalgamets skadevirkninger, sier Nylander i et intervju med svensk TV1s Aktuellt.**

I Norge er Statens helsetilsyn i ferd med å avslutte en utredning om fordeler og ulemper ved forskjellige tannfyllingsmaterialer.

### Døde barn

Nylanders oppsiktsvekkende resultater bygger blant annet på obduksjoner av døde barn. De viser urovekkende høye kvikksølvkonsentrasjoner i barnas hjerner. Tidligere dyreforsøk støtter forskerens funn. Nå krever Nylander at svenske helsemyndigheter setter en stopper for videre bruk av amalgam. Han får støtte fra flere hold.

- Det er ufattelig og unikt at det er lov å putte giftige tungmetaller i munnen på folk. Ellers i samfunnet håndteres kvikksølv som risikoavfall, hevder Lars Friberg, svensk lege og professor i Miljømedisin.

Friberg går for å være en av verdens fremste eksperter på kvikksølv. Han har blant annet bidratt til WHO's rapport om uorganisk kvikksølv fra 1991 og har deltatt i offentlige utredninger rundt kvikksølvproblematikken i hjemlandet.

- For eldre er amalgam ingen katastrofe, men det bør forbys brukt på gravide og små barn. I dag vet vi at det metalliske kvikksølv overføres via moikaken til fosteret, sier

MAGNUS NYLANDER

M Nylander, høst 98



*fri*  
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# NTFtid 8/98

Debatt, innlegg innsendt av  
Gudmund Graabak

1: *Int J Epidemiol* 1998 Aug;27(4):667-71

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## Dental amalgam and multiple sclerosis: a case-control study in Montreal, Canada.

**Bangsi D, Ghadirian P, Ducic S, Morisset R, Ciccocioppo S, McMullen E, Krewski D**

Epidemiology Research Unit, Research Center, Hotel-Dieu Pavilion, CHUM, Montreal, Quebec, Canada.

**BACKGROUND:** The aetiology of multiple sclerosis (MS) remains poorly understood. Dental amalgams containing mercury have recently been suggested as a possible risk factor for MS. **METHODS:** In a case-control study conducted between 1991 and 1994, we interviewed a total of 143 MS patients and 128 controls, to obtain information on socio-demographic characteristics and the number of dental amalgams and the time since installation based on dentists' records. **RESULTS:** Neither the number nor the duration of exposure to amalgams supported an increased risk of MS. After adjustment for age, sex, smoking, and education those who had more than 15 fillings had an odds ratio (OR) of 2.57 (95% CI: 0.78-8.54) compared to those who had none; for individuals whose first amalgam was inserted more than 15 years prior to the study, we found an OR of 1.34 (95% CI: 0.38-4.72). **CONCLUSIONS:** Although a suggestive elevated risk was found for those individuals with a large number of dental amalgams, and for a long period of time, the difference between cases and controls was not statistically significant.

PMID: 9758123, UI: 98429090

# Huggins & Levy, aug 98

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 1: *Altern Med Rev* 1998 Aug;3(4):295-300[Related Articles](#), [Books](#), [LinkOut](#)[Go to Publisher Site](#)

## Cerebrospinal fluid protein changes in multiple sclerosis after dental amalgam removal.

**Huggins HA, Levy TE**

Center for Progressive Medicine, Puerto Vallarta, Mexico.

A relationship between multiple sclerosis (MS) and dental silver-mercury fillings has been suggested by some investigators, but never proven. This study documents objective biochemical changes following the removal of these fillings along with other dental materials, utilizing a new health care model of multidisciplinary planning and treatment. The dramatic changes in photolabeling of cerebrospinal fluid (CSF) proteins following these dental interventions suggest CSF photolabeling may serve as an objective biomarker for monitoring MS. The clear-cut character of these changes should also encourage more research to better define this possible association between dental mercury and MS.

PMID: 9727079, UI: 98404753

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# Loftenius et al, aug 98

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1: *J Toxicol Environ Health* 1998 Aug 7;54(7):547-60

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## Acute exposure to mercury from amalgam: no short-time effect on the peripheral blood lymphocytes in healthy individuals.

**Loftenius A, Sandborgh-Englund G, Ekstrand J**

Dept. of Basic Oral Sciences, Karolinska Institute, Huddinge, Sweden. [Annika.Loftenius@ofa.ki.se](mailto:Annika.Loftenius@ofa.ki.se)

Mercury, released from dental amalgam, has been considered to adversely affect the human immune system. This study has been performed in order to evaluate if an acute low-dose mercury exposure, achieved by total amalgam removal in 10 healthy individuals, would affect the immunocompetent cells in human blood when the mercury level in blood and plasma was increasing. Induction of lymphocyte proliferation, measured as spontaneous de novo DNA synthesis, and total T cells, CD4+ T cells, CD8+ T cells, and B cells, was studied prior to and 7, 31, and 48 h after amalgam removal. In addition, the levels of interleukin-6 (IL-6) and C-reactive protein (CRP) in serum/plasma were measured. Despite a significant increase of the plasma mercury levels within 24 h after intervention, no significant influence on the peripheral blood lymphocytes could be detected during the first 48 h. The serum IL-6 levels increased significantly within 48 h after intervention, but were still low and within normal range. No influence on the CRP levels up to 7 d after amalgam removal was detected.

PMID: 9726779, UI: 98393380

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1: *FASEB J* 1998 Aug;12(11):971-80

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[www.fasebj.org](http://www.fasebj.org)

## Neurobehavioral effects from exposure to dental amalgam Hg(o): new distinctions between recent exposure and Hg body burden.

**Echeverria D, Aposhian HV, Woods JS, Heyer NJ, Aposhian MM, Bittner AC Jr, Mahurin RK, Cianciola M**

Battelle Centers for Public Health Research and Evaluation, Seattle, Washington 98105, USA.

Potential toxicity from exposure to mercury vapor (Hg(o)) from dental amalgam fillings is the subject of current public health debate in many countries. We evaluated potential central nervous system (CNS) toxicity associated with handling Hg-containing amalgam materials among dental personnel with very low levels of Hg(o) exposure (i.e., urinary Hg <4 microg/l), applying a neurobehavioral test battery to evaluate CNS functions in relation to both recent exposure and Hg body burden. New distinctions between subtle preclinical effects on symptoms, mood, motor function, and cognition were found associated with Hg body burden as compared with those associated with recent exposure. The pattern of results, comparable to findings previously reported among subjects with urinary Hg >50 microg/l, presents convincing new evidence of adverse behavioral effects associated with low Hg(o) exposures within the range of that received by the general population.

PMID: 9707169, UI: 98370666

# Aposhian, aug 98

1: *Environ Health Perspect* 1998 Aug;106 Suppl 4:1017-25

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## Mobilization of mercury and arsenic in humans by sodium 2,3-dimercapto-1-propane sulfonate (DMPS).

**Aposhian** HV

Department of Molecular and Cellular Biology, University of Arizona, Tucson 85721-0106, USA.  
[aposhian@u.arizona.edu](mailto:aposhian@u.arizona.edu)

Sodium 2,3-dimercapto-1-propane sulfonate (DMPS, Dimaval) is a water-soluble chelating agent that can be given by mouth or systemically and has been used to treat metal intoxication since the 1960s in the former Soviet Union and since 1978 in Germany. To better approximate the body burdens of Hg and As in humans, DMPS-Hg and DMPS-As challenge tests have been developed. The tests involve collecting an overnight urine, administering 300 mg DMPS at zero time, collecting the urine from 0 to 6 hr, and determining the urinary Hg before and after DMPS is given. The challenge test, when applied to normal college student volunteers with and without amalgam restorations in their mouths, indicated that two-thirds of the Hg excreted in the urine after DMPS administration originated in their dental amalgams. In addition, there was a positive linear correlation between the amalgam score (a measure of amalgam surface) and urinary Hg after the challenge test. When the DMPS-Hg challenge test was used to study dental personnel occupationally exposed to Hg, the urinary excretion of Hg was 88, 49, and 35 times greater after DMPS administration than before administration in 10 dental technicians, 5 dentists, and 13 nondental personnel, respectively. DMPS also was used to measure the body burden of humans with a history of drinking water containing 600 microgram As/liter. DMPS administration resulted in a tripling of the monomethylarsonic acid percentage and a halving of the dimethylarsinic acid percentage as related to total urinary As. Because South American animals studied were deficient in arsenite methyltransferase, a hypothesis is presented that arsenite and arsenite methyltransferase may have had a role in the evolution of some South American animals.



# NTF 11/ 98

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- Arild Vangstein: Amalgamets pris
- Gunnar Rølla: Om amalgam
- Nils R Gjerdet: svar og kommentar til Gunnar Rølla
- Jens Fiksdal: Den glemte krigen?

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- Amalgamb Bruken: århundrets skandale?
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BRUK AV TANNRESTAURERINGS-  
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# Förbättras hälsan efter borttagning av amalgam? 9.98

Rolf Strömberg och Sven Langworth

För att följa upp eventuella hälsoeffekter av amalgamborttagning skickades en enkät till en tandläkares samtliga 671 patienter. 280 individer hade primärt sökt för amalgamrelaterade besvär och 239 hade bytt ut alla sina amalgamfyllningar. Av dessa 239 uppgav 66 % att de erhållit en varaktig förbättring av hälsan och 14 % att de kände sig helt friska medan 11 % kände sig oförändrade och 3 % sämre, 6% var osäkra. Ett relativt nära tidssamband sågs mellan amalgamborttagningen och hälsoförbättringen. De flesta uppgav att förbättringen skedde inom 6 månader. De hade då i medeltal haft sina besvär i 10 år. Reaktionen i anslutning till amalgambytet rapporterades ofta; 46 % uppgav att de regelmässigt fått aggraverade besvär eller debut av nya besvär inom en vecka efter amalgambytet. De aktuella resultaten ger visst stöd för att utbyte av amalgam kan ge en upplevelse av varaktig hälsoförbättring hos relativt många. Orsakerna till detta är dock ofullständigt kända. Tänkbara orsaker som diskuteras är placeboeffekt, spontan förbättring, attitydförändring och upphörd kvicksilverexponering från amalgam.

**A**malgamets eventuella hälsorisker har debatterats under många år och flera fall av "amalgamförgiftning" finns rapporterade i litteraturen. Trots omfattande forskning och upprepade riskvärderingar har emellertid inte något samband mellan amalgam och ohälsa kunnat beläggas [1-3]. Ett antal uppföljande undersökningar av patienter som bytt ut sitt amalgam visar en klar tendens till förbättring, men resultaten är svårtolkade och delvis motsägelsefulla [4-6]. Det är fortfarande oklart om borttagning av amalgamfyllningar kan ge en positiv och varaktig hälsoeffekt.

Syftet med den aktuella undersökningen var att på ett detaljerat sätt följa upp eventuella hälsoförändringar hos tandläkarpatienter som bytt ut sina amalgamfyllningar på grund av hälsobesvär.

## Material och metoder

En enkät skickades till samtliga 671 patienter i en tandläkares patientförteckning. Många av patienterna hade sökt under åren 1988-95 på grund av amalgamrelaterade besvär. 104 enkäter kom tillbaka på grund av felaktig adress. Av de 567 patienter som kunde nå svarade 398 direkt eller efter en skriftlig påminnelse, 13 var avlidna. Ur den grupp som ej svarade på enkäten slumpades 60 personer för bortfallsanalys, 47 av dessa besvarade samtliga frågor per telefon. Det totala svarsantalet blev således 445 individer (78 %), varav 280 hade sökt för amalgamrelaterade besvär. Svarsmönstret bland de telefonintervjuade individerna skilde sig inte från svarsmönstret hos de som svarat skriftligt.

I enkäten ingick frågor om individernas hälsotillstånd före, under och efter bytet av amalgam. Det finns också frågor om deras egna uppfattningar om orsakerna till upplevda besvär och eventuella hälsoförändringar efter amalgambytet. Man fick också lämna uppgifter om tidpunkter för besvär debut och amalgambytet samt om besvärens utveckling.

## Författare

Rolf Strömberg är privatortoliserande tandläkare i Skara. Sven Langworth är leg läkare, med dr. Institutionen för Folkhälsovetenskap, KI, Karolinska sjukhuset, Stockholm.

Accepterad för publicering  
29 april 1998

# Kreyer, 10.98

Zusammenhang deutlich erkennbar

## Amalgamintoleranz und Persönlichkeitsstruktur

Gernot Kreyer

Die Diskussion um Amalgam beschäftigt die Zahnärzteschaft nicht erst seit heute. Obwohl es, wie viele toxikologische Studien belegen, nachweisbare Allergien gegen Amalgam nur in seltenen Ausnahmefällen vorkommen, klagt eine Reihe von Patienten über sogenannte „Amalgam-Intoleranz-Symptome“. **Erstmals sind jetzt solche Patienten bezüglich ihrer Persönlichkeitsstruktur untersucht worden. Dabei kamen interessante Ergebnisse zutage, die belegen, daß nahezu jeder sogenannte „Amalgamgeschädigte“ im Vorfeld dieser Symptome psychische Auffälligkeiten zeigte.**

Die wissenschaftliche Auseinandersetzung mit dem Problem der Amalgamunverträglichkeit beziehungsweise etwaiger Nebenwirkungen und Spätschäden fand bislang in der Literatur, wie etwa bei Förster K., Daunderer M., Marchi A., Koppel C., Strong G.A., Anneroth G., Berglund F., Fagala G.E., Molin C., Hickef R. und Jahn K.R. unter weitgehender Ausklammerung psychologischer Aspekte statt und befaßte sich nahezu ausschließlich mit materialkundlichen, toxikologischen, immunologischen und organmedizinischen Fragestellungen.

Es war daher Ziel der vorliegenden Arbeit auf möglichst objektiver testpsychologischer Basis abzuklären, ob sich bei Pati-

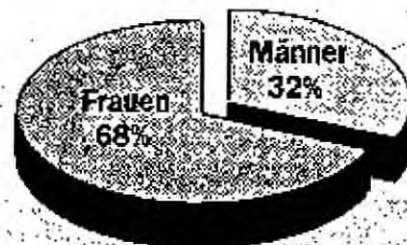
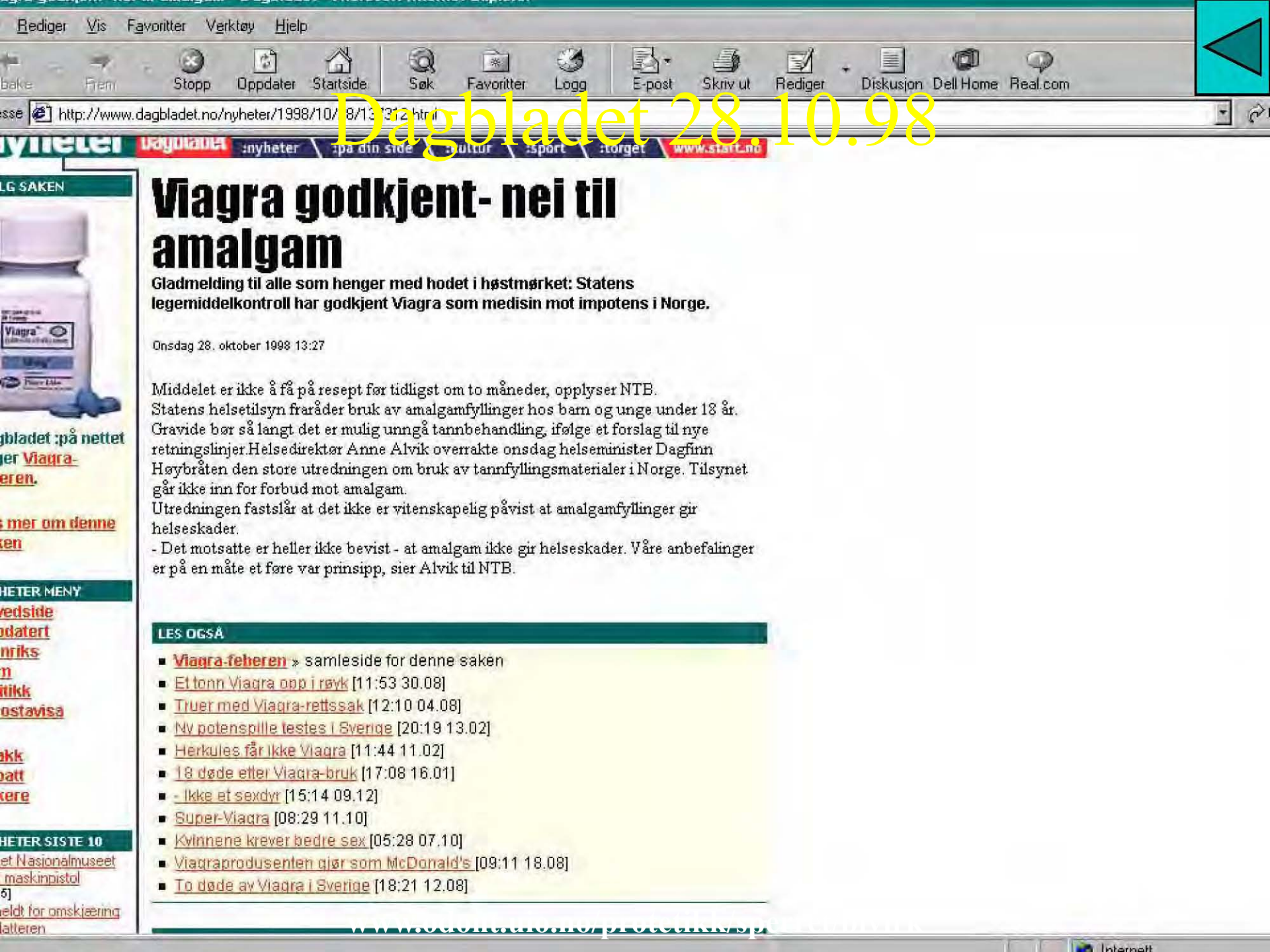


Abb. 1: Geschlechtsverteilung amalgam-unverträglicher Patienten

(STAI) sowie ein freier, allgemein anamnestischer Frageteil zum Einsatz. Mit Hilfe von FPI und STAI wurden folgende Persönlichkeitsparameter der Probanden erhoben: Lebenszufriedenheit, soziale Orientierung, Leistungsorientierung, Ge-

Untersucht wurden 25 PmAu (Patienten mit Amalgamunverträglichkeit), welche aus den verschiedensten Gründen vor sich selbst behaupteten, unverträglich auf Zahnamalgame zu reagieren.

Die Rekrutierung des Untersuchungskollektivs erfolgte überwiegend durch Ansprechen von niedergelassenen Zahnärzten sowie im Wege von Kontaktnahme mit entsprechenden Selbsthilfegruppen. In Psychiatrischen Krankenhaus der Stadt Wien fanden sich drei PmAu mit diagnostizierter paranoider Schizophrenie, welche aber wegen ihrer manifesten Psychosen aus Gründen der Vergleichbarkeit mit der KG aus dieser Studie ausgeklammert wurden.



Dagbladet 28.10.98

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# Viagra godkjent- nei til amalgam

**Gladmelding til alle som henger med hodet i høstmørket: Statens legemiddelkontroll har godkjent Viagra som medisin mot impotens i Norge.**

Onsdag 28. oktober 1998 13:27

Middelet er ikke å få på resept før tidligst om to måneder, opplyser NTB. Statens helsetilsyn fraråder bruk av amalgamfyllinger hos barn og unge under 18 år. Gravide bør så langt det er mulig unngå tannbehandling, ifølge et forslag til nye retningslinjer. Helseinspektør Anne Alvik overrakte onsdag helseminister Dagfinn Høybråten den store utredningen om bruk av tannfyllingsmaterialer i Norge. Tilsynet går ikke inn for forbud mot amalgam. Utredningen fastslår at det ikke er vitenskapelig påvist at amalgamfyllinger gir helseskader. - Det motsatte er heller ikke bevist - at amalgam ikke gir helseskader. Våre anbefalinger er på en måte et føre var prinsipp, sier Alvik til NTB.

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# Helsetilsynet fraråder amalgam

**Oslo: Statens helseilsyn fraråder bruk av amalgamfyllinger hos barn og unge under 18 år. Gravide bør så langt det er mulig unngå tannbehandling, ifølge et forslag til nye retningslinjer.**

Helse direktør Anne Alvik overrakte i dag helseminister Dagfinn Høybråten den store utredningen om bruk av tannfyllingsmaterialer i Norge. Tilsynet går ikke inn for forbud mot amalgam.

Utredningen fastslår at det ikke er vitenskapelig påvist at amalgamfyllinger gir helseskader.

- Det motsatte er heller ikke bevist - at amalgam ikke gir helseskader. Våre anbefalinger er på en måte et føre var prinsipp, sier Alvik til NTB.

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## Helsetilsynet advarer mot amalgam

...men gir ikke ofrene erstatning  
**Statens helsetilsyn fastslår i en oppsiktsvekkende rapport at amalgamfyllinger kan gi helseskader. Til tross for de nye opplysningene, åpner ikke myndighetene for at de mange amalgamofrene skal få oppreisning og erstatning for sine plager.**

Av LILLIAN VAMBHEIM  
Torsdag 29. oktober 1998 8:37

Helsetilsynet fraråder spesielt nyresyke, allergikere, gravide samt barn og ungdom under 10 år å fylle amalgam i tennene.

**- Så lenge det ikke er vitenskapelig påvist at amalgamfyllingene gir helseskader, åpner ikke anbefalingene våre for erstatningsansvar. De er heller et føre var-prinsipp til folk, sier fagsjef Ola Johan Basmo i Statens helsetilsyn.**

Bakgrunnen for at Helsetilsynet nå går til det skrittet å fraråde tannleger å bruke amalgam på visse deler av befolkningen, er nye risikovurderinger som sannsynliggjør at et mindretall kan utvikle helseplager av det kvikksølvholdige stoffet.

### Ikke forbud

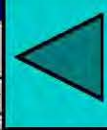
I årevis har amalgamofrene stått fram med sine redselshistorier om hva det kvikksølvholdige stoffet har ført med seg av helseskader. I går fikk de delvis oppreisning da helsedirektør Anne Alvik overrakte den grundige utredningen om bruk av de ulike tannrestaureringsmaterialene i Norge til helseminister Dagfinn Høybråten. I rapporten er det sannsynliggjort - gjennom risikovurderinger - at et mindretall i befolkningen kan utvikle helseplager, og det dannes grunnlaget for Helsetilsynets nye syn i amalgamstriden.

**- Selv om vi i rapporten ikke går inn for totalforbud av amalgam slik våre naboer i Sverige har gjort, anbefaler vi en sterkt redusert bruk av amalgam i framtida. I løpet av et par år regner vi med at amalgam som tannfyllingsmateriale vil forsvinne helt og bli erstattet av plast, som er et bedre alternativ, sier Basmo til Dagbladet.**

Tannlege Svein Rüiber i Oslo bruker stadig mindre amalgam for å tette sine pasienters tenner.

- De fleste er opptatt av amalgambatten og ønsker et alternativ. De seinere årene har plastfyllingene blitt stadig bedre, og flere sier de velger det på den lille størrelse, sier





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# Bergdahl et al Oct 98

 1: *Acta Odontol Scand* 1998 Oct;56(5):303-7[Related Articles, Books, LinkOut](#)

## Odontologic survey of referred patients with symptoms allegedly caused by electricity or visual display units.

**Bergdahl J, Tillberg A, Stenman E**

Department of Applied Psychology, Umea University, Sweden.

Twenty-eight consecutive patients with symptoms allegedly caused by electricity or visual display units were odontologically investigated according to a specially designed registration form including an anamnestic interview and a clinical protocol. The most common oral and general symptoms reported were burning mouth, craniomandibular dysfunction symptoms, skin complaints, and fatigue. Oral symptoms such as craniomandibular dysfunction and general symptoms such as eye complaints and dizziness scored highest on a visual analog scale regarding mean symptom intensity. The patients reported various numbers of medical diagnoses, such as allergic rhinitis or asthma and hypothyroidism. Various dental diseases were found; the most common were temporomandibular joint and masticatory muscle dysfunctions, lesions in the oral mucosa, and periodontal diseases. Urinary-Hg (U-Hg) analysis showed a mean U-Hg concentration of 8.5 nmol Hg/L urine, and none of the patients exceeded the limit of 50 nmol Hg/L urine. The U-Hg concentration was positively correlated with the number of amalgam fillings ( $P < 0.01$ ) and craniomandibular disorders ( $P < 0.05$ ). No or low secretion of the minor mucous glands was found in 43% of the patients.

One patient showed hypersensitivity to gold and cobalt. The present study showed that various odontologic factors might be involved in some of these patients' suffering. Thus, it is important that professionals from other disciplines collaborate with dentistry if these patients are to be properly investigated.

PMID: 9860100, UI: 99075443



Pressens faglige utvalg 17.11.98

Adresse <http://www.ij.no/pfu/98/98-102.htm>

## PFU-SAK NR. 102/98

**KLAGER:** Professor Pål Arneberg m. fl.,

**ADRESSE:** Odontologisk fakultet, Universitetet i Oslo,

Pb. 1109, Blindern, 0317 Oslo

**TELEFON/TELEFAX:** 22 85 21 42 (tlf.) / 22 85 23 44 (fax).

**PUBLIKASJON:** NRK Brennpunkt (TV)

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**REGISTRERT:** 17.06.1998

**BEHANDLET I SEKR:** 17.06.1998; spørsmål om samtykke

**BEHANDLES I PFU:** 17.11.1998

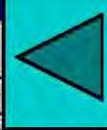
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- Amalgam er forbikjørt
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# Furhoff et al Dec 98

[Related Articles, Books](#)

1: *Scand J Prim Health Care* 1998 Dec;16(4):247-52

**A multidisciplinary clinical study of patients suffering from illness associated with release of mercury from dental restorations. Medical and odontological aspects.**

**Furhoff AK, Tomson Y, Ilie M, Bagedahl-Strindlund M, Larsson KS, Sandborgh-Englund G, Torstenson B, Wretling K**

Division of Psychiatry, Huddinge University Hospital, Sweden.

**OBJECTIVE:** To describe medical and odontological aspects of patients who believed their illness was caused by mercury in dental fillings. **DESIGN:** Comparison of self-reported and assessed medical and odontological variables. **SETTING:** The School of Dentistry, Karolinska Institute. **SUBJECTS:** Sixty-seven patients, referred for suspected side-effects of mercury in dental fillings, and 64 matched controls. **MAIN OUTCOME MEASURES:** Incidence of medical and odontological diagnoses, own perception of health, and incidence of self-reported symptoms. **RESULTS:** Three quarters of the patients were women. The mean age was 49 years. Thirty-seven patients (55%) and 47 controls (73%) (NS) showed no sign of somatic disease. Half of the patients felt ill or very ill at the time of the examination. Patients reported twice as many symptoms as the controls during a 3-month period. Patients reported a higher prevalence of very low resting saliva secretion rate, and a higher number of decayed tooth surfaces and of instances of temporomandibular joint dysfunction. **CONCLUSION:** Patients' feelings of ill-health were more likely related to psychiatric than somatic diagnoses. This study underlines the importance of making an overall diagnosis, including both mental and somatic disorders, especially in unclear cases and in self-diagnosed illnesses.

Comments:

- Comment in: *Scand J Prim Health Care* 1999 Jun;17(2):127-8

# EU. Ad-hoc working group, Dec 98

Dental amalgam. A report with reference to The Medical Devices Directive 93/42/EEC from an ad-hoc working group mandated by DGIII of the European Commission, Bruxelles.

▲ Tilbake

## «Amalgamrapporten» oppsiktsvekkende eller som forventet?

Helsetilsynets rapport Bruk av tannrestaureringsmaterialer i Norge ble nylig overlevert Sosial- og helsedepartementet. Utredningen er på 238 sider, og består av en rekke delutredninger, samt Helsetilsynets vurderinger og anbefalinger (se side 822).

En utredning som dette kan leses på flere måter. Noen leser den som «fanden leser bibelen», noen leser det de vil lese, mens andre har et noe mer nøkternt forhold til den. Dette gjenspeiler seg i måten to av de journalistene som var tilstede ved overleveringen, har håndtert saken på. NTB's journalist har laget en artikkel som har resultert i en rekke avisoverskrifter, slik som «Nei til amalgam» og «Fraråder bruk av amalgam til mindreårige». Aftenposten derimot fant verken noe nytt eller oppsiktsvekkende, og kommenterte den ikke i det hele tatt.

Vil utredningen komme til å bety noe for oss tannleger? Rapporten bekrefter at det ikke er dokumentert at kvikksølv fra amalgamfyllinger fører til helseproblemer for folk flest. Dette er i tråd med hva en rekke andre utredninger har konkludert med. Helsetilsynet sier i sin oppsummering at det er sannsynliggjort gjennom risikoanalyser at et mindretall i befolkningen kan utvikle helseskade pga kvikksølv, men også ved bruk av andre restaureringsmaterialer. Ingen av de materialene vi bruker er uten bivirkninger for enkelte individer. Det er derfor positivt at Bivirkningsgruppen i Bergen får midler til å følge opp dette nærmere.

Helsetilsynet har ikke foreslått et forbud mot amalgam, men har kommet med faglige anbefalinger som vil resultere i redusert bruk av amalgam. At amalgam ikke skal være første valg av materiale ved behandling av barn og ungdom, skaper neppe problemer for noen. De fleste i denne aldersgruppen har få og små kariesangrep. I kombinasjon med nye

# S 822-6.

## Statens helsetilsyn: Anbefaler redusert bruk av amalgam

*Spilstad*

# Avhandlingar, Stockholm 1998

**PHARMACOKINETICS OF MERCURY  
FROM DENTAL AMALGAM**

BY

**GUNILLA SANDBORGH ENGLUND**



STOCKHOLM 1998



**Effects of mercury and fluoride on human immune cells**

**Elucidation of mechanisms**

by

**Annika Loftenius**



STOCKHOLM 1998

1: *J Am Dent Assoc* 1999 Feb;130(2):191-9

# Saxe et al mar 99

Related Articles, Books, LinkOut

## Alzheimer's disease, dental amalgam and mercury.

**Saxe SR, Wekstein MW, Kryscio RJ, Henry RG, Cornett CR, Snowdon DA, Grant FT, Schmitt FA, Donegan SJ, Wekstein DR, Ehmann WD, Markesbery WR**

Geriatric Oral Health Program, College of Dentistry, University of Kentucky, Lexington, USA.

**BACKGROUND:** Mercury, or Hg, is a neurotoxin that has been speculated to play a role in the pathogenesis of Alzheimer's disease, or AD. Dental amalgam releases low levels of Hg vapor and is a potential source of Hg for a large segment of the adult population. **METHODS:** The authors studied 68 subjects with AD and 33 control subjects without AD to determine Hg levels in multiple brain regions at autopsy and to ascertain the subjects' dental amalgam status and history. The subjects were from central Kentucky and Elm Grove, Wis. The authors conducted dental amalgam assessments during the lives of the majority of subjects and in some subjects at the time of autopsy only. The authors also determined three dental amalgam index scores--Event (placement, repair or removal of amalgam), Location and Time In Mouth--in addition to the numbers of and surface area of occlusal amalgam restorations. The authors determined Hg levels in multiple brain regions and performed full neuropathologic evaluations to confirm the normal status of the brain or the presence of AD. **RESULTS:** The authors found no significant association of AD with the number, surface area or history of having dental amalgam restorations. They also found no statistically significant differences in brain Hg level between subjects with AD and control subjects. **CONCLUSIONS:** Hg in dental amalgam restorations does not appear to be a neurotoxic factor in the pathogenesis of AD. The authors found that brain Hg levels are not associated with dental amalgam, either from existing amalgam restorations or according to subjects' dental amalgam restoration history. **CLINICAL IMPLICATIONS:** Dental amalgam restorations, regardless of number, occlusal surface area or time, do not relate to brain Hg levels.

PMID: 10036842, UI: 99155867



# NTFtid 1/99

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Dag S Thelle: Hvordan kan man tenke på en mulig årsakssammenheng mellom amalgamfyllinger i tennene og helseskader?

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# Dilley DC, Bawden mar 99

1: *Pediatr Dent* 1999 Mar-Apr;21(2):114-7

[Related Articles, Books, LinkOut](#)

## Mercury exposure due to environmental factors and amalgam restorations in a sample of North Carolina children.

**Dilley DC, Bawden JW**

Department of Pediatric Dentistry, School of Dentistry, University of North Carolina at Chapel Hill, USA.

**PURPOSE:** Dental amalgam restorations provide a potential source for mercury (Hg) exposure in children. This study explored the possibility that Hg levels in dentin of exfoliated primary maxillary canines could detect cumulative Hg exposure from amalgam restorations in a sample of North Carolina children.

**METHODS:** Twenty-seven exfoliated maxillary canines from 33 children, without restorations or caries, were assayed for dentin Hg concentration ([Hg]). Urine samples were obtained from 21 subjects and assayed for [Hg] and diet surveys for seafood ingestion were completed for 26 subjects. A surface/month exposure index (SMEI) was compiled from dental records to quantify each child's cumulative exposure to amalgam restorations. **RESULTS:** Results showed that dentin [Hg] ranged from undetectable levels to 15.7 ppm with a mean of 3.7 ppm. The SMEI scores ranged from 0-638 with a mean of 95. Ten subjects had low SMEI scores of 0-3, nine had scores 4-100, and eight had scores higher than 100. No statistical correlation was found for SMEI scores and dentin [Hg]. Urine Hg levels were found to be negligible and no relationship was found between urine [Hg] and reported ingestion of seafood or SMEI scores.

**CONCLUSIONS:** Hg exposure in this sample of children was low and additional exposure from amalgam restorations could not be detected by the methods used in this study.

PMID: 10197336, UI: 99213085

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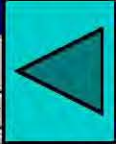
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 1: *J Oral Pathol Med* 1999 Mar;28(3):117-21[Related Articles, Books, LinkOut](#)**Immunocompetent cells in amalgam-associated oral lichenoid contact lesions.****Laine J, Kontinen YT, Beliaev N, Happonen RP**

Department of Oral Diseases, University Central Hospital of Turku, Finland.

Inflammatory cells in amalgam-associated, oral lichenoid contact lesions (OLL) were studied in 19 patients by immunocytochemistry using monoclonal antibodies. Ten of the patients displayed allergic patch test (PT) reactions to several mercury compounds and nine were negative. The immunocytochemical quantification showed a uniform composition of the inflammatory mononuclear cells in the two study groups. The number of HLA-D/DR-positive dendritic cells ( $P < 0.001$ ) and CD1a-positive Langerhans cells ( $P = 0.035$ ) was significantly lower in the PT-negative than PT-positive patients. HLA-D/DR expression on keratinocytes varied from negative to full thickness staining of the epithelium. HLA-D/DR expression in the full thickness of epithelium (3) or through the basal and spinous cell layers (2) was seen in 5 of 8 PT-positive patients, whereas none of the PT-negative patients had this staining pattern ( $P = 0.045$ ). These patients also showed a good clinical response after amalgam removal. Consequently, OLL may represent a true delayed hypersensitivity reaction with a trans-epithelial route of entrance of the metal haptens released from dental restorative materials.

PMID: 10069539, UI: 99167069



Display Abstract

# Schuurs may 99

 1: *J Dent* 1999 May;27(4):249-56[Related Articles](#), [Books](#), [LinkOut](#)

## Reproductive toxicity of occupational mercury. A review of the literature.

**Schuurs AH**

Department of Cariology, Endodontology and Pedodontology, Academic Centre for Dentistry Amsterdam (ACTA), The Netherlands.

**OBJECTIVES:** This paper aims to give the dental practitioner insight into the potential reproductive effects of handling dental silver amalgam, c.q. mercury. **DATA SOURCES:** Experimental studies on animals, case reports and epidemiologic studies. **STUDY SELECTION:** Experimental animal studies show high doses/concentrations of mercury to increase the risk of reproductive disorders, e.g. infertility, spontaneous abortion, stillbirth and congenital malformations. Some case reports suggest an association between the disorders in humans and high levels of mercury. Therefore, the present article reviews epidemiological studies on the relationship between occupational exposure to mercury, mainly as vapour in the dental practice, and females' procreative ability. Studies concerning the reproductive effects of males' occupational mercury body burden are scarce. The reproductive risk of patients' mercury uptake from silver amalgam fillings is assessed. **CONCLUSIONS:** It seems warranted to conclude that negative reproductive effects from exposure to mercury in the dental office are unproven, but safe levels have not been established. Seemingly problems are unlikely to occur, unless a poor hygiene causes the mercury concentration in the air to exceed females' time-weighted long-term Threshold Limit Value (TLV). Consequently, in view of the in general low amounts of mercury stemming from dental amalgam fillings, the population at large is at even less risk than dental staff. The effects of occupational elemental mercury concentrations lower than the TLV on the menstrual cycle, conception, male fertility and children's behaviour need, however, more research.

**Publication Types:**

- Review

# Dagbladet 9.5.99

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## MS-rammet lege kurerte seg selv

For ti år siden kunne den svenske legen og MS-pasienten Birgitta Brunès knapt gå. Nå er hun symptomfri og arbeider med MS-pasienter fra hele Skandinavia. Hennes behandlingsmetode omfatter blant annet fjerning av amalgam i tennene.

Søndag 9. mai 1999 22:11

6000 nordmenn lider av den autoimmune sykdommen multipel sklerose (MS). MS blir ofte framstilt som en uhelbredelig sykdom med et fatalt sykdomsforløp.

**- Jeg påstår ikke at MS kan helbredes, men jeg klarte å drive sykdommen min tilbake, sier den svenske legen Birgitta Brunès.**

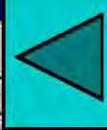
### Sykdommen snudde

Etter flere år med kronisk trøtthet fikk Birgitta MS-diagnosen i 1985, i forbindelse med et alvorlig anfall, et såkalt «attakk». Hun kunne nesten ikke gå, balansen var dårlig og hun fikk betennelse på synsnerven.

Birgitta begynte systematisk å bygge opp nerve- og immunsystemet sitt. MS svekker nerveimpulsene fra hjernen til kroppen fordi fettstoffet myelin, som isolerer nervetrådene, blir ødelagt. Hun mener overføringen av nerveimpulser kan forsterkes ved å ta legemidler og naturpreparater som påvirker signalstoffene noradrenalin, dopamin og acetylkolin. Hun spiste også ekstra vitaminer, antioksidanter og mineraler, blant annet B12 for å styrke immunforsvaret. I løpet av to år fjernet Birgitta 12 amalgamfyllinger i tennene. Hun gikk også i psykoterapi og drømmeanalyse. Og sykdommen snudde.

**- Dette høres vel ut som et under. Og faktisk opplever jeg det slik noen ganger. Da jeg var på det dårligste, kunne jeg ikke drømme om å gå normalt. I dag kan jeg danse med lukkede øyne, smiler Birgitta og svinger seg rundt.**

Nye forskningsresultater viser at nervesystemet og immunsystemet er bundet sammen. Det finnes signalstoffer i hjernen som er koblet direkte til immunsystemets



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Dahl et al., June 99

 1: *Scand J Work Environ Health* 1999 Jun;25(3):285-90[Related Articles](#), [Books](#), [LinkOut](#)

## Dental workplace exposure and effect on fertility.

**Dahl JE, Sundby J, Hensten-Pettersen A, Jacobsen N**

NIOM--Scandinavian Institute of Dental Materials, Haslum, Norway. [jon.dahl@niom.no](mailto:jon.dahl@niom.no)

**OBJECTIVES:** This study assessed occupational exposure in dental surgeries on the basis of the reported use of dental materials and techniques and applied waiting-time-to-pregnancy methodology to study fertility in relation to the occupational exposure. **METHODS:** Data were collected retrospectively using a self-administered postal questionnaire addressing the occupational and reproductive history of the participants. The study groups consisted of 558 female dental surgeons and 450 high school teachers that had given birth in Norway to at least 1 living child. The present study comprised data from a total of 1408 pregnancies. The effects of practicing dentistry and of the given workplace exposure on fertility were analyzed with the discrete proportional hazard regression method. **RESULTS:** Most of the female dental surgeons were using amalgam for fillings during the period they tried to conceive, and 1/3 placed more than 50 fillings a week. Tooth-colored fillings were in limited use. Prior to 75% of the pregnancies, the dental surgeons reported handling chloroform-based root canal sealers. Forty percent of the dental surgeons were daily exposed to disinfectants containing ethanol and benzene. No difference was found in fertility between the dental surgeons and the high school teachers. Exposure to mercury, chloroform, and benzene was not associated with decreased fertility, except for a possible effect of mercury in the last pregnancy of multiparous dental surgeons. **CONCLUSIONS:** Occupational exposures had no clear adverse effects on fertility among the female dental surgeons studied.

PMID: 10450781, UI: 99377990

# Stromberg et al., June 99

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1: *Eur J Oral Sci* 1999 Jun;107(3):208-14

[Related Articles, Books](#)

## Mercury inductions in persons with subjective symptoms alleged to dental amalgam fillings.

**Stromberg R, Langworth S, Soderman E**

Department of Public Health Sciences, Karolinska Institutet, Karolinska Hospital, Stockholm, Sweden.  
sven.langworth@eu.pnu.com

This study was carried out to determine whether health disturbances alleged to mercury release from dental amalgam fillings, i.e. "amalgam disease", may be caused by an increased sensitivity to mercury (Hg). In the form of a double-blind test, 39 volunteers who themselves suspected "amalgam disease" inhaled small doses of mercury vapour (0.6-10 microg) or pure air in a random sequence. After the induction procedure, the test persons assessed whether they reacted or not, i.e. experienced increased illness or not. The test persons also registered the daily intensity of their various symptoms. Calculated on the whole population, there was no statistically significant difference between the number of reactions after inhalation of mercury vapour compared with after inhalation of air. Two subjects, however, reacted significantly more often to mercury vapour than to air. The results do not support that short-term exposure to low doses of Hg vapour in general promotes clinical illness in subjects who themselves suspect "amalgam disease". The deviating reactions presented by two test persons, however, may support the theory that occasional individuals can be sensitive to very low doses of Hg.

### Publication Types:

- Clinical trial
- Randomized controlled trial

PMID: 10424385, UI: 99351671



# Osborne & albino, june 99

[Related Articles, Books](#)

1: *Am J Dent* 1999 Jun;12(3):151-6

## Psychological and medical effects of mercury intake from dental amalgam. A status report for the American Journal of Dentistry.

Osborne JW, Albino JE

School of Dentistry, University of Colorado, Denver 80262, USA. john.osborne@uchsc.edu

Studies examining health consequences of the release of mercury from dental amalgams have concluded that there is insufficient mercury released from these restorations to cause a medical problem. Although the mercury vapor generated during removal of amalgams will cause a transient increase in the patient's mercury level in tissue fluids, biochemical assays have demonstrated that the increase is too small to have a negative influence on organ systems. This is true even when patients have all their amalgams removed in a single session. Nevertheless, over the past decade, the release of mercury from dental amalgam has been frequently blamed for a variety of health complaints. A number of sensationalized media reports regarding the mercury issue have no doubt contributed to the public concern that has been aroused. Consequently, patients may present at the dentist's office, either self-diagnosed or looking for a cause implicating mercury. In actuality, these patients may have symptoms of either medical problems or psychological disorders such as depression or anxiety. Unfortunately, the incorrect diagnosis may not only mislead, but actually place the patient in a dangerous situation. Two well-controlled studies have indicated that (1) 89% of the patients with self-reported "amalgam illness" had psychogenic disorders, whereas only 6% of the matched-pair manifested symptoms of these psychological disorders; and (2) these alleged "amalgam illness" patients had ~~pre-neurotic reactive/defensive mechanisms that did not allow them to recognize aggressive and threatening situations which the control group would quickly and readily regard as potentially difficult to manage.~~ Other studies involving psychological assessment seem to confirm that dental therapy (removal of amalgams) for people with alleged "amalgam illness" may, at best, provide a "placebo effect".

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# Ahlqwist et al, june 99

1: *Acta Odontol Scand* 1999;77(3):561-74

Related Articles, Books, LinkOut

## Serum mercury concentration in relation to survival, symptoms, and diseases: results from the prospective population study of women in Gothenburg, Sweden.

**Ahlqwist M, Bengtsson C, Lapidus L, Gergdahl IA, Schutz A**

Department of Oral Diagnostic Radiology, Goteborg University, Gothenburg, Sweden.

A prospective population study of women in Gothenburg, Sweden was started in 1968-69 and comprised 1462 women aged 38, 46, 50, 54, or 60 years at baseline. Follow-up studies were carried out in 1974-75, 1980-81, and 1992-93. The baseline study included an extensive medical and dental examination. Serum mercury concentration (beta-Hg) was determined in deep-frozen samples from all participants in 1968-69 and in a random subsample of sera from participants in 1980-81, about 20 years after the baseline examination. S-Hg was statistically significantly correlated with number of amalgam fillings at both examinations. Of 30 defined symptoms and 4 different clusters of symptoms, no one was independently correlated with S-Hg measured in the samples from 1968-69, while there was a negative statistically significant correlation with over-exertion and poor appetite in 1980-81. Blood hemoglobin and serum B-12 concentrations in 1968-69 were statistically significantly and positively correlated with S-Hg, while erythrocyte sedimentation rate and the serum concentrations of potassium and triglycerides were significantly and negatively correlated with S-Hg, also after including potential confounders. Blood hematocrit examined in 1980-81 was negatively correlated with S-Hg. When including potential confounders, serum IgA was also statistically significantly correlated with S-Hg, but not in univariate analysis. No statistically significant correlation was observed between S-Hg, on the one hand, and the incidence of diabetes, myocardial infarction, stroke, or cancer on the other, while a statistically significant negative correlation was observed with overall mortality when age and education were included as background variables. There were some correlations between biological variables and S-Hg, probably of no negative clinical significance, and we conclude that there is no association between disease and S-Hg on a population basis in middle-aged and older women.

1: *Eur J Oral Sci* 1999 Jun;107(3):202-7[Related Articles, Books](#)

### **Effect of rubber dam on mercury exposure during amalgam removal.**

**Kremers L, Halbach S, Willruth H, Mehl A, Welzl G, Wack FX, Hickel R, Greim H**

Department of Restorative Dentistry and Periodontology, University of Munich, Germany.

It was the aim of this investigation to treat 20 volunteers with maximally 5 amalgam fillings by the same comprehensive protocol in which all removals with (n = 8) and without (n = 12) rubber dam had been performed within a few months. Nine amalgam-related parameters indicated a close matching of both groups before removal. In the group without rubber dam, mercury (Hg) levels in plasma increased significantly above preremoval values at days 1 and 3 after removal; they decreased significantly below preremoval values at day 30 in the rubber-dam group and at day 100 in both groups. Excretion rates did not increase significantly in either group, but decreased significantly at day 100 in the protected group. Peak plasma-Hg was 0.6 ng/mL on average at day one and decreased with halftimes of 3 and 43 d in subjects protected by rubber dam. The results indicated that concentrations of total mercury in plasma responded rapidly to changes in the amalgam status and reflected the actual absorption most reliably. Notably, plasma-Hg levels were sensitive enough to detect a transient attenuation of the additional exposure by using rubber dam during the removal of only a few fillings. However, being small in magnitude and lasting 100 d at best, the rubber-dam effect had minor toxicological relevance.

PMID: 10424384, UI: 99351670



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## Forskerstrid om amalgam

Et norsk forsknings-prosjekt om amalgam-forgiftning som har pågått i mer enn ti år, har ennå ikke gitt noe endelig resultat.

 bakgrunn

**GUNNAR TORE  
LARSEN**  
Lillehammer

I 1989 ble rundt 400 pasienter hos to tannleger og to privatpraktiserende leger her i landet invitert til å være med på et forskningsprosjekt om de mulige helsemessige følger av amalgamfyllinger i tennene. Den opprinnelige hensikten med prosjektet var å plukke ut pasienter med symptomer som kunne relateres til amalgamforgiftning og beskrive deres situasjon.

Senere ble prosjektet utvidet ved at pasienter med mulige amalgamrelaterte symptomer skulle få sammenlignet sin helsetilstand med de øvrige pasientene i forskningsprosjektet etter at de hadde fått fjernet amalgamfyllingene i tennene. En sammenligning som, ifølge initiativtageren til prosjektet, tannlege Bjørn Oppedal i Tønsberg, ville være unik så vel i norsk som i internasjonal amalgamforskning.

Problemet er bare at forskningsgruppen, med professor i psykosomatisk medisin Ulrik Fredrik Malt ved Rikshospitalet som seniorforsker, av forskjellige årsaker ikke har maktet å samle inn et materiale som gir grunnlag for denne sammenligningen.

- Vi mangler fortsatt opplysninger fra enkelte pasienter i en av de såkalte kontrollgruppene, før vi kan begynne det avsluttende arbeidet med prosjektet, sier Malt.

Professoren mener en sammenligning av helsetilstanden til pasientgrupper med og uten amalgamfyllinger, uansett ikke vil gi det nødvendige grunnlag for å trekke endelige vitenskapelige konklusjoner, men i beste fall teorier som det kan være verdt å gå videre med.

### Dramatisk bedring

- Det vi vet av det materialet vi har hittil, er at en betydelig andel av dem som har fjernet

1: *J Dent Res* 1999; Aug; 78(8):1450-8

Related Articles, Books, LinkOut

# Cederbrant et al, aug99

**In vitro lymphoproliferative assays with HgCl<sub>2</sub> cannot identify patients with systemic symptoms attributed to dental amalgam.**

**Cederbrant K, Gunnarsson LG, Hultman P, Norda R, Tibbling-Grahn L**

Department of Health and Environment, Linköping University, Sweden.

Dental amalgam is suspected, by some exposed individuals, to cause various systemic psychological, sensory, and neurological symptoms. Since not all amalgam-bearers experience such reactions, an individual characteristic--for example, a susceptible immune system--might explain these conditions. In vitro lymphocyte proliferation is a valuable tool in the diagnosis of allergy. With HgCl<sub>2</sub> as the antigen, however, the test is hampered, because Hg<sup>2+</sup> can cause unspecific lymphocyte proliferation, optimal at 1.4 to 9.5 micrograms HgCl<sub>2</sub>/mL. Recently, the use of suboptimal HgCl<sub>2</sub> concentrations (< or = 0.5 microgram/mL) has been suggested to circumvent these problems. The main aim of this study was to investigate whether patients with systemic symptoms alleged to result from the presence of dental amalgam differ from healthy controls, with reference to in vitro lymphoproliferative responses to HgCl<sub>2</sub> < or = 0.5 microgram/mL. Three different test protocols--lymphocyte transformation test (LTT) in micro- and macro-cultures, and the memory lymphocyte immunostimulation assay (MELISA)--were used. Other immune parameters--such as a standard patch test for dental materials, the number of T- and B-lymphocytes, monocytes, granulocytes, and NK cells in peripheral blood, allergic symptoms, and predisposition--were also investigated. Twenty-three amalgam patients, 30 healthy blood donors with amalgam, ten healthy subjects without amalgam, and nine patients with oral lichen planus (OLP) adjacent to dental amalgam and a positive patch test to Hg<sub>0</sub> were tested. None of the investigated immune parameters revealed any significant differences between amalgam patients and controls. The sensitivity of in vitro lymphocyte proliferation ranged from 33 to 67%, with the OLP patients as a positive control group, and the specificity from 0 to 70% for healthy controls with a negative patch test to Hg<sub>0</sub>. Thus, despite the use of HgCl<sub>2</sub> < or = 0.5 microgram/mL, a high frequency of positive results was obtained among healthy subjects with or without dental amalgam. Consequently, in vitro lymphocyte proliferation with HgCl<sub>2</sub> cannot be used as an objective marker for mercury allergy in dental

# McGrother et al, sep 99

1: *Br Dent J* 1999 Sep 11;187(5):261-4

[Related Articles, Books, LinkOut](#)

## Multiple sclerosis, dental caries and fillings: a case-control study.

**McGrother** CW, Dugmore C, Phillips MJ, Raymond NT, Garrick P, Baird WO

Department of Epidemiology and Public Health, University of Leicester.

**OBJECTIVES:** To investigate the association between multiple sclerosis, dental caries, amalgam fillings, body mercury and lead. **DESIGN:** Matched case-control study. **SETTING:** Leicestershire in the years 1989-1990. **SUBJECTS:** Thirty-nine females with multiple sclerosis (of recent onset) were matched with 62 controls for age, sex and general practitioner. **METHODS:** Home interview of cases and controls within which there was an assessment of the DMFT index and blood and urine mercury and lead levels. **RESULTS:** The odds of being a MS case increased multiplicatively by 1.09 (95% CI 1.00, 1.18) for every additional unit of DMFT index of dental caries. This represents an odds ratio of 1.213 or a 21% increase in risk of MS in relation to dental caries in this population. There was no difference between cases and controls in the number of amalgam fillings or in body mercury or lead levels. There was a significant correlation between body mercury levels and the number of teeth filled with amalgam (controls:  $r = +0.430$ ,  $P = 0.006$ , cases:  $r = +0.596$ ,  $P = 0.001$ ). **CONCLUSION:** There was evidence of excess dental caries among MS cases compared with the controls. This finding supports the strong geographical correlation between the two diseases. A further study of this association is recommended.

PMID: 10520544, UI: 99450262

# Pasientskadeforbundet 19.9.99

Oppdatert 19.09.99 kl. 22:30



## - Ikke bare "psykisk"

**Kirsten Marie Bøe i Lillehammer mener man ikke kan avfeie mulig amalgamfor-giftning som psyko-somatiske lidelser.**

- Jeg blir provosert når symptomer på amalgamforgiftning blir mistenkeliggjort og forklart med rene psykiske årsaker. Amalgam inneholder kvikksølv, og kvikksølv er gift. Hvorfor skulle Statens helsetilsyn be landets tannleger unnlate å benytte amalgam på gravide og mindreårige, hvis det ikke medfører en risiko for folks helse? spør Kirsten Marie Bøe.



*Kirsten Marie Bøe i Lillehammer reagerer på at alle symptomer i forbindelse med en mulig amalgamfor giftning blir forklart som psykiske reaksjoner.*

FOTO: GUNNAR TORELARSEN

Selv fjernet hun alle amalgamfyllingene for snart seks år siden, og hevder hun ble kvitt alle symptomer på forgiftning.

- Jeg hadde til tider dobbeltsyn, jeg fikk eksem, og jeg følte meg stort sett uvel. I dag er jeg uten disse plagene.

### Forskning

Kirsten Marie Bøe er blant de 400 pasientene som de siste ti årene har deltatt i et forskningsprosjekt om de helsemessige følger av en mulig amalgamforgiftning. Nå etterlyser hun resultatene fra undersøkelsen.

- Jeg svarte på 255 spørsmål for ti år siden. Etter at jeg i 1994 fjernet alle amalgamfyllingene, kom det enda et spørreskjema, denne gang også med spørsmål som dreide seg om personlighet og psyke. Jeg ble spurt om jeg vasker hendene før jeg spiser, og om jeg noen gang har tatt med meg noe som ikke er mitt, sier Bøe. Hun forstår at det psykologiske aspektet har en sentral plass i denne type forskning, men reagerer på at nær sagt alle symptomer blir forklart som psykologiske årsaker.

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# Loftenius et al, sep 99

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1: *J Oral Pathol Med* 1999 Sep;28(8):364-70

[Related Articles, Books, LinkOut](#)

## No evidence for specific in vitro lymphocyte reactivity to HgCl<sub>2</sub> in patients with dental amalgam-related contact lesions.

**Loftenius A, Skoglund A, Ekstrand J, Hovmark A, Moller E**

Department of Basic Oral Sciences, Karolinska Institute, Huddinge Hospital, Sweden.

Blood lymphocytes from 20 patients with oral contact lesions to dental amalgam and 10 healthy individuals were analyzed for HgCl<sub>2</sub>-induced proliferation in vitro, using both a modified assay and a conventional assay. The release of interferon-gamma (IFN-gamma) was measured in cell supernatants. Six patients displayed positive reactions in patch tests to mercuric compounds. No significant differences were recorded in HgCl<sub>2</sub>-induced proliferation in cells from patients and controls, since only few in the whole material responded to submitogenic concentrations. IFN-gamma was detectable in cell supernatants from some patients but also from controls and is not predictive of mercury allergy. Neither the phenotypes of peripheral lymphocyte subsets, the frequency of circulating cells expressing the interleukin-2 (IL-2) receptor, spontaneous lymphocyte proliferation nor concentrations of serum interleukin-6 differed between patient and control samples. In contrast to what has been claimed before, we did not find any evidence for specific in vitro lymphocyte reactivity in patients with oral contact lesions.

PMID: 10478962, UI: 99406076

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1: *J Am Acad Dermatol* 1999 Sep;41(3 Pt 1):422-30

[J Am Acad Dermatol](#)

# Koch & Bahmer, sep 99

## Oral lesions and symptoms related to metals used in dental restorations: a clinical, allergological, and histologic study.

**Koch P, Bahmer FA**

Department of Dermatology, University of the Saarland, Homburg/Saar, Germany.

**BACKGROUND:** Allergy to mercury as a cause of oral lichenoid lesions (OLL) remains controversial. Some authors reported high frequency of sensitization to mercury and beneficial effect from removal of amalgam fillings in such patients, whereas others state that this procedure affects favorably all OLL, whether patients are sensitized to inorganic mercury or not. **OBJECTIVE:** Our purpose was to determine the frequency of sensitization to metal salts in 194 patients (patients with OLL partly adjacent to amalgam fillings: 19, oral lichen planus (OLP) without close contact to amalgam: 42, other oral diseases: 28, oral complaints: 46, control group: 59). We further studied the histologic changes of biopsy specimens from positive patch tests to metal salts, and investigated the effect of removal of amalgam in OLL, to clarify whether it is possible to identify patients who will benefit from this procedure. **METHODS:** Patch testing was performed with the German standard series, a dental prosthesis series, and a metal salt series including gold, mercury, and palladium salts as well as other salts of metals used in dental restorations. Late readings (10 and 17 days after application of the patch tests) were performed in all patients. **RESULTS:** Of 19 patients with OLL adjacent to amalgam fillings, 15 (78.9%) were sensitized to inorganic mercury (INM), significantly more than those with OLL not adjacent to amalgam, other oral diseases or complaints, and the control group. In 5 of 15 (33.3%) of the patients with OLL, a positive patch test to INM was observed only at D10 or D17. Amalgam was removed in 18 patients with OLL (sensitization to INM: 15), and in 11 patients with OLP (sensitization to INM: 2). After removal, the lesions of 13 of 15 of the INM-sensitized patients with OLL (86.7%) and 2 with OLP healed or improved significantly, but this was not observed with the INM negative patients. Frequency of sensitization to gold sodium thiosulfate (GST) and palladium chloride 1% pet (PDC) was high in all groups. This was partly because readings were performed late. Lesions of 2 patients with allergic contact stomatitis caused by gold and 1 caused by palladium healed completely after

# Kringlen sep 99

## [Kringlen E](#)

# Psykiatriske synspunkter på "amalgamsykdom"

## Sammendrag

I løpet av de siste 25 år har man sett pasienter med forskjellige uspesifikke symptomer som smerte, tretthet, konsentrasjonsvansker, hodepine, smerter i muskler og ledd som har tilskrevet sine plager tannfyllinger av amalgam.

Undersøkelser av slike pasienter viser at det dreier seg om en heterogen gruppe. En rekke av dem har emosjonelle problemer og psykiske lidelser i form av angstforstyrrelse, depresjon eller somatoform lidelse. Noen har også en udiagnostisert somatisk lidelse. Det finnes imidlertid ingen bevis for at amalgamfyllinger kan være årsak til symptomene.

*Tidsskr Nor Lægeforen 1999; 119: 3461-4*

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## Mindre amalgam-bruk

**Regjeringen går inn for at det settes av mer penger i arbeidet for å trappe ned bruken av amalgam (bildet) i tannfyllinger.**

Det er muligheten for at kvikksølvet i amalgamfyllingene kan utløse sykdom og allergier som er utgangspunktet for arbeidet. Sosial- og helsedepartementet ber helsetilsynet om å arrangere en såkalt konsensuskonferanse om temaet, for å få frem faglig enighet om den videre forskningen. Man ønsker også internasjonalt samarbeid om amalgam-diskusjonen.



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- ▶ Clinton møter israelske og palestinske forhandlere
- ▶ Peres stiller til statsministervalg
- ▶ Barak har dårlig tid
- ▶ Netanyahu stiller ikke som statsministerkandidat

**Adresseavisen**

05. oktober 1999 kl. 00:00
72 50 00 00

- 10 siste saker Nyheter**
- 19:19 Juletrafikk uten store problemer
  - 18:44 Mediesky Madonna vinner
  - 18:38 Haakon gikk etter monarki-hets på konsert
  - 17:57 Hamre truer med ny rettsak
  - 17:52 Gutter i fengsel for steinkasting
  - 17:52 Nordsjødykkere har fått kompensasjon
  - 17:45 Strid om Simonsen i Rogaland
  - 17:15 Børsen kraftig opp
  - 16:49 84-åring bundet og ranet i eget hjem
  - 16:46 12-åringer satte fyr på hjemløs

### Annonser

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Fælledens Eiendom as

# Dagsavisen 12.10.99



## Stol ikke på tannfyllingene

Allergi mot tannfyllingene kan gi store sår i munnhulen, og en følelse av slapphet, hodepine og konsentrasjonsproblemer. (Foto: Nordisk institutt for odontologisk materialprøving)

For også alternativene til amalgam kan føre til allergi. **Bruk av amalgam-fyllinger i tennene blir av enkelte karakterisert som århundrets medisinske skandale. Det kanskje ikke alle vet, er at også alternativene til amalgam kan framkalle allergiske reaksjoner. Den eneste måten å sikre seg på, er å unngå hull og**

ditto tannfyllinger.

### ■ KENNETH KVALVIK

Stadig færre velger amalgam for å fylle tennene etter at Karius og Baktus har vært på sine herjinger i munner rundt omkring i Norge. Faktisk er det bare mellom fem og ti prosent som vil ha den grå fyllmassen i tennene. Det skyldes nok at fyllingen ikke er spesielt pen å se til, men også at mange er blitt skremt etter sjokkerende medieoppslag, der amalgamen får skylden for alskens helseplager.

Men det viser seg at erstatningsmaterialene også kan være allergifremkallende. Verken gull, plast eller porselen er mirakelkurer mot allergiske reaksjoner.

### «Amalgam ingen versting»

De som blir rammet av allergi fra tannfyllinger, har symptomer som omfatter alt fra svisse til stygge sår i munnen, utslett i ansiktet, hodepine, kronisk tretthet, søvnmangel og ledd- og muskelsmerter. Forskerne har imidlertid hatt vansker med å påvise at det virkelig er tannfyllingsmaterialet som forårsaker disse lidelsene.

### LES OGSÅ:

- Alternativ medisin
- Bivirkninger etter tannfyllinger
- Verst for tannlegene



Også plastfyllinger kan føre til allergiske reaksjoner som gir store sår i munnhulen, og en følelse av slapphet, hodepine og konsentrasjonsproblemer. (Foto: Nordisk institutt for odontologisk materialprøving)

protetikk/sper

# Varden 15.10.99

Agder lagmannsrett har avvist anken til Tordis S Stigen fra Sauherad som mener hun er blitt amalgamforgiftet I arbeidet som tannlegeassistent. Lagmannsretten viser imidlertid til den store uenigheten blant de sakkyndige, og idømmer ikke saksomkostninger. Saken blir mest sannsynlig anket til Høyesterett.

# Norsk forening for pedodonti, Bergen, 18-19.11.99



Hva skal fylle hullet etter amalgamet?

*“Statens helsetilsyn ønsker ikke amalgamforbud, men amalgamepoken er å regne som forbi, og krigen for amalgam er tapt”.* (OJ Basmo, Fagsjef I Statens helsetilsyn)

1: *Environ Health Perspect* 1999 Nov;107(11):862-71

[Go to Publisher Site](#)

[Related Articles, Books, LinkOut](#)

## Cadmium, mercury, and lead in kidney cortex of the general Swedish population: a study of biopsies from living kidney donors.

**Barregard L, Svalander C, Schutz A, Westberg G, Sallsten G, Blohme I, Molne J, Attman PO, Haglind P**

Department of Occupational Medicine, Sahlgrenska University Hospital, Goteborg, Sweden.  
larsbarregard@ymk.gu.se

Cadmium, mercury, and lead concentrations were determined in deep-frozen kidney cortex biopsies taken from 36 living, healthy Swedish kidney donors (18 males and 18 females), who were 30-71 (mean 53) years of age. Information about occupation, smoking, the presence of dental amalgam, and fish consumption could be obtained for 27 of the donors. The samples (median dry weight 0.74 mg) were analyzed using inductively coupled plasma mass spectrometry, and the results were transformed to wet-weight concentrations. The median kidney Cd was 17 micrograms/g (95% confidence interval, 14-23 micrograms/g), which was similar in males and females. In 10 active smokers, the median kidney Cd was 24 micrograms/g, and in 12 who never smoked, it was 17 micrograms/g. The median kidney Hg was 0.29 micrograms/g, with higher levels in females (median 0.54 micrograms/g) than in males (median 0.16 micrograms/g). Subjects with amalgam fillings had higher kidney Hg (median 0.47 micrograms/g, n = 20) than those without dental amalgam (median 0.15 micrograms/g, n = 6), but kidney Hg was below the detection limit in some samples. Nearly half of the samples had kidney Pb below the detection limit. The median kidney Pb was estimated as 0.14 micrograms/g. This is the first study of heavy metals in kidney cortex of living, healthy subjects, and the results are relatively similar to those of a few previous autopsy studies, indicating that results from autopsy cases are not seriously biased in relation to kidney metal concentrations in the general population. Cd concentrations in those who never smoked were relatively high, indicating considerable Cd intake from the diet in Sweden. The effect of dental amalgam on kidney Hg was as expected, although the reason for the difference in Hg levels between males and females is unclear.



Ely et al nov 99

Location: <http://link.springer-ny.com/link/service/journals/01128/paper/63n5263.pdf>



Bull. Environ. Contam. Toxicol. (1999) 63:553-559  
© 1999 Springer-Verlag New York Inc.



# Urine Mercury in Micromercurialism: Bimodal Distribution and Diagnostic Implications

J. T. A. Ely,<sup>1</sup> H. H. Fudenberg,<sup>2</sup> R. J. Muirhead<sup>3</sup>, M. G. LaMarche,<sup>4</sup> C. A. Krone,<sup>5</sup> D. Buscher,<sup>6</sup> E. A. Stern<sup>3</sup>

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- <sup>4</sup> Environmental Dentistry, Lake Stevens, WA 98258, USA
- <sup>5</sup> Applied Res Institute, Seattle, WA 98115, USA
- <sup>6</sup> Environmental Medicine, Bellevue, WA 98004, USA

Received: 28 May 1999/Accepted: 4 August 1999

The term Micromercurialism (MM) has long been used to denote those disease conditions in which chronic exposure to very low concentrations of mercury (Hg) is thought to be etiologic (Gerstner and



# NRK God Morgen Norge

14.12.99

Intervju med sekretær i Tenner  
og Helse

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1: *Clin Oral Investig* 1999 Dec;3(4):216-8

Related Articles, Books, LinkOut

Clinical Oral  
Investigations**Mercury and silver in saliva from subjects with symptoms self-related to amalgam fillings.****Lygre GB, Hol PJ, Eide R, Isrenn R, Gjerdet NR**

Dental Biomaterials Adverse Reaction Unit, University of Bergen, Norway. Gunvor.Lygre@odont.uib.no

The amount of mercury released into saliva from dental amalgam fillings is currently being debated. Mercury enters saliva as vapor, ions and particles of amalgam. The aim of the present study was to determine mercury and silver concentrations in saliva of persons with amalgam fillings. Moreover, it was the aim to investigate whether amalgam particles were present in samples of stimulated saliva in control subjects. In that case, we also wanted to determine the influence of these particles on the mercury concentrations found. Fifty-three patients with a wide range of complaints self-related to their amalgam fillings were examined by the Dental Biomaterials Adverse Reaction Unit of Norway. Among other tests, stimulated saliva was collected from each patient and analyzed for mercury and silver. Mercury and silver correlated with the amount of amalgam present. There was a strong correlation between mercury and silver concentrations.

Amalgam particles were found by energy dispersive X-ray analysis. It appears that a considerable part of the mercury and silver were present as amalgam particles. The present study shows that amalgam particles in saliva have to be controlled for when analyzing mercury in saliva from subjects with amalgam fillings.

PMID: 10803137, UI: 20262497

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# Aftenposten 12-13 jan 2000

**12.1. Kvikksølvforgiftning:** Kvikksølvforgiftning kan ha rammet mange som har vært ansatt i tannhelsetjenesten. Kvikksølv er en bestanddel av amalgam, som brukes i tannlegenes arbeid. Særlig mange tannlegesekretærer og tannlegeassistenter er rammet av like plager, noe som kan skyldes arbeid med kvikksølv, sier nestleder Jorunn Østberg i Tenner og Helse. *Aftenposten, seksjon 1, s. 7, Christian Altmann)*

**13 .1:** Amalgamet vil foreløpig ikke bli forbudt, men det er på vei til bli erstattet av andre alternative tannfyllingsmateriale som er bedre. Dette mener fagsjef Morten Rolstad i Den norske tannlegeforeningen. I løpet av 20 år har bruken av amalgam i Norge sunket fra 60 prosent til 10 prosent. *(Aftenposten, seksjon 1, s. 3, Christian Altman)*

# Stortinget 20.2.00

2.2.2000 Spørsmål fra Liv Marit Moland (A) besvart av helseminister Dagfinn Høybråten (KrF).

*Tema:* Helsetilsynets forslag om å redusere bruk av amalgam som tannfyllingsmateriale

# Leistevuo et al, feb 00

NCBI

National Library of Medicine PubMed

PubMed Nucleotide Protein Genome Structure PopSet Taxonomy OMIM

PubMed for [ ] Go Clear

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 1: *Antimicrob Agents Chemother* 2000 Feb;44(2):456-7

Related Articles, Books, LinkOut

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aac.asm.org**

**Resistance to mercury and antimicrobial agents in *Streptococcus mutans* isolates from human subjects in relation to exposure to dental amalgam fillings.**

**Leistevuo J, Jarvinen H, Osterblad M, Leistevuo T, Huovinen P, Tenovuo J**

National Public Health Institute, Antimicrobial Research Laboratory, Finland.

Resistance to cefuroxime, penicillin, tetracycline, and mercury is reported for 839 *Streptococcus mutans* isolates from 209 human study subjects. The MICs of these drugs did not differ for isolates from one dental amalgam group and two nonamalgam subsets: a group with no known exposure to amalgam and a group whose members had their amalgam fillings removed.

PMID: 10639385, UI: 20107004

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# Utspill mot politikere og offentlige organer

## Tenner og Helse, vår 2000

AV KJELL STEN LANGÅS

I løpet av høsten 1999 har vi gitt bort ca 220 eksemplarer av Magnus Nylanders bok "FRI FRÅN AMALGAM", samt vår delutredning som var en del av Statens helse-tilsyns utredning "Bruk av tannrestaureringsmaterialer i Norge".

Mottakerne er følgende:

mer enn hundre stortingspolitikere	19 fylkeshelsesjefer
Kongefamilien	18 fylkesmenn
Barneombudet	flere miljøorganisasjoner
19 pasientombud	Statens forurensningstilsyn
19 fylkestannleger	Statens arbeidsmiljøinstitutt
19 fylkesleger	

Følgende brev var vedlagt:

*Kjære deg!*

Vi har gleden av å gi deg i gave denne boken, "fri från amalgam", om kvikksølvamalgam og sikker sanering, skrevet av docent, Dr.Med og tannlege Magnus Nylander.

Denne boken er et bidrag i kampen mot forurensning av mennesker og miljø.

Vi vedlegger også vår delutredning, "Synspunkter fra Forbundet Tenner og Helse", til Statens helsetilsyns rapport nr 8-98, IK-2652, "Bruk av tannrestaureringsmaterialer i Norge".

Forbundet Tenner og Helse er en ideell organisasjon som arbeider for en bedre og giftfri tannbehandling. Forbundet arbeider blant annet for at de personer som blir skadet av tannbehandling skal ha rett til rehabilitering og samfunnets støtte.

Forbundet representerer alles interesse, både de som er syke, og de friske som ønsker alternative tannfyllingsmaterialer og mindre belastning på miljøet. Vi sprer informasjon og gir råd og veiledning til medlemmer og andre.

*Med vennlig hilsen*

FORBUNDET TENNER OG HELSE

# NTFtid 3/00

Referat fra seminar 18-19.11.99

Hva skal fylle hullet etter amalgamet?

Norsk forening for pedodonti, Bergen,  
1999

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# Vannes et al. march 2000

 1: *J Dent Res* 2000 Mar;79(3):868-74[Related Articles, Books, LinkOut](#)

## Diagnostic value of a chelating agent in patients with symptoms allegedly caused by amalgam fillings.

Vannes JS, Eide R, Isrenn R, Hol PJ, Gjerdet NR

University of Bergen, Department of Odontology-Dental Biomaterials, Norway. jan.vannes@odont.uib.no

The chelating agent 2,3 dimercaptopropane-1-sulfonate (DMPS) has been used in a mercury mobilization test for diagnoses in illnesses allegedly associated with the presence of amalgam restorations. DMPS is an accepted antidote to heavy metal poisoning. The aim of the present study was to evaluate the diagnostic value of DMPS in patients with symptoms self-related to their amalgam fillings. The subjects consisted of four groups: 19 healthy controls without amalgam experience; 21 healthy controls with amalgam fillings; 20 patients who claimed symptoms of "mercury poisoning" from dental amalgam; and 20 patients who had amalgam fillings removed because of such symptoms. DMPS (2 mg/kg body weight) was injected intravenously, and urine was collected prior to the injection, 30 and 120 min after the injection, and throughout the next 22 hrs. The samples were analyzed for total mercury by cold vapor atomic absorption spectrophotometry. The total median amounts of mercury excreted over 24 hrs for those with complaints allegedly associated with amalgam and for the healthy controls with amalgam fillings were similar. Persons with amalgam fillings excreted about three times more mercury than those without. The controls, who had never had amalgam fillings, and the subjects who had had their fillings removed excreted median amounts of 8.5 microg and 7.2 microg mercury, respectively. The present DMPS challenge test did not differentiate between patients with or those without complaints self-related to their amalgam fillings but did confirm the higher mercury values in patients with dental amalgam.

Publication Types:

- Clinical trial



# Marcussen et al. april 2000

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1: *Toxicol In Vitro* 2000 Apr;14(2):133-7

[Related Articles](#), [Books](#), [LinkOut](#)



## Serotonin production in lymphocytes and mercury intolerance.

Marcusson JA, Cederbrant K, Gunnarsson LG

Department of Dermatology, Haukelands Sykehus, Postboks 1, 5021, Bergen, Norway.  
[jan@mbox302.swipnet.se](mailto:jan@mbox302.swipnet.se)

Patients with suspected illness due to mercury in dental amalgam were classified as tolerant or intolerant depending on their psychosomatic responses following in vivo epicutaneous provocation with low doses (patch test doses) of metallic mercury and phenylmercuric acetate. Ten intolerant patients and nine tolerant patients plus seven healthy amalgam-free and metal non-allergic controls were recruited to the study. Peripheral blood lymphocytes were exposed in vitro to three concentration of mercuric chloride (0.92, 1.83 and 3.68 micromM) with and without 10 microg phytohaemagglutinine (PHA)/ml and the release of serotonin into the supernatant was measured. Lymphocytes exposed only to HgCl(2) showed no significant dose-dependent increase of serotonin, but the response of the tolerant patients was significantly higher compared with the controls. No other differences were found. Co-culture with mercuric chloride and PHA showed a statistically significant dose-dependant release of serotonin, but no differences between the three clinical groups could be detected. Thus, our results could not validate the concept of mercury tolerance and intolerance.

Publication Types:

- Clinical trial

PMID: 10793291, UT: 20295394

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# Sällsten et al. May 2000

1: *J Toxicol Environ Health* 2000 May 26;60(2):89-100

[Related Articles, Books, LinkOut](#)



## A small dose of ethanol increases the exhalation of mercury in low-level-exposed humans.

Sällsten G, Kreku S, Unosson H

Department of Occupational Medicine, Sahlgrenska University Hospital, Goteborg, Sweden.  
gerd.sallsten@ymk.gu.se

Inorganic mercury is mainly eliminated by urinary and fecal excretion, but it is also eliminated by exhalation and sweat. There are only a few reports on exhalation of mercury in humans. In volunteers with short-term mercury exposure, an increased exhalation of mercury was found after alcohol intake. The aim of this study was to determine mercury in end-exhaled air and the influence of ethanol on mercury exhalation in subjects with long-term mercury exposure from diet, amalgam fillings, or the work environment. Fourteen subjects, with different grades of mercury exposure, were given 0.2 g ethanol/kg body weight. Measurements of mercury in end-exhaled air were performed before and after alcohol intake. Mercury in end-exhaled air could be detected in all subjects. In 10 individuals without amalgam fillings the mercury concentration was 3 to 12 pg/L. A marked increase, in general about fivefold, in mercury concentrations in end-exhaled air was seen in all subjects 30 min after intake of alcohol, regardless of the level of mercury exposure. Higher ethanol doses resulted in higher mercury levels in end-exhaled air and longer time periods before a return to background levels. An increase was seen even after an ethanol dose of only 0.1 g ethanol/kg body weight (about 0.08 L wine). The decrease in exhaled mercury at higher alcohol doses followed approximately zero-order kinetics and probably reflects the elimination of ethanol in tissues. In conclusion, low levels of mercury can be detected in end-exhaled air also in individuals without amalgam fillings. About a fivefold increase was seen 30 min after alcohol intake, and the relative increase seemed to be independent of the body burden of mercury. Exhalation of mercury represents only a small percentage of the total elimination of mercury.

PMID: 10872631, UI: 20329032

# Morken ea, mai 00

## Epikutantesting ved mistanke om bivirkninger av dentale materialer

[Tore Morken](#) [Svein Helland](#) [Joar Austad](#) [Rosemarie Braun](#) [Edvard S. Falk](#) [Nils Roar Gjerdet](#) [Jan-Øivind Holm](#) [Kristin Lund-Hanssen](#)  
Tidsskr Nor Lægefören 2000; 120: 1554-6

*Patch testing in patients with suspected adverse reactions to dental materials.*

*Kontaktallergiske reaksjoner som bivirkning av stoffer i tannrestaureringer forekommer, men de er sjeldne. Slik kontaktallergi kan manifestere seg i munnslimhinnen i form av allergisk kontaktstomatitt, allergiske lichenoides kontaktlesjoner eller sjeldnere i form av eksemutbrudd (systemisk kontaktdermatitt) i tilknytning til tannlegebehandling. Det finnes ikke dokumentasjon på at slike type IV-reaksjoner mot dentale materialer kan gi affeksjon av andre organer enn hud og munnslimhinne.*

*For å fastslå om det foreligger kontaktallergi, anvendes epikutantesting. En kontaktallergisk reaksjon påvist ved epikutantest må alltid sammenholdes med en vurdering av klinisk relevans, basert på anamnese, eksponeringsforhold og kliniske funn. Mulig relevans bør vurderes forut for eventuell testing ved å følge en foreslått indikasjonsliste for slik dental epikutantest. Aktuelle indikasjoner er kontaktlesjoner i munnslimhinne, utbrudd av eksem av ukjent etiologi i forbindelse med tannlegebehandling og klinisk mistanke om kontaktallergi mot en substans som planlegges brukt i tannlegebehandling. Epikutantesten gjennomføres med en standardisert dentalserie. Testen må utføres og tolkes av hudlege etter etablerte dermatologiske kriterier. En positiv epikutantest alene gir ikke grunnlag for utskiftning av tannrestaureringer som inneholder det aktuelle allergenet.*

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## Myndighetene

Veileder 1

Veileder 2

Til Strasbourg

Utredning SHT 8-98

Høring om EL

## Tenner og helse, 14.5.00

## Forbundet Tenner og Helse



Brev til Statens helsetilsyn, v/fagsjef Ola Johan Basmo, datert 14.05.00

### Oppfølging av utredningen: "Bruk av Tannrestaureringsmaterialer i Norge, 8-98"

FTH deltar for tiden i arbeidsgruppen nedsatt av Statens helsetilsyn for oppfølging av fyllingsmaterialrapporten. Vi ser det som særdeles viktig at Statens helsetilsyns anbefalinger beskrevet på sidene 16-20 av utredningen blir gjennomført.

FTH ønsker et forbud mot bruk av amalgam, som inneholder 50% kvikksølv, et kjent giftstoff. Vi har registrert at Helsetilsynet ikke ønsket et forbud, men gikk inn for alternativ II: "Faglige anbefalinger som vil resultere i redusert bruk av amalgam".

Vi leser på Helsetilsynets website: "Gjennom helsefaglig rådgivning og veiledning til politiske myndigheter, helsetjenesten og befolkningen skal Helsetilsynet medvirke til trygge helsetjenester for alle".

Alle våre forslag i møtene hittil har vært møtt med krav om vitenskapelig bevis. Vi finner dette urimelig, siden bruk av amalgam har aldri vært basert på vitenskapelig bevis. At kvikksølv frigjøres fra amalgamplomber, samles opp i kroppens celler og organer, og overføres til fosteret i forhold til mors amalgamplomber er et ubestridt faktum idag. Det er heller ikke spørsmål lenger om kvikksølvet som er samlet i organer fører til biologisk forandringer og skader. Det er omfanget av skadene debatten dreier seg om idag.

Siden Statens helsetilsyn fremdeles tillater bruk av giftstoffet kvikksølv i amalgam, uten vitenskapelig bevis for at denne praksis er uten fare,

# Helsetilsynet 29 Mai 00

Voksenåsen, Oslo.

“Adverse effects of oral biomaterials -  
International reporting systems and  
future research”

Internasjonal konferanse om  
skadevirkninger fra dentale materialer

# Tenner og helse, 1.6.00

## Forbundet Tenner og Helse



Hjem Kontakt

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### Myndighetene

- ◀ Veileder 1
- ◀ Veileder 2
- ◀ Til Strasbourg
- ◀ Utredning SHT 8-98
- ◀ Høring om EL

Brev til NIOM og Statens helsetilsyn, datert 01.06.00

### Veileder for bruk av tannrestaureringsmaterialer

Dette er generelle kommentarer fra Forbundet Tenner og Helse til veilederen, etter diskusjonen på konferansen den 30. mai.

Kopi er sendt til Asbjørn Jokstad, siden han flere ganger nevnte 'evidence-based dentistry'.

Vi vil minne om to uttalelser på konferansen:

Richard van Noort: 'In the UK there is a drive towards evidence-based clinical practice. Is this evidence of safety? All evidence in evidence-based dentistry is based on performance'.

Jeff M. Schakenraad: 'Biological properties of materials used in dentistry (and medicine...) should get as much (or more) attention as the mechanical properties'.

Vi legger ved kopi av en dansk oversettelse av artikkelen Amalgam og adhæsive restaureringer – Nogle aspekter vedrørende økonomi og livskvalitet, av Ivo Krejci.

Dette er oversettelse av en artikkel fra Forskningsrådsnämndens konferanse den 20. november 1997 i Stockholm: 'Perspektiv på risiko: fallen bly, rökning och amalgam', som finnes på originalspråket i FRN's Rapport til Regeringen, april 1998. Vi antar at både NIOM og Helsetilsynet har rapporten.

Vi siterer fra introduksjonen: 'Centeret for tand-, mund- og kæbekirurgi på Universitetet i Zürich er den viktigste offentlige tandlægeskole i Schweiz. Siden 1999 er det kommet flere tannrestaureringer i bruk som er amalgam-frie.

# Tenner og helse, 24.6.00

## Forbundet Tenner og Helse



Brev til Statens helsetilsyn v/fagsjef Ola Johan Basmo, datert 24.06.00

### Oppfølging av utredningen: "Bruk av Tannrestaureringsmaterialer i Norge, 8-98"

Vi vil først takke for konferansen i Oslo den 29.-30. mai, og for at Forbundet Tenner og Helse har vært inkludert i forberedelsene til konferansen og de nye veilederne for leger og tannleger.

Dette har vært et spennende eksperiment i samarbeid mellom pasientgrupper, helsemyndighetene og fagmiljøer, som er enestående internasjonalt. Statens helsetilsyn fortjener ros for sin håndtering av denne 'varme potet'.

Når Statens helsetilsyn nå skal utarbeide de veilederne som skal sendes ut på høring, minner vi om følgende innspill fra Forbundet Tenner og Helse, og vi ber om at disse blir lest grundig og tatt hensyn til:

? Kap. 18 av utredningen 8-98: Synspunkter fra Forbundet Tenner og Helse.

? Forbundets brev av 14. mai 2000 til Statens helsetilsyn, om bl. a. informert samtykke.

? Forbundets brev av 1. juni 2000 til Statens helsetilsyn og NIOM, om veileder for bruk av tannrestaureringsmaterialer. NIOM har sendt svar hvor de sier at de "avventer nå Helsetilsynet for videre fremdrift".

? Forbundets brev av 24. juni 2000 til Statens helsetilsyn, om veileder for utredning av pasienter med bivirkninger fra tannrestaureringsmaterialer.

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#### Myndighetene

- ◀ Veileder 1
- ◀ Veileder 2
- ◀ Til Strasbourg
- ◀ Utredning SHT 8-98
- ◀ Høring om EL

# Tenner og helse, 24.6b.00

## Forbundet Tenner og Helse



Brev til Statens helsetilsyn og Bivirkningsgruppen, datert 24.06.00

### Veileder for pasienter - kommentarbrev

Utkast 5a: Generell veiledning og råd om utredning av pasienter med symptomer antatt relatert til materialer brukt i tannbehandling.

Endringsforslag fra medlemmene i gruppe 1:

Forbundet Tenner og Helse ser på de aller fleste endringsforslag fra medlemmene i gruppe 1 på konferansen, som forbedringer av veilederen. Vi vil imidlertid påpeke følgende:

- Forslag, side 11: det er foreslått å tilføye 'og erstatningsmaterialene kan ha dårligere kliniske ytelser og dermed kortere forventet levetid'.

Vi protesterer mot en slik tilføyelse, av flere grunner:

- 1) Dette angår ikke en veileder om utredning av bivirkninger. Denne debatten hører heller hjemme i referansegruppen for veilederen om materialer.
- 2) Forslaget er så upresist at det er et meningsløs utsagn.
- 3) Det finnes vitenskapelig bevis for at dette ikke stemmer, hvis det er tannfargete erstatninger som det sikter til.

- Forbundet Tenner og Helse har hele tiden ønsket at veilederen skal inneholde instruks om hvordan pasienten beskyttes mot tilførsel av kvikksølv damp under utboring av amalgam. Vi fikk ikke medhold for dette, men på et av møtene i arbeidsgruppen ble det foreslått å skrive "utskifting

Hjem Kontakt

Om organisasjonen

Informasjon

Nyheter

Aktiviteter

#### Myndighetene

- ◀ Veileder 1
- ◀ Veileder 2
- ◀ Til Strasbourg
- ◀ Utredning SHT 8-98
- ◀ Høring om EL



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# Marcussen et al. june 2000

1: *Environ Res* 2000 Jun;83(2):123-8[Related Articles](#), [Books](#), [LinkOut](#)

## Mercury intolerance in relation to superoxide dismutase, glutathione peroxidase, catalase, and the nitroblue tetrazolium responses.

**Marcusson JA, Carlmark B, Jarstrand C**

Department of Dermatology, Huddinge University Hospital, Huddinge, S-141 86, Sweden.

Through percutaneous provocation with metallic mercury and phenyl mercuric acetate in patients stating the presence of subjective psychosomatic symptoms following dental amalgam treatment, it has been possible to categorize and score two extreme groups of patients, mercury-intolerant and mercury-tolerant patients reacting and not reacting, respectively, to low doses of mercury. The intolerant patients had a high psychosomatic score and the tolerant patients had a low or null score when exposed to low doses of the two mercury compounds. Determination of the scavenger enzymes superoxide dismutase, glutathione peroxidase, and catalase showed no significant differences between the mercury-intolerant and the mercury-tolerant patients and the controls. The activity of superoxide dismutase and the quantitative psychosomatic score elicited by either metallic mercury or phenyl mercuric acetate showed a positive correlation. On the other hand, analyses of the psychosomatic score and the areas under the curves of the nitroblue tetrazolium test response showed negative correlations. The results indicate that the oxidative metabolism and, in particular, superoxide dismutase may be perturbed in mercury-intolerant patients. Copyright 2000 Academic Press.

PMID: 10856185, UI: 20315852

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# Cederbrant & Hultman. Jul 2000

online

## Characterization of mercuric mercury (Hg<sup>2+</sup>)-induced lymphoblasts from patients with mercury allergy and from healthy subjects.

Cederbrant K, Hultman P

Department of Health and Environment, Division of Molecular and Immunological Pathology, Linköping University, Linköping, Sweden. Karin.Cederbrant@astrazeneca.com

Hg<sup>2+</sup> induces lymphocyte proliferation when added to cell cultures from both healthy and mercury-allergic subjects. Consequently, when measuring DNA synthesis a possible Hg<sup>2+</sup>-specific response, resulting from proliferating memory cells, cannot be discriminated from a non-allergic response. The mechanism behind this non-allergic response is unknown but a superantigenic effect of Hg<sup>2+</sup> has been suggested. In this study, five mercury-allergic patients, with oral lichen planus (OLP) lesions adjacent to dental amalgam and a positive patch test to Hg<sup>0</sup>, and five healthy subjects without amalgam were examined. The immunophenotype and the T cell receptor Vbeta (TCR Vbeta) repertoire of Hg<sup>2+</sup>-induced lymphoblasts as well as the expression of the lymphocyte activation markers CD23 and CD134 were analysed for possible differences between healthy and allergic subjects. The mechanism of Hg<sup>2+</sup>-induced proliferation was examined by comparing the TCR Vbeta expression of Hg- and staphylococcal enterotoxin B (SEB)-activated lymphoblasts, the latter used as a positive superantigen control. It was not possible to discriminate between mercury-allergic and healthy subjects using the immunophenotype or the TCR Vbeta profile of the Hg<sup>2+</sup>-induced lymphoblasts or the expression of CD23 and CD134. However, Hg<sup>2+</sup>-induced CD4<sup>+</sup> lymphoblasts showed a skewing towards Vbeta2. This relative increase in Vbeta2 was only detected in the CD4<sup>+</sup> but not in the CD8<sup>+</sup> lymphoblast population. In conclusion, Hg<sup>2+</sup> induced a proliferation-dependent skewing towards CD4<sup>+</sup> but not CD8<sup>+</sup> lymphocytes expressing Vbeta2. In this respect Hg<sup>2+</sup> differs from the classical bacterial superantigen SEB, which also stimulates unique TCR Vbeta families among CD8<sup>+</sup> cells.

1: *Altern Ther Health Med* 2000 Jul;6(4):49-55

[Related Articles](#), [Books](#), [LinkOut](#)

## Results of dental amalgam removal and mercury detoxification using DMPS and neural therapy.

**Kidd RF**

Sixty consecutive patients who had undergone replacement of dental amalgam fillings and a protocol of nutritional support and heavy metal detoxification using dimercapto-propanyl-sulfate and neural therapy were surveyed. A questionnaire was mailed to the patients and 42 responded, resulting in a response rate of 70%. The reasons for undergoing treatment were many, ranging from a patient's desire to avoid potential health problems in the future to treatment of serious current disease. Although medical diagnoses were made when possible before treatment, this survey studied only the patients' estimations of their most distressing symptoms and their evaluations of response to treatment. The most common complaints were problems with memory and/or concentration; muscle and/or joint pain; anxiety and insomnia; stomach, bowel, and bladder complaints; depression; food or chemical sensitivities; numbness or tingling; and eye symptoms, in descending order of frequency. The most distressing symptoms were headache and backache, fatigue, and memory and concentration problems. Headache and backache responded best to treatment, but all symptoms showed considerable improvement on average. Of the respondents, 78% reported that they were either satisfied or very satisfied with the results of treatment, and 9.5% reported that they were disappointed.

Stavanger aftenblad 29.8.00



forsiden / nyheter / innenriks

## Kvikksølvforgiftning til Strasbourg

29. august 2000 14:56

**Tordis Klausen, som hevder hun er skadet for livet etter at hun ble amalgamforgiftet på jobb, klager saken sin inn for menneskerettighetsdomstolen i Strasbourg. Høyesterett har avvist å behandle saken.**

Oslo (NTB-Jofrid Egeland)

Det er jusprofessor Edvard Vogt ved Universitetet i Bergen som skal føre Tordis Klausens sak i Strasbourg. Klausen har frist til desember med å levere inn klage over den norske stat til menneskerettighetsdomstolen. Professor Vogt jobber nå med å utforme klagen som han regner med vil være klar i løpet av en måneds tid.

Tordis Klausen (57) mener hun ble forgiftet av amalgam mens hun jobbet som tannlegesekretær på distriktstannklinikken i Bø i Telemark. Der varmet hun opp og formet kobberamalgam, som blant annet inneholdt uorganisk kvikksølv, med hendene. Hun mener at kvikksølvdamperen hun pustet inn, har skadet henne for livet.

Klausen har tapt saken hun anla mot Telemark fylkeskommune både i Nedre Telemark herredsrett og i Agder lagmannsrett. Klausen anket til Høyesterett hvor et enstemmig kjæremålsutvalg avviste å behandle anken 30. juni i år.

### Fare for rettssikkerheten

Det er en stor fare for rettssikkerheten at Høyesterett, her kjæremålsutvalget, ikke plikter å begrunne sin avgjørelser, sier professor Vogt til NTB.

### TIPS EN VENN OM DENNE SAKEN

Til (epost):

Fra (epost):

Tittel/spes:

### søk i nettarkivet

Søk

### siste innenriks

- Hamre utestengt i ti år (14:56)
- Rogaland-budsjettet under statlig kontroll (13:26)
- Usikkert om sikkerhet i GSM-nettet (10:57)
- Tønsberg får ny tilsynsetat (10:57)
- Hells Angels innrømmer politikartlegging (10:56)
- NSB i rute fredag den største reisedagen før jul (10:56)
- Staff overtar tamil-saken (10:54)
- Kinesere jobbet ulovlig i Ulsteinvik (10:52)
- Hermansen regner med kjøft i massemediene (10:50)

### på førstesiden nå

- Kvæmer fikk Petrojarl-kontrakt
- Forhandlingene i gang om Soma
- Rogaland-budsjettet under statlig kontroll
- Madonna-bryllup skjult bak slottsmurer
- «Green Ålesund» tsmmes Isrdag
- Hamre utestengt i ti år
- Parlerchavin leder i



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lokalt  
**innenriks**  
utenriks  
skonomi  
monitor  
kommentar  
været  
aftenbladet sandnes  
tv-vest



hovedside  
fotball  
tabeller  
debatt  
**magasin**  
hovedside  
jobb og utdanning  
hus og hage  
vi og våre  
forskning  
mat  
reiseliv  
bil og motor

### kultur

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film  
musikk  
baker  
det skjer  
min tv-guide

### tema

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Tina-saken  
Viksvæen-saken  
stadion-saken

Adressa 29.08.00

17. år dag 7,5% effektiv rente  
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22. desember 2000

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**Siste nytt**  
19:22 Iversen må opereres på nytt  
19:19 Juletrafikk uten store problemer  
19:00 Iversen må opereres på nytt

**Nyheter**  
Tid-Norge  
Trondheim  
Trondheimsbudsjettet  
Røyke-rettsaken  
Norge  
Spion-siktelsen  
Sleipner-forliset  
Trippeldrapet  
Togbrannen på Lillestrøm  
Hågensen-brannen  
Togkatastrofen  
Kampen om Gasskraften  
Orkdalsdrapet  
Barnedrapene  
Gisseldramaet  
LO-streiken

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Krigen i Tsjetsjenia  
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Ledere og kommentarer  
**Økonomi**  
Statsbudsjettet  
**Kultur**  
**Data**  
**Tilby**  
**Sport**  
RBK Fotball, Håndball, ..  
**Underholdning**

## Kvikksølvsak til Strasbourg

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»Søk en gang til  
»Dramatisk kutt for Kirkens SOS



KRISEN I MIDT-ØSTEN

»Håpet ute for Shimon Peres  
»Volden fortsetter i Midtøsten  
»Clinton møter israelske og palestinske forhandlere  
»Peres stiller til statsministeryalg  
»Barak har dårlig tid  
»Netanyahu stiller ikke som statsministerkandidat

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# Vahter et al. Oct 2000

1: *Environ Res* 2000 Oct;84(2):186-94

[Related Articles, Books, LinkOut](#)



## Longitudinal study of methylmercury and inorganic mercury in blood and urine of pregnant and lactating women, as well as in umbilical cord blood.

**Vahter M, Akesson A, Lind B, Bjors U, Schutz A, Berglund M**

Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden.

[Medline record in process]

We have investigated exposure to methylmercury (MeHg) and mercury vapor (Hg<sup>0</sup>) in pregnant women and their newborns in Stockholm. The women were followed for 15 months post delivery. MeHg, inorganic Hg (I-Hg), and total Hg (T-Hg) in maternal and cord blood were determined by automated alkaline solubilization/reduction and cold vapor atomic fluorescence spectrometry. T-Hg in urine was determined by inductively coupled plasma mass spectrometry. About 72% of the Hg in blood (n = 148) in early pregnancy was MeHg (median 0.94 microg/L, maximum 6.8 microg/L). Blood MeHg decreased during pregnancy, partly due to decreased intake of fish in accordance with recommendations to not eat certain predatory fish during pregnancy. Cord blood MeHg (median 1.4 microg/L, maximum 4.8 microg/L) was almost twice that in maternal blood in late pregnancy and was probably influenced by maternal MeHg exposure earlier and before pregnancy. Blood I-Hg (median 0.37 microg/L, maximum 4.2 microg/L) and urine T-Hg (median 1.6 microg/L, maximum 12 microg/L) in early pregnancy were highly correlated, and both were associated with the number of amalgam fillings. The concentrations decreased during lactation, probably due to excretion in milk. Cord blood I-Hg was correlated with that in maternal blood. The results show the importance of speciation of Hg in blood for evaluation of exposure and health risks.

PMID: 11068932, UT: 20513714

1: *Sci Total Environ* 2000 Oct 22;285(1-3):13-21

# Halbach et al. Oct 2000

[Related Articles, Books](#)

## Steady-state transfer and depletion kinetics of mercury from amalgam fillings.

Halbach S, Welzl G, Kremers L, Willruth H, Mehl A, Wack FX, Hickel R, Greim H

Institute of Toxicology, GSF-National Research Center for Environment and Health, Neuherberg, Oberschleissheim, Germany.

[Medline record in process]

In 29 volunteers with a low amalgam load, the number of amalgam-covered tooth surfaces and the occlusal area of the fillings were determined. Before and at select times after removal of all amalgams, concentrations of total mercury were measured by cold-vapor atomic absorption in plasma and erythrocytes as well as in urine together with the excretion rate. Absorbed daily doses were estimated from intraoral Hg emission by two separate methods. The transfer of Hg from the fillings via the oral cavity and blood to urinary excretion was evaluated according to the most representative combination of parameters. This consisted of occlusal area (1), absorbed dose (2), Hg concentration in plasma (3) and urinary excretion (4). Pairwise correlation coefficients were 0.49 for parameters 1 vs. 2, and 0.75 each for parameters 2 vs. 3 and 3 vs. 4. Within 9 days after removal of the fillings, a transient increase in Hg levels was observed in plasma only; in the group without a rubber dam, concentrations increased significantly above pre-removal values at days 1 and 3, whereas they decreased significantly below pre-removal values at day 30 in the rubber-dam group and at day 100 in both groups. Excretion rates decreased significantly at day 100 in the protected group. Peak plasma-Hg was 0.6 ng/ml on average at day 1 and decreased with halftimes of 3 and 43 days in subjects protected by a rubber dam. The results indicated that concentrations of total mercury in plasma responded rapidly to changes in the amalgam status and reflected the actual absorption most reliably. Notably, plasma-Hg levels were sensitive enough to detect a transient attenuation of the additional exposure after using a rubber dam during the removal of only a few fillings. However, being small in magnitude and lasting 100 days at best, the rubber-dam effect had minor toxicological relevance.

Cederbrant et al. 10.00

Adresse [http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list\\_uids=11068927&dopt=Abstract](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11068927&dopt=Abstract)

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 1: *Environ Res* 2000 Oct;84(2):140-4

Related Articles, Books, LinkOut

**Mercury intolerance and lymphocyte transformation test with nickel sulfate, palladium chloride, mercuric chloride, and gold sodium thiosulfate.**

Cederbrant K, Gunnarsson LG, Marcusson JA

Astra AB, Safety Assessment, Sodertalje, Sweden.

[Medline record in process]

The peripheral lymphocytes of 10 patients referred to as mercury intolerant and 9 patients referred to as tolerant with regard to presence or absence of psychosomatic symptoms when percutaneously exposed to low patch test doses of mercury were stimulated in vitro with four metal salts. In addition, cells from 7 subjects with no anamnestic mercury intolerance or allergy to metals as well as free from dental alloys were included as controls. Lymphocyte transformation test was done by in vitro challenge with five concentrations of gold sodium thiosulfate, nickel chloride, palladium chloride, and seven concentrations of mercuric chloride. Stimulation with palladium chloride and mercuric chloride showed a difference between the mercury-intolerant and -tolerant patients on one hand and the controls on the other, but there was no difference between the two patient groups. With regard to nickel sulfate, there was a significant dose-dependent stimulation in all the three groups but no difference between the groups could be seen. Gold sodium thiosulfate did not stimulate the lymphocytes at all. Based on these results, we therefore conclude that lymphocyte transformation test performed with the four metal salts cannot be used to further differentiate between mercury-intolerant and -tolerant patients.

PMID: 11068927, UI: 20518709

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De "hvite tannlegene":

## – For lav kunnskap om bivirkninger

Blant dem som har kommet med synspunkter i forhold til den nye veilederen, er de såkalte "hvite tannlegene". – Utenfor munnhulen klassifiseres amalgam som livsfarlig avfall mens det fortsatt anbefales som tannrestaureringsmateriale, sier tannlege Bjørn Oppedal fra Tønsberg. Oppedal har i et brev til Helsetilsynet tidligere i år presentert en rekke forskningsbaserte argumenter som peker klart i retning av utfasing av amalgam. Han stiller også spørsmål ved tannlegestandens oppførsel i denne saken:

– Mange synes at tannlegestanden opptreer hyklersk som ikke vil ta ansvar for til dels kjente, men også mulige ukjente bivirkninger forårsaket av amalgam. I likhet med tobakkindustrien kan odontologien også hevdes å ha skjult kunnskaper om reelle bivirkninger. Hvis Helsetilsynet og tannlegestanden ønsker å opprettholde en tilfredsstillende grad av troverdighet i denne saken, bør man ta hensyn til dette ved utarbeidelsen av nye veiledere for bruk av tannrestaureringsmaterialer, sier Oppedal.

– I denne sammenheng bør man også vurdere påstanden om at kun 0,1 % av pasientene reagerer på tannrestaureringsmaterialer. Da professor Ivar Mjør fremmet denne påstanden midt på 80-tallet, ba jeg ham offentlig om å forevise vitenskapelig dokumentasjon for erklæringen. Det eneste han imidlertid kunne vise til var at antall bivirkningsrapporter var så få, sier Oppedal, og legger til:

– Når både fagfolk og legfolk systematisk blir opplært til å tro på dogmatisk informasjon, vil dette gjenspeiles i samfunnets påfølgende trosstruktur. Således ville en tidligere tids

## Amalgam – turbulens rundt ny veileder

**Den forrige veilederen for bruk av dentale biomaterialer i tannhelsetjenesten er fra 1991. Nå er en revidert utgave på beddingen, og vil foreligge ved inngangen til 2001. Ikke uventet er arbeidet med å sy den sammen vanskelig. En rekke aktører har i de siste månedene stablet opp alt som er av argumenter fra den velkjente "amalgamdebatten".**

Den nye veilederen for bruk av tannrestaureringsmaterialer er en oppfølging av utredningen "Bruk av tannrestaureringsmaterialer i Norge" (1998). Helsetilsynet oppsummerte utredningen ved å anbefale at det ble utarbeidet faglige retningslinjer for å redusere bruken av amalgam.

– De anbefalingene man har forsøkt å innarbeide i veilederen, er styrt av dette overordnede hensynet. Men man har likevel forsøkt å unngå å legge seg på en restriksjonslinje med totalforbud av amalgam. Jeg håper vi ender opp med en veileder som åpner for tannlegens vurdering av hva som er den best egnede fyllingen, og ikke det vi kunne kalle en politisk tvangstrøye, sier tannlege Trond Strandenes som var med i referansegruppen for utredningen fra 1998.

– Hva mener du med en politisk tvangstrøye?

– Problemet med å gi råd om bruk av fyllingsmaterialer, er at det er vanskelig å forene både faglige og politiske hensyn og forventninger, sier Strandenes. – Amalgam har de siste årene blitt satt under et sterkt press fra ulike interessegrupper og miljøer. Alt tyder på at bruk av amalgam på sikt vil bli faset ut.

NTE: Enner for amalgam