Cancer, Dental Heavy Metal & Lasers

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02/21-24/2013
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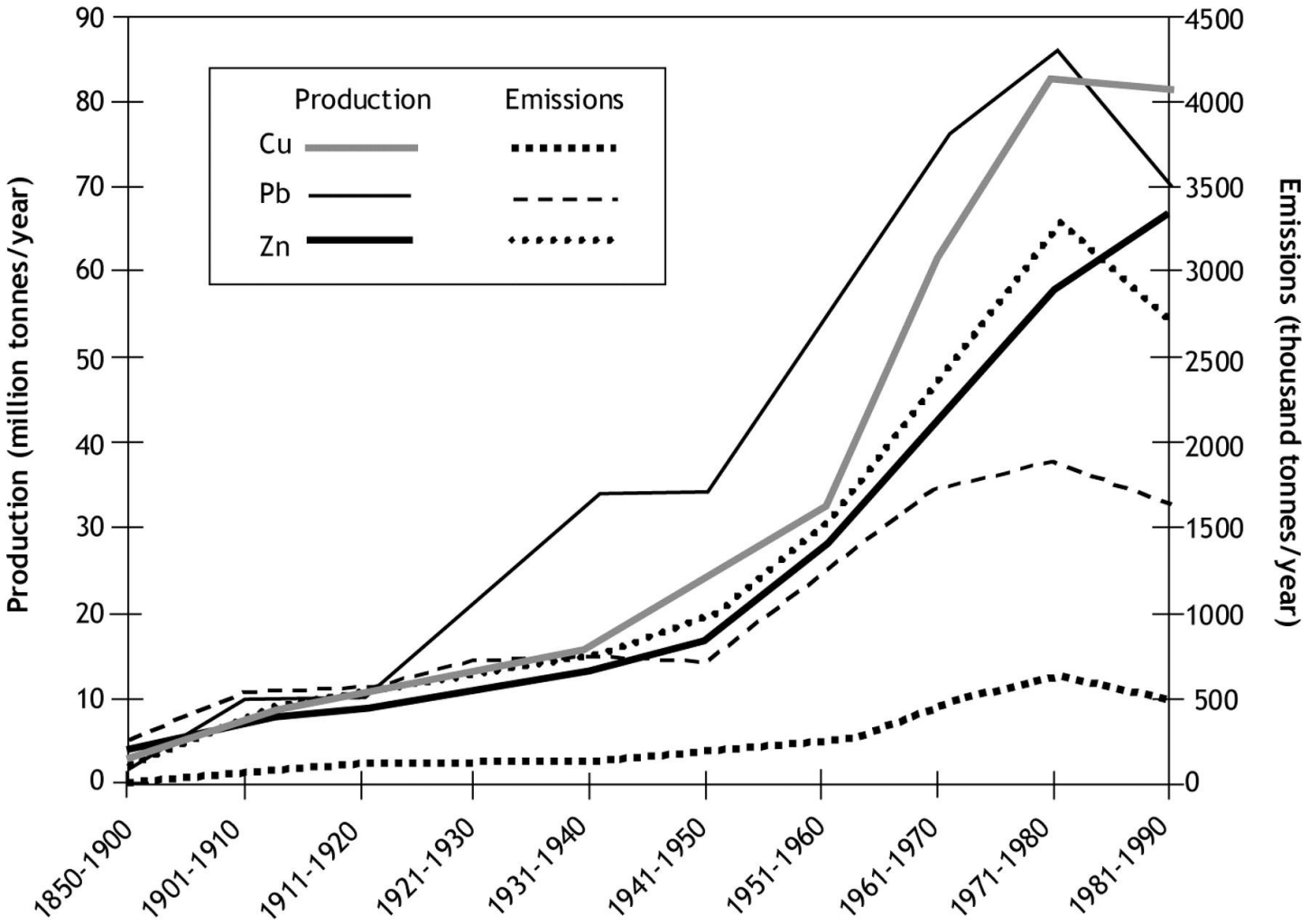
Global production and consumption of selected toxic metals, 1850–1990.



Järup L Br Med Bull 2003;68:167-182

BRITISH MEDICAL BULLETIN

NO SAFE LEVEL OF LEAD

- Blood lead levels and mortality Archives of Internal Medicine (AMA Official Journal)
- 2002 Nov 25;162(21)):2443-9
- Lustberg M, Silbergeld E. Department of Epidemiology and Preventive Medicine, University of Maryland
- Despite declines in blood lead levels during the past 20 years, lead exposure continues to be a public health concern. Studies have linked lead exposure with increased risk for diverse health outcomes. Few studies have evaluated the association of lead exposure and mortality in the general population.
- METHODS: To evaluate the association of lead exposure and mortality in the United States, we used the recently released mortality follow-up data for participants of the Second National Health and Nutrition Examination Survey, a national cross-sectional survey of the general population conducted from 1976 to 1980. Survey participants aged 30 to 74 years with blood lead measurements were followed up through December 31, 1992 (n = 4292).
- RESULTS: After adjustment for potential confounders, individuals with baseline blood lead levels of 20 to 29 microg/dL (1.0-1.4 micromol/L) had
- **46% increased all-cause mortality** (RR, 1.46; 95% confidence interval [CI], 1.14-1.86),
- **39% increased circulatory mortality** (RR, 1.39; 95% CI, 1.01-1.91), and
- **68% increased cancer mortality** (RR, 1.68; 95% CI, 1.02-2.78)
- compared with those with blood lead levels of less than 10 microg/dL (<0.5 micromol/L).

Synergistic effects of toxic metals (mercury, lead, aluminium) are extreme.

Bernard Windham, M.D.

- **Mercury and lead are extremely neurotoxic and cytotoxic, but their combined synergistic effect is much worse.**
- **A dose of mercury sufficient to kill 1% of tested rats, when combined with a dose of lead sufficient to kill less than 1% of rats, resulted in killing 100% of rats tested(1). Thus with combined exposure the safe dose is 1/100 as much as the dose individually.**
- **Studies in Australia have confirmed similar relationships hold for people. This means most people in the U.S. are getting dangerous levels of these metals, enough to cause some neurologic effects.**

- **(1) Schubert J, Riley EJ, Tyler SA. Combined effects in toxicology. A rapid systematic testing procedure: cadmium, mercury, and lead. Toxicol Environ Health 1978;4(5/6):763-776.**

Metals in dental alloys

- Beryllium
- Cadmium
- Chromium
- Cobalt
- Copper
- Gallium
- Gold
- Iridium
- Indium
- Manganum
- Mercury
- Molybdenum
- Nickel
- Palladium
- Platinum
- Silver
- Tin
- Titanium
- Vanadium
- Zinc
- Etc. etc.

Heavy Metal in Dentistry

- Dental fillings : Amalgam
- Prosthodontics: Crowns & Bridges
- Orthodontics: Brackets / Wires
- Implants

Dental amalgam

50% Mercury

50%

- Silver~22-32 %
- Tin ~14%
- Copper~8%
- Chromium
- Zinc
- Nickel
- Palladium

Mercury in dental amalgam: The WHO report

- For the last 180 years, dental amalgam (containing 50% liquid mercury) has been the most widely used filling material, although since the introduction of composite resins in the 1970s, its use has declined slightly.
- The WHO report acknowledges that amalgam has been associated with general health concerns and that its use releases a significant amount of mercury into the environment.
- The report estimates that mercury contamination of the environment from the use of dental amalgam contributes between 260 and 340 tons of mercury per annum of which the majority contaminates the atmosphere and the soil.

Mercury in dental amalgam

United States of America:

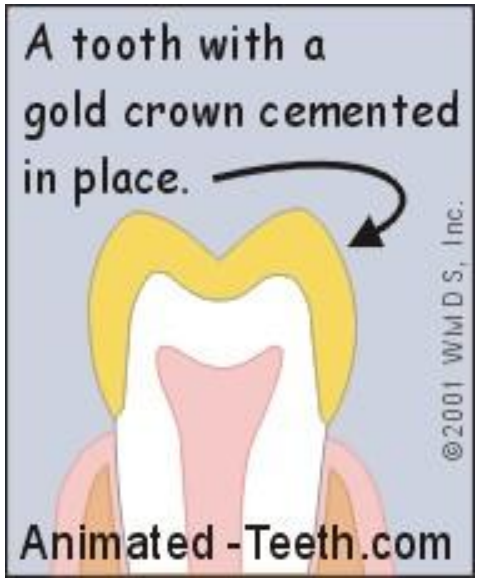
- Dental amalgam has been widely used in the US for about 150 years.
- FDA was first given authority to regulate medical devices in 1976.
- in 2009 the FDA convened a panel to investigate the issue of amalgam safety and made several recommendations: "FDA recommends that the product labelling includes a warning against the use of dental amalgam in patients with mercury allergy"
- Also, "If you are allergic to any of the metals in dental amalgam, you should discuss amalgam replacement with your dentist."

Mercury in dental amalgam

Europe:

- **t**he 47 nations of the Council of Europe have passed a resolution calling for member nations to start 'restricting or prohibiting the use of amalgams as dental fillings'.
- Several member countries have introduced phasing-out or phasing-down policies including Sweden, Denmark, Netherlands, Finland, Germany, and Austria.
- Some countries such as Denmark, Sweden and Germany require by law amalgam separators to be fitted in dentists' offices.

Crowns and Bridges



According to the American Dental Association,

- full gold crown alloys can only be labeled as *high noble* when they contain: at least 60% noble metal, of which at least 40% must be gold, and 20% platinum, palladium, silver, copper and tin
- other alloys (for example, palladium)
- or a base-metal alloy (for example, nickel, chromium or cobalt).

Dental Brackets/Braces Alloy

Types of braces:

- *Traditional metal wired braces* are **stainless steel,** sometimes in combination with titanium, and are the most widely used
- ***Gold-plated stainless steel*** braces are often employed for patients allergic to nickel
- ***Titanium braces*** resemble stainless steel braces but are lighter and just as strong. People with allergies to the nickel in steel often choose titanium braces,
- **Nickel-titanium** alloys,
- **Cobalt-chromium-nickel** alloys,
- **Beta-titanium alloys** etc. are used in the treatment of malocclusion

T.P. Chaturvedi, BDS, MDS, The Orhtodontic CYBERjurnal, January, 2008

Dental Wires Alloy

Different Types of Wires Used for Orthodontic treatment and their composition:

1. **Au (gold) alloys:** 15-65% Au, 11-18 Cu, 10-25% Ag, 5-10 % PD
2. **Stainless steel:** 71% Fe, 18% Cr, 0.8%Ni, C less than 0.2%
3. **Cr-Co alloys:** 40% Co20%Cr, 15%Ni, 15,4%Fe, 0.7%Mo,0.2%Mn, 0.4% Br, 0.05% other
4. **Ni-Ti alloys:** 54-55% Ni, 43-44% Ti, 1.6-3% Co
5. **Cu-Ni-Ti alloys:** 43% Ti, 50%Ni, 05%Cr, 6.5% Cu
6. **Beta-Ti alloys:** 78%Ti, 11% Mo, 0.6Zr, 0.4Sn

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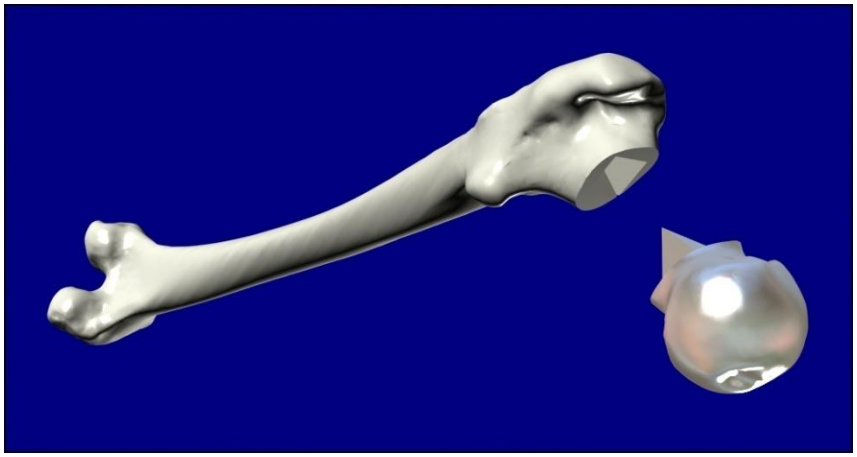
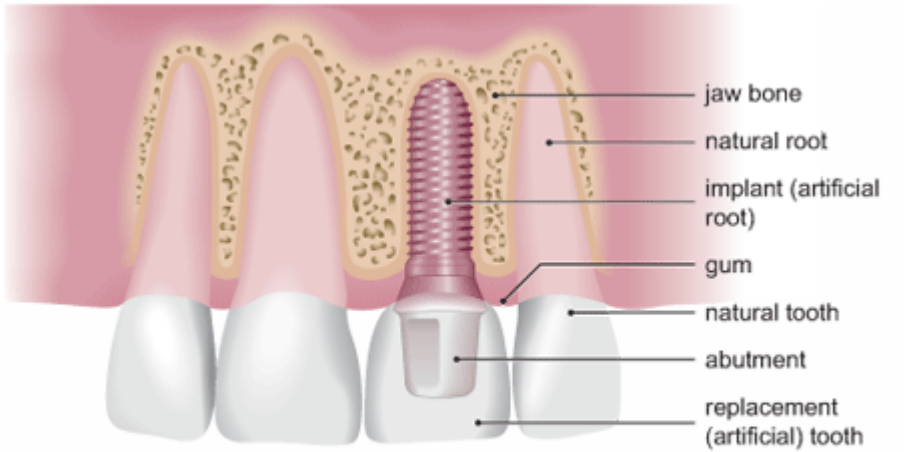
BODY IMPLANTS





A dental implant

Bupa

Alloys which can be used in implants are:

Cobalt-chromium

Titanium Alloys

Stainless Steel

Tantalum

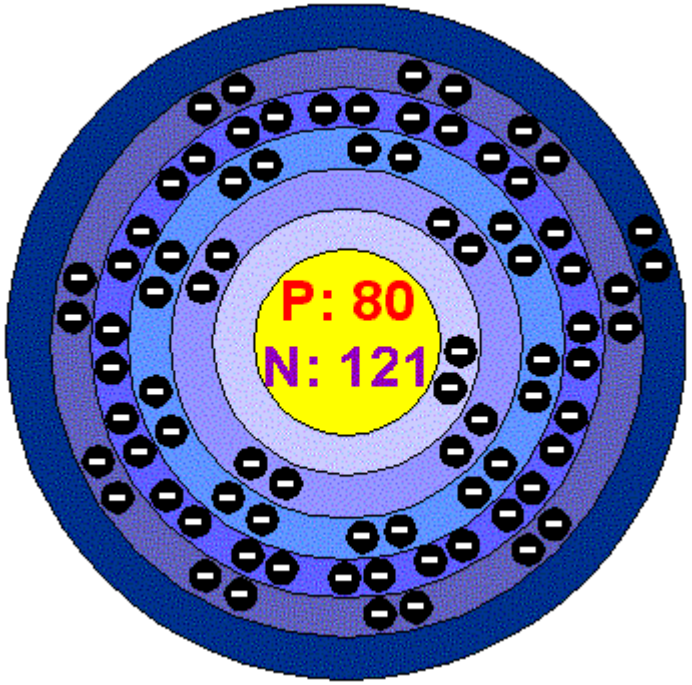
Titanium Alloys

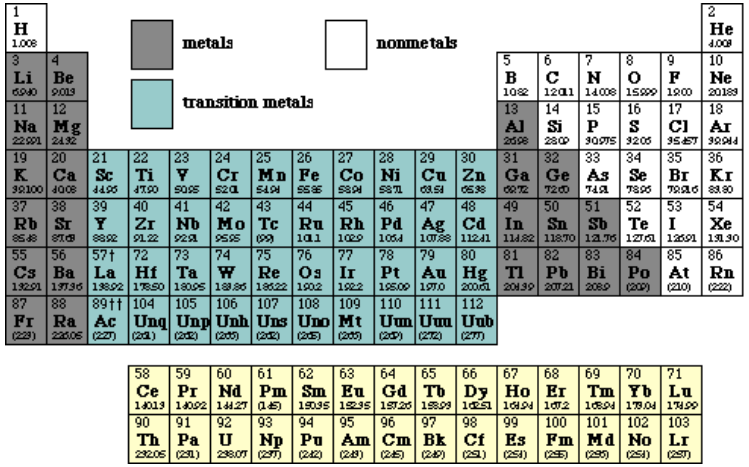
Titanium alloys are obtained by alloying titanium with the following elements (the numbers in parentheses representing the maximum percentage concentration by weight for industrial alloys):

- Ni (32),
- Mo (30),
- V (16),
- Sn (13),
- Zr (10), Cr (10),
- Al (8), Mn (8),
- Fe (5), W (5),
- Cu (3), and Si (0.5);
- the use of Nb (2) and Ta (5) is less common.
- Small amounts of Pd (0.2) and B (0.01) are added in order to, respectively, improve corrosion resistance and reduce grain size.

Titanium Alloys in Surgical Implants- Hugh A. Luckey, Fred Kubli, Jr.
ASTM International, 1983

Metals cause allergy and autoimmunity





Mercury is potent allergen

Transition metals used in dentistry bind strongly to proteins and thus are immunologically active

Side-effects of heavy & transition metals

Toxic effects

- higher doses
- single exposure
- low specificity
- low genetic influence

Immunologic effects

- low doses
- chronic exposure
- high specificity
- high genetic influence

Allergy
Autoimmunity

Increased reactivity to metals have been found in the following diseases:

- Cancer
- Multiple Sclerosis
- Chronic Fatigue Syndrome
- Rheumatoid Arthritis
- Crohn's Disease
- Unexplained food allergies
- Fibromyalgia
- ”Amalgam poisoning”
- Amyotropic Lateral Sclerosis
- Lupus Erythematosis
- Oral Lichen Planus
- Oral burning and itching
- Skin diseases such as eczema or psoriasis
- Sjögren's syndrome
- Autistic disorders
- Multiple Chemical Sensitivity

Ovarian Carcinoma

- the incidence of ovarian cancer, from 1973 to 1999, in white females over 65 has increased by 21%,
- The American Cancer Society estimates that in 2012, about 22,280 new cases of ovarian cancer will be diagnosed and 15,500 women will die of ovarian cancer in the United States

Surveillance, Epidemiology and End Results (SEER) Program of the National Cancer Institute

Prostate Cancer

- is the most commonly diagnosed cancer in men in the US.
- Over 300,000 new prostate cancer cases are diagnosed annually, constituting about 30% of all new male cancer cases,
- more than 40,000 men die from the disease each year

American Cancer Society

Criteria of research

Thirty people took part in the study:

- Ovarian Carcinoma, 19 women (24 -60 yrs)
  (CA-125 > 35 U/ml, Stage II, III,)
- Prostate cancer, 11 men, (27-55 yrs)
  (PSA 10 – 28 ng/ml)

Criteria of research

- All patients had undergone minimum one conventional treatment during a period of 10 to 25 years.
- The conventional treatment was unsatisfactory, some patients had had metastasis 0.5-3 years prior to the study.

Criteria of research

- All the patients have been given vaccines in the past, had amalgam fillings, had prosthodontic treatment , orthodontic appliances or implants.
- At the time of the study, all the patients had complete dental metal replacement.
- All the patients had the Melisa test and the most positive responses were to: mercury, gold, platinum, palladium, silver, copper, titanium, tin, nickel, chromium, cobalt, cadmium, manganese, and thimerosal.

Criteria of research

- During the heavy metal detox treatments, from the total of 30 patients
- Half were in the control group without laser treatments,
- The other half were exposed to laser therapy (SLBP) one or more sessions.

Treatment

- All the patients in both groups were treated with detox treatment:

  DMSA,

  Vitamin C,

  Glutathione,

  Na Selenite

  Mineral and Vitamin supplements.
- Half of them receive the laser therapy

Laser Therapy

- The treatment course consisted of 22 exposures distributed over 5 ½ weeks. There were four sessions per week.
- Another 22 sessions over 4 weeks were offered to patients who received the first course but showed minimal improvement after the first course.
- Ten patients completed the second course of 22 laser treatments

Laser Therapy

- The preliminary data show that increasing the number of laser sessions from 22 to 44 sessions did improve the efficacy of the treatments and resulted in total recovery in the majority of treated patients.

Laser Specifications

- soft laser
- category 1 or lower
- penetrates up to 17 mm
- improves the energy supply of the cell by direct effect on ATP- production
- improves cell regeneration - photonic effects take place in the cellular field

MELISA® method

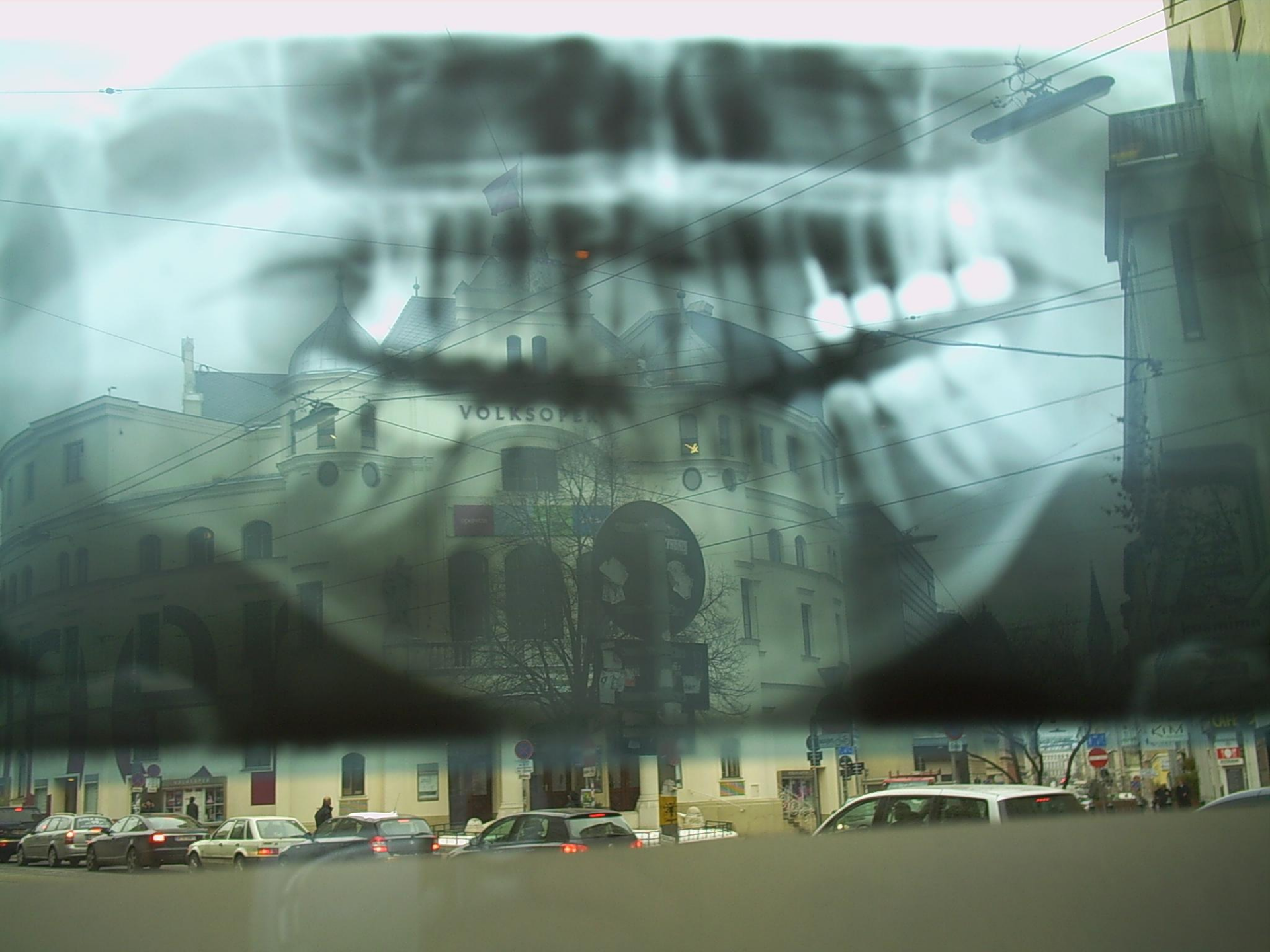
- Patient's white blood cells are exposed to the metallic allergens (the metals chosen for testing are determined by a Questionnaire of the patient's medical and dental history).
- Lymphocyte reactivity is measured by:
  1. Uptake of radioisotope by dividing lymphocytes
  2. Classical evaluation under microscope
- Results are produced as a value on a Stimulation Index together with a graph.

Ovarian Carcinoma

- After the first 22 laser sessions, the group which received laser treatments showed reduction of CA-125 to < 35 U/ml levels
- After second course of 22 laser sessions, there was decrease in metastasis and increased quality of life.
- Control group showed minimal improvement immediately after the detox treatments.
- At the follow-up performed at 12 months, great recovery was observed in the group which received laser therapy
- The group which did not receive laser treatments, showed minimal reduction of CA-125 U/ml level , after the non-laser detox treatments only

Prostate Cancer

- Group which received the first 22 laser treatments showed reduction of PSA levels (PSA < 4).
- After the additional 22 laser therapy sessions, total normalization of PSA observed (PSA< 0.01)
- Control group which did not receive laser treatments, showed reduction of PSA as well (PSA < 8) after the non-laser detox treatments
- Follow-up 12 mo later: the PSA in the Control group varied between 4 and 6


VOLKSOPER

Summary of case 1

- Patient CK, female, 43 yrs old
- CA-125 > 35 U/ml, psychiatric problems, anxiety, depression
- Dental status: Amalgam fillings, crowns, root fillings with brass screws and had braces over 3 yr
- MELISA : Hg +++,Ni +++,Cr ++,Co ++ , Au ++
- Treatment: replacement of all metals, detox, laser therapy, Ni-free diet
- Outcome: psychiatric problems disappeared permanently, CA-125 < 35,

Summary of case 2

- Patient TT, male 37 yrs old
- CFS, digestive problems, gluten intolerance,
  PSA 16 ng/mL
- Dental status: crowns, bridges, Ti implant
- Patch test: negative
- MELISA: Nickel +, Hg ++, Pb ++ Au ++
- Tin +, Methyl Hg+, Phenyl Hg+
- Treatment: Removal of crowns, bridges Ti-implant, and tattoo, detox and laser therapy, avoidance of nickel-rich food
- Outcome : total improvement of health, PSA 1.5 ng/ml

Summary of case 3

- Patient W, Female 45 yrs old, police officer
- Ovarian Ca, CA-125= 120, fatigue, endocrine problems
- Dental status: 11 amalgam fillings, 2 Au crowns
- Patch test: Nickel +
- MELISA: Nickel +++, Hg ++, Cr ++ , Co ++ , Cu +
- Ti +, Methyl Hg+, Phenyl Hg+
- Treatment: Removal of crowns and amalgam fillings, detox and laser therapy, avoidance of nickel-rich food
- Outcome: Relocation to administration for 1 yr, improved health, down-regulation of metal-specific lymphocyte reactivity

Summary of case 4

- Patient PA, female, 55 yrs old
- Gingivitis, skin disease, depression, Ovarian Ca,
  CA-125= 89
- Dental status: crowns, root fillings with brass screws
- Patch test: Ni +
- MELISA : Ni +,Cr ++,Co ++ , Be ++, Cd ++, Bi ++
- Treatment: replacement of all metals, detox, laser therapy
- Outcome: oral and psychiatric problems disappeared permanently, decrease of skin problems, CA-125= 25

Summary of case 5

Corrosion particles from a metal implant

Patient MH male 42 yrs old

Symptoms:

- fatigue
- severe depression!
- decreased mental capacity
- prostata Ca (PSA 16 ng/mL)

Dental status:

- 4-Ti- implants
- 6- gold crowns
- 4- Ti screws in spine

Summary of case 5

Treatment:

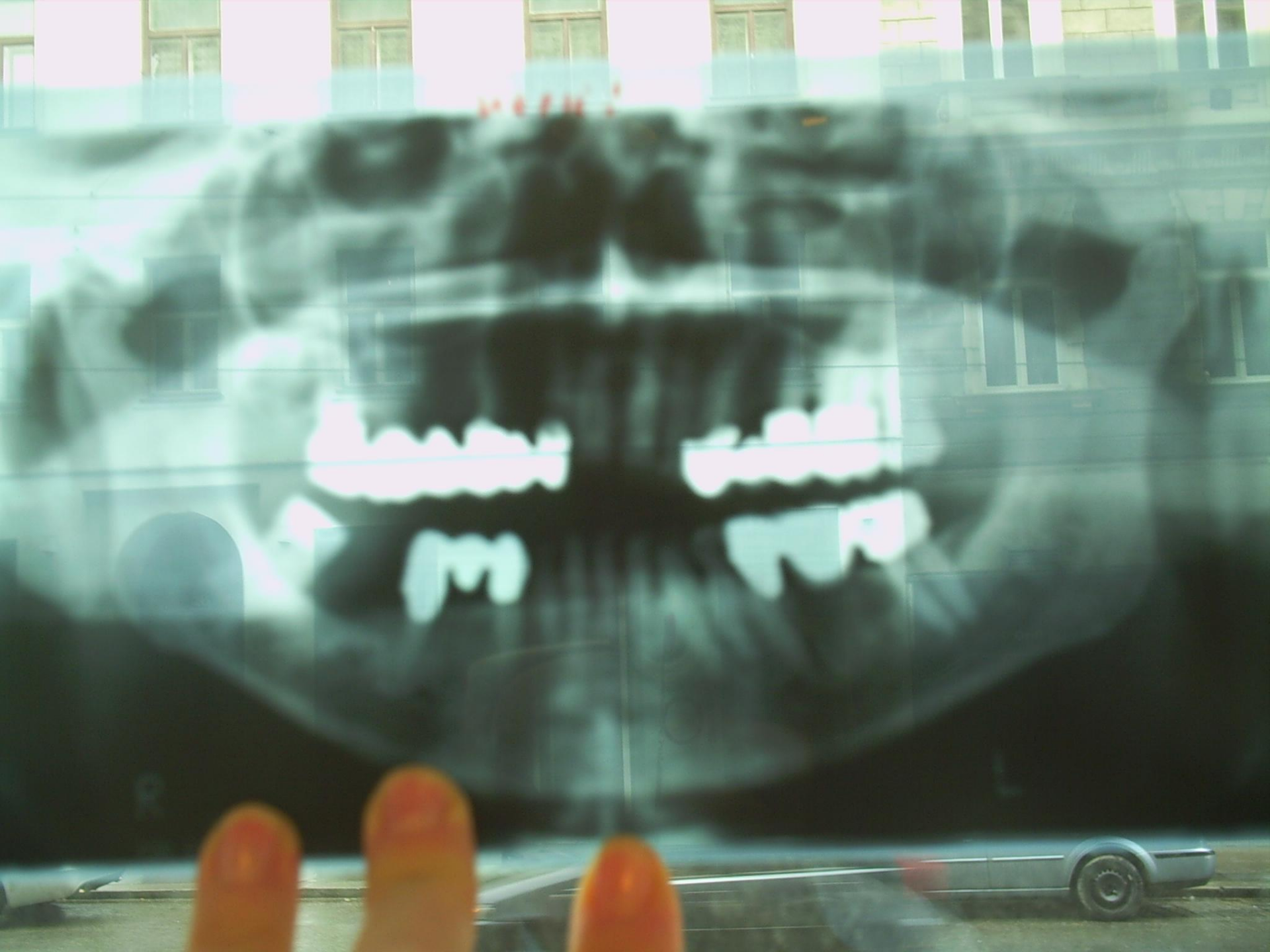
- Remove Ti implants and Au crowns,
- Remove Ti screws (2 corroded!)

Results after 6 months:

- Clinical: significantly improved
- MELISA: reactivities normalized
- PSA: 2.5 ng/ml

Summary of case 6

- Patient OH. Male, 46 yrs old, farmer
- CFS, atypical dermatitis, lung capacity (28%), PSA 24ng/mL
- Dental status: 2 amalgams, 3 gold crowns, 5 root fillings
- Patch test Negative
- MELISA: Bi +++, Mo ++, Cd ++,Hg+, PhHg+, Ni ++, Au +
- Treatment: Replacement of metals with metal-free restorations, detox and laser therapy
- Outcome: successive health improvement (2 yrs later) and of lung capacity (82%), PSA 0.01 ng/ml



Summary of case 7

- Patient MB. Male, 57 yrs old
- CFS, atypical dermatitis, PSA 16 ng/mL
- Dental status: 5 amalgams, gold crowns, root fillings,
- Patch test: Negative
- MELISA: Ag ++, Al ++, Pd ++,Hg+, PhHg+, Ni ++, Au +, Cd ++, Bi +
- Treatment: Replacement of metals with metal-free restorations, detox and laser therapy
- Outcome: successive health improvement (1.5 yrs later) skin problems disappeared permanently, PSA 0.5

Conclusions

- The health in all patients treated by dental metal replacement and detoxification improved .
- Patients who received laser treatments had faster recovery.
- Patients who received the additional 22 laser sessions had complete health recovery in a short time.

More informations

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