Health Effects After Dental Amalgam Removal

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Introduction

There has been much publicity about the harmful effects of mercury from dental amalgam which has resulted in a number of individuals having their amalgams removed. This paper reports on the research done on some of these people as well as presenting hypotheses on how amalgam mercury may be affecting health.

Dental amalgam is comprised of approximately 50% mercury with nearly 80% of the world's dental caries filled with amalgam.[1] Svare et al[2] and Gay et al[3] found that mercury vapours are released from amalgam restorations, and there is a direct correlation between mercury vapour released and number of amalgams.[4] Vimy and Lorschneider[5] calculated from measurements of intra-oral mercury vapour, that subjects with twelve or more occlusal amalgam surfaces received an average daily dose of 29 ug of mercury and those with one to four amalgams received an average of 9 u*g*. These levels exceed the threshold of most countries' accepted standard of environmental mercury exposure. Mercury in vapour is the elemental form. An average of 75%[6] to 80%[7] can be absorbed through alveoli when inhaled, and it then enters the blood stream. Elemental mercury in the blood can pass through the blood brain barrier before it is ionized and retained in the brain.

Mercury accumulates in tissue after release from dental amalgam. Subjects with amalgams had urine mercury levels 201% higher and hair mercury levels 27% higher than a control group without amalgams.[8] Eggleston et al[9] showed that the brain content of mercury is related to the number of amalgam fillings while Abraham et al[10] found subjects with amalgams had significantly higher levels of blood mercury than a control group.

Mercury is one of the most toxic elements that exists and many types of health problems are associated with mercury poisoning. It has a very strong affinity for sulfhydryl groups thus affecting the biological activity of many proteins and enzymes. Many aspects of physiology and health can be affected by mercury including the immune system, cardiovascular system, the gastrointestinal tract, chromosomes, hormones and the nervous system including sensory, motor and emotional.

If mercury from dental amalgam causes health symptoms, one would expect the symptoms to disappear after amalgam removal. Clinical evidence in the literature[11] [12] [13] confirms that symptoms improve after removal of amalgam. However, clinical evidence does not involve a control group and leaves the question of a placebo effect. This study also confirms that health improves after amalgam removal.

Likewise, if mercury from amalgam causes health problems, we would predict that people with amalgams are less healthy than individuals without amalgams. This hypothesis was confirmed in a controlled study at Colorado State University. We found that college students with amalgams had a history of 45% more health symptoms than a control group of age- and sex-matched students without amalgams.[8]

Both Stock[14] and Trachtenberg[15] found that chronic low doses of mercury can be very harmful to one's health. The majority of the world's population has silver/mercury fillings. Toxicity from dental amalgam could be one of the greatest health hazards in the world today. This study was undertaken to determine if people's health changed after amalgam removal.

Clinical Evidence

Raue,[11] a German ophthalmologist, has researched many patients poisoned by mercury from amalgam. He bases much of his diagnoses on the electrical current between amalgams. In two years he measured 100 patients that had oral galvanic measurements of over 5 microamperes

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with some symptoms of micromercurial-ism (mercury poisoning from low doses of mercury) that disappeared after amalgam removal. Many of Raue's patients had symptoms which were resistant to different therapeutic approaches but disappeared after amalgam removal.

He describes a 33-year old female who had severe migraine headaches which were more pronounced between the 14th and 18th day of her menstrual cycle. Her oral galvanic readings reached 25 microamperes. After amalgam removal, the migraine headaches never returned.

A 44-year old male had constant nausea and frequent blackouts. A current of 20 microamperes occurred between a gold and silver/mercury amalgam. All symptoms disappeared after amalgam removal.

For many years, a 41-year old female suffered from headaches that occurred almost daily. Her oral current measure 30 microamperes. After removal of the amalgams, the headaches subsided completely.

A 40-year old female suffered from equi-librium disturbances, dizziness, confusion, poor memory, pain in the nape of the neck and suicidal tendencies. The oral current between a gold and amalgam filling measured 25 microamperes. The symptoms disappeared after amalgam removal.

Raue found many amalgam related ailments that disappeared after removal of amalgams. These included headaches, facial neuralgia, migraines, dizziness, sleep disorders, tinnitus, cardiovascular problems, intestinal disorders, psychic disturbances, dermal disorders and rheumatoid symptoms.

He also found that gastroenteritis, dermatitis, eczema, urticaria, bronchial asthma and depression were associated with allergic reactions to amalgams. The removal of amalgam fillings alone resulted in a permanent cure of these symptoms. Oral symptoms associated with amalgams included dryness of the mouth, gingivitis and a metallic taste in the mouth.

Raue discovered that not all high oral galvanic currents were indicative of mercury poisoning. However, a higher current would release more mercury from an amalgam.

Jara Pleva,[12] a corrosion scientist in Sweden, described his experience of mercury toxicity from dental amalgam. For over 20 years Pleva had a multitude of health problems that physicians could not cure (Table A). It was only after he discovered the corrosion of his amalgams that he began to suspect mercury poisoning. Pleva had a number of amalgams and a gold bridge in contact with several of them. He also had a cavity that was root-filled with amalgam by drilling through the gold. After amalgam removal, all the symptoms disappeared within 3 months, except for facial paralysis and arcus senilis. His mental abilities and memory recovered more slowly than the somatic functions.

Shwarzkopf describes a 39-year old patient diagnosed as having thyrotoxicosia and endocarditis, with a severe weight loss and a high pulse rate. Three amalgams were removed and all symptoms were gone in 6 months.[13]

Stock[14] was the first to let the world know about the devastating effects of low amounts of mercury vapour. For 25 years Stock worked with mercury vapour, and later developed the classical symptoms of what is now known as micromercurialism. When his mercury exposure from the work environment was eliminated and his dental amalgams removed, his symptoms disappeared. In 1926, Stock published a letter from E. Jaensch, a professor of psychology who had developed mercury poisoning from amalgam. Jaensch's symptoms included diarrhea, weight loss, pains in all parts of the body, trouble sleeping, inflammation of the mouth, increased salivation, sore throat, painful asthmatic condition, intense anxiety, and complete impairment of his intellectual ability. After removal of his dental amalgams, the symptoms improved considerably. The recovery was slow, but he said that it was the first time he really knew what it was to live.

In 1936, Lain and Caughron[15] described subjective symptoms caused by dissimilar metals in the mouth. They included (a) a metallic or salty taste (b) increased salivary secretion (c) a burning or tingling sensation usually occurring on the margins of the tongue (d) occasional nerve shocks and pulp sensitivity from connecting restorations or from connections made by a spoon (e) pathological changes in the

blood, kidneys or other organs, which they thought was caused by ionized toxic metals (f) general discomfort in the mouth, irritability, indigestion, loss of weight and radiating neuralgic pains through branches of the trigeminal nerve.

Huggins[16] describes a 17-year old female who had dropped out of school due to health reasons. She had seen 50 health care practitioners who could not help her. Her symptoms included excruciating attacks of pain in the chest cavity that lasted 2 to 3 hours. The girl felt like she was going to die. The attacks began when dental amalgam was placed in her mouth 6 months prior to Huggins' visit. She had become introverted, developed psychiatric disturbances, experienced hallucinations, endured difficult breathing, hyperventilated, encountered chest and back pain, suffered pain in the left arm, was suicidal and developed a fiery red colour from the waist up. Within one week after amalgam removal all of her symptoms subsided.

The many clinical symptoms in the literature suggest that mercury from amalgam may be affecting health in a variety of ways. Most of these symptoms were researched in this study and were found to improve after amalgam removal.

Methods

A Utah dentist who had removed amalgams from approximately 300 people provided names and addresses of the subjects used in the study. A health questionnaire was sent to these people and 86 subjects responded. The questionnaire asked the subjects to describe their health status, health symptoms and life styles for the year before amalgam removal and the time after removal.

Results

See Tables pages 102-105.

Discussion

This study gives much evidence that mercury from dental amalgam may be causing health problems. Most of the 132 health symptoms studied have been associated with mercury toxicity. Within an average of 10 months, nearly 70% of these symptoms were improved or eliminated after amalgam removal.

Following amalgam removal, 80% of the subjects said they felt better and rated themselves as feeling an average of 59% better. Nearly all of the subjects (91%) said they were glad they had their amalgams removed and 88% said they would do it again. An increase in happiness and peace of mind was experienced by 58% of the volunteers. The evidence suggests the well being of these subjects improved immensely after amalgam removal.

In all 12 health categories, most of the symptoms were improved or eliminated (Table 15). Emotional problems are very characteristic of mercury toxicity because of mercury's ability to cross the blood brain barrier. Of the 409 emotional symptoms reported by the subjects, 82% were either improved or eliminated while only 2% got worse. The study suggested that many oral cavity health problems may be caused by dental amalgam mercury as 86% of the dental symptoms were either improved or eliminated after amalgam removal. Mercury toxicity, regardless of dental amalgam, does elicit many dental symptoms.

The immune system appears to be enhanced after amalgam removal as the subjects reported 43% fewer colds, 56% fewer sore throats, and 69% fewer sinus problems the year after amalgam removal. Sixty-three percent of the allergy symptoms improved.

Mercury can affect the cardiovascular system in many ways.[17] Tachycardia, which is common in mercury poisoning, was improved or eliminated in 14 of 15 subjects while high blood pressure got better in 5 of 7 subjects. Hypertension is common in mercury toxicity. Chest pain was improved in 85% of 13 subjects.

Nervous conditions such as shakes, which are common in mercury toxicity, improved or were eliminated in 13 or 14 patients; numbness got better in 13 or 20 people; and both subjects who had epilepsy said their condition got better. Twitching was eliminated or improved in 17 of 20 subjects.

Digestive disorders are very common in mercury toxicity. The conditions of indigestion, heartburn and diarrhea all improved in approximately 75% of the subjects. Poor appetite improved in 8 of 11 subjects, which might be

explained by mercury's ability to affect the hypothalamus which controls appetite. This also raises the question of a relationship between mercury and anorexia nervosa.

Menstrual disorders were improved or eliminated in 9 of 12 women. A controlled study between age-matched women found that the group with amalgams had 60% more menstrual disorders than a group without amalgams.[8] Mercury does affect hormones released by the pituitary and ovary.

Blood sugar disorders may also be caused by mercury. Sixty-two percent of the 26 hypoglycemic subjects said their condition improved after amalgam removal. Nearly 1/3 of the 49 subjects who craved sweets before amalgam removal said they craved sweets less after removal. The one individual who reported diabetes said it had been eliminated after removal of the amalgams. There are many sulfhydryl groups located on the insulin molecule. If insulin was being compromised by mercury, this could explain the increased craving for sweets and sugar disorders.

Both mercury and arthritis have been linked to allergies and autoimmune disorders. Seventy percent of the arthritic subjects said their condition improved after amalgam removal and 65% reported less pain in joints, suggesting a relationship between mercury and arthritis.

The many symptoms that improved after amalgam removal substantiate many of the clinical reports found in the literature regarding mercury poisoning from dental amalgam and other sources.

Mechanisms of Mercury Toxicity

Sulfhydryl Groups

Several theories may explain how mercury from dental amalgam affects health. Mercury is highly specific for sulfhydryl groups (SH) which are essential in the biofunctioning of proteins. Nearly all proteins contain SH groups that are metal reactive. Mercury is highly nonspecific in its reactivity and can react with many different proteins.[18] Mercury interferes with SH groups of protein by oxidizing the amino acid cysteine which is one of the basic SH donors. Low mercury concentrations can affect a series of specific proteins found in enzymes, hormones, and the immune system. It is not the average number of SH groups affected that determines mercury toxicity, but the key reactive centers with which mercury reacts. Even following toxic doses of mercurials, less than 1% of the SH groups in blood are attached to mercury to produce toxicity.

Membranes

Mercury ions may damage membranes by forming cross linkages within the membrane structure itself or they may inhibit enzymes associated with the membrane.[19] Research suggests that cells may respond to mercury in all or none fashion: at any given mercury concentration, a cell may not be affected at all or its membrane may be completely compromised.[20]

Lysosomes

Lysosomes selectively accumulate inorganic mercury, which may represent an attempt at detoxification.[18] Data suggests that damage to lysosomes by mercury may be the primary lesion responsible for cell membrane destruction due to the release of hydrolytic enzymes.[21]

Free Oxyradicals

Mercury's affinity for SH groups may be the main mechanism of toxification, but toxicity from other mechanisms may contribute to mercury's toxic effects. Evidence suggests that mercury may cause the development of free oxyradicals which also produce histological tissue damage. In our studies[8] mercury did cause free oxy-radical formation in aerobic human hemoglobin. The addition of mercuric chloride to aerobic solutions of purified human hemoglobin enhanced the auto-oxidation rate. When catalase, a radical scavenger of hydrogen peroxide, was added to the mixture, the rate of auto-oxidation decreased by approximately 50%. This indicated the generation of the free oxygen radical hydrogen peroxide which became neutralized by catalase. Evidence also suggests that the presence of mercury causes the formation of the superoxide radical which may be the peroxidation-causing agent.[22] Super-oxide and hydrogen peroxide radicals produced

during hemoglobin auto-oxidation may diffuse across the membrane and produce products that initiate lipid peroxidation. We found that subjects with dental amalgams had significantly lower levels of hemoglobin when compared to a group without amalgams.[8] This finding suggests that mercury poisoning may cause auto-oxidation of hemoglobin in vivo. In this study, after removal of amalgams all five cases of anemia were either improved or eliminated.

DNA

Biomolecules within the cell membrane and nucleus are very susceptible to reactions by radicals. The superoxide radical produces damage by attacking DNA directly or by causing the secondary generation of other radicals which can attack DNA.[23] Enzymes with SH groups are very sensitive to the superoxide radical. Superoxide radicals also damage protein.

Allergies

Evidence suggests that allergies may be another path on how mercury produces its toxic effects. Allergies can cause a multitude of health problems. Thirty-eight percent of the 55 subjects said they had fewer allergies after amalgam removal and 63% of allergy symptoms were either improved or eliminated. Djerassi et al[24] have demonstrated that dermal allergic reactions to mercury appear more frequently after the amalgam has been in the mouth for greater than 5 years. They also compared a control group of 60 people without amalgams to 186 subjects with amalgams. Sixteen percent of the amalgam group exhibited a positive patch test to mercury compared to none in the non-amalgam group. With mercury's ability to enter the blood stream after inhalation of vapour from the amalgam, it would be easy to explain how symptoms occur in other parts of the body if an individual was allergic to mercury.

Autoimmunity

Animal studies have shown[15] [25] how small amounts of mercuric chloride can produce auto-immune reactions. The etiology of many auto-immune diseases is unknown but evidence suggests that mercury should be looked at as a possible cause. The leading hypothesis on the etiology of multiple sclerosis (MS) is that it is an auto-immune disease. Epidemiology studies[26] have directly correlated the number of decayed, missing and filled teeth to deaths related in MS. Ingalls[27] believes that MS may be associated with mercury from dental amalgam. Dental exams of 51 MS patients demonstrated an abnormally high rate of caries among them compared to an age-matched group of epileptics.[26] MS is characterized by demyelination of the nerve fiber and mercury is known to cause demyelination of nerves.[28]

Immunity

Mercury from dental amalgam appears to be affecting the immune system. Eggleston[29] found that T lymphocytes decreased as amalgams were put in patients and increased after the amalgams were removed. We found in our study[8] that subjects with amalgams had a significantly lower level of T lymphocytes compared to a control group without amalgams. The values were 5% lower and significant at the 0.045 level. The T lymphocytes provide cellular immunity against viruses and yeast infections such as Candida albicans. Many symptoms of Candida albicans are similar to those of mercury toxicity[30] and this relationship should be researched. T lymphocytes are also suppressed in MS patients.

The data[8] also suggests that mercury may be stimulating antibodies. A significant correlation was found with IgG, IgA and IgE to the number of fillings and urine mercury in the subjects with amalgams. IgG provides a defense against bacteria while IgA is found in mucous secretions, fighting both viruses and bacteria. IgE is associated with immunity in hay fever.

Galvanic Current

Another avenue of amalgam toxicity may be through oral galvanic currents produced by dissimilar metals in the mouth. As Raue[11] showed, many patients with symptoms of micromercurialism have small electrical currents between metal fillings. Becker[31] demonstrated that small electromagnetic fields may affect mental and physical health, and suggests that

smaller electromagnetic fields may be a greater health hazard than larger fields since smaller fields can disrupt cellular functions. Today, greater attention has focused on the health risks of electromagnetic pollution.

Stress

Damage at the DNA, protein and cellular levels is not the only source of mercury poisoning problems. Mercury may also be implicated in stress disorders. Mercury poisoning is associated with anger, irritability, depression and anxiety — all symptoms of stress. All these symptoms were improved or eliminated in over 80% of the subjects after amalgam removal. We also found that subjects were able to tolerate stress 48% more after amalgam removal. These subjects rated themselves as being 26% more happy and 28% reported greater peace of mind. As we accept the inter-relatedness of physical and mental well-being, we must postulate that mercury's stress on the mind may also affect physical well-being.

Levine and Kidd[32] provide evidence that oxidative stress can lead to degenerative disease as well as immunity suppression. They have shown how oxidative stress may cause mental imbalances since brain tissue is particularly sensitive to free oxy-radicals. Mercury has a strong affinity for the brain. Our study[8] found that individuals with amalgams had 145% more mental problems compared to a control group without amalgams. As emotional and physical stress accumulates, the ability of the body's antioxidant defenses to compensate for stress is compromised,[52] and signs of chronic and acute illness may result.

Evidence suggests that mercury may cause a vicious cycle. Mercury causes physical health problems directly, but it may also cause health problems indirectly by producing emotional stress. Emotional stress may cause more physical illness, exacerbating the emotional problems. Thus, a ruthless cycle develops. Forty-four percent of the subjects reported they were less emotional after amalgam removal.

Conclusion

Swedish neurobiologist Mats Hanson replicated many of the findings of this study on 519 Swedish subjects who had their amalgams removed.[33] The subjects reported a total of 3342 symptoms in 60 symptom categories. They described 33% of these symptoms as getting "much better" after amalgam removal and another 44% of the symptoms as being "better". Only 5% of the symptoms got worse in his study compared to 3% in this study.

Some health improvements may be accounted for by the placebo effect. However, a number of patients' symptoms got worse before they got better, which is common according to clinical reports. This worsening could not be explained by the placebo effect. A controlled study is necessary to fully document the effects of amalgam removal.

Whether health improvement after amalgam removal is a placebo effect or is caused by elimination of mercury, the fact is that people's health improves after removal. The health symptoms that improved can easily be explained by mercury toxicity. Our findings strongly argue for a moratorium on the use of silver/mercury amalgams until this question is resolved.

This paper is based on a dissertation submitted to the graduate faculty at Colorado State University for partial fulfillment of a Ph.D. requirement in physiology.

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Table A. Symptoms Associated with Pleva's Amalgams

Mental
anxiety
irritability
difficulty in controlling behaviour
indecision
loss of interest in life
tiredness
feeling of being old
resistance to intellectual work
increased need for sleep
feeling of stress

Cardiovascular
irregular heart beat

Eye
retinal bleeding
dim vision after exercise
slow and poor accommodation
inability to fix the gaze
uncontrollable eye movement
geometric figures in visual field
dry eyes
a film over eyes
arcus senilis

Pain and Discomfort
red irritated throat
inflammation
pleurisy
joint pains
pain in lower back

Oral Cavity
increased salivation sour
metallic taste bleeding gums at
brushing difficulty in
swallowing

Miscellaneous
facial paralysis
vertigo
headaches once a week
weak muscles
asthentic breathing trouble
GI irritation
eczema

Table 1. Questionnaire

A. Sex: Males - 26; Females - 60

B. **Age:** Mean age - 40.41 years

C. Mean Date the Last Filling Removed: 9.95 months before they completed the questionnaire.

D. Adverse Effects: Yes - 30 (37%); No - 52 (63%). Most adverse effects were minor, and cleared up shortly after amalgam removal.

E. **Feeling Better:** Yes - 67 (80%); No - 17 (20%). On a scale of 0% to 100%, the subjects said they felt an average of 48% better after removal. The 67 subjects which felt better, felt 59% better.

Feeling Worse: Yes - 11 (14%); No - 70 (86%). Of the 11 subjects who said they felt worse, 9 said they also felt better after removal. Some said they felt worse immediately after removal, and then felt better. Only 3 felt worse after amalgam removal than before. On a scale of 0% to 100%, the 11 subjects that felt worse said they felt 21% worse, but said they felt 47% better on the "feeling better" question.

F. **Mean Number of Amalgams Removed:** 10.77 amalgams

G. **Are you glad you had your amalgams removed?** Yes - 78 (91%); No - **1 (1%);** No response - 7 (8%)

H. If you had to do it again, would you have your amalgams removed? Yes - 76 (88%); No - 8 (9%); No response - 2 (2%)

I. Did you have any gold fillings in your mouth at the same time you had amalgam fillings? Yes - 32 (37%); No - 50 (58%); No response - 4 (5%)

J. **Do you crave sweets?** Before removal: Yes - 49 (60.4%); No - 32 (39.5%). After removal: Yes - 34 (44.2%); No - 33 (40.7%); Less-16(19.8%)

K. Do you have allergies? Before removal : Yes - 55 (71.4%); No - 22 (28.6%). After removal: Yes - 34 (44.2%); No - 23 (29.9%); Fewer allergies - 20 (26.0%)

Table 1. (Cont'd.)

L. Colds a year: (only included those subjects who had amalgams removed for 12 or more months) 22 subjects
Before removal: 2.13 colds a year/subject. After removal: 1.21 colds a year/ subject. 43% fewer colds after amalgam removal. 28 subjects
Fewer colds after removal - 14 subjects (50%). More colds after removal - 0 (0%). Equal colds - before and after -14 subjects (50%).

M. Sore throats a year: (subjects with amalgams removed for 1 year or more) 15 subjects
Before removal: 2.70 sore throats a year/ subject. After removal: 1.20 sore throats a year/subject. 56% fewer sore throats after amalgam removal 22 subjects
Fewer sore throats after removal - 12 subjects (55%). More sore throats after removal - 0 (0%). Equal sore throats -before and after - 10 subjects (45%)

N. Sinus problems a year: (subjects with amalgams removed for 1 year or more) 19 subjects
Before: 3.09 sinus problems a year/subject. After: 0.95 sinus problems a year/ subject. 69% fewer sinus problems after amalgam removal. 19 subjects
Fewer sinus problems after removal -11 subjects (58%). More sinus problems after removal - 1 subject (5%). Equal sinus problems - before and after - 7 subjects (37%)

O. Life style:

A. smoked - 4 subjects
B. birth control pills - 3 subjects
C. drink alcohol more than 1 drink daily - 1 subject
D. vegetarian: before - 6; after - 4
E. took vitamins: before - 60; after - 68
F. took minerals: before - 45; after - 48
G. ate fish more than twice a week: before - 18; after - 10
H. skip breakfast: before - 34; after - 30 I. had worn braces - 14 subjects

Table 2. Evaluation

In the following questions, the subjects were asked to rate themselves on a scale of 1 to 10, before and after removal.

A. Rate your tolerance to stress (10 being best): Before - 4.85; After - 7.17; 47.8% more tolerance after removal; More tolerant after removal - 53 (67.9%); Less tolerant after removal - 2 (2.6%); Equally tolerant after removal - 23 (29.5%).

B. Rate the amount of stress you are under (10 being high stress): Before - 6.85; After - 6.44; 6% less stress after removal; More stress before removal - 20 (25.3%); More stress after removal - 16 (20.2%); Equal stress - before and after - 43 (54.4%).

C. Rate your emotional level (10 being highly emotional): Before 6.22; After - 5.04; 19% less emotional after removal; Less emotional after removal - 35 (44.3%); More emotional after removal - 8 (10.1%); Equally emotional - before and after - 36 (45.6%).

D. Rate your overall health (**1**0 being very good health): Before - 6.09; After 7.69; 26.2% better health after removal; Better health after removal - 51 (63.8%); Worse health after removal - 0; Equally heal thy after removal - 29 (36.2%).

E. Rate your overall happiness (10 being happiest): Before - 6.27; After - 7.92; 26.4% happier after removal; More happy after removal - 46 (58.2%); Less happy after removal -1 (1.3%); Equally happy - 32 (40.5%).

F. Rate your overall peace of mind (10 being most): Before - 6.15; After - 7.85; 27.6% more peace of mind after removal; More peace of mind after removal - 46 (58.2%); Less peace of mind after removal - 2 (2.5%); Equal peace of mind -before and after - 31 (39.2%).

G. Rate your overall reading comprehension (10 being best):
Before - 6.78; After 7.89; 16.3% better reading comprehension after removal; Better comprehension after removal - 36 (45.6%); Worse comprehension after removal - 0; Equal comprehension after removal - 43 (54.4%).

Note
For tables 3 to 14:

T = total number of subjects with symptoms
NC = no change in symptom after amalgam removal
E = symptom eliminated after amalgam removal
I = symptom improved after amalgam removal
W = symptom got worse after amalgam removal

Table 3. Skin

	T	NC	E	I	W	E+I%
rashes	22	4	9	9	0	82%
itching	15	2	3	*10*	0	87%
red flushes	5	0	3	2	0	100%
rough skin	13	1	3	8	1	85%
acne	21	11	2	7	1	43%
other	11	1	4	4	2	73%
Total	87	19	24	40	4	
Percent		22%	28%	46%	4%	74%

Table 4. Cardiovascular

	T	NC	E	I	W	E+I%
chest pain	13	2	1	10	0	85%
tachycardia	15	1	2	12	0	93%
heart murmur	3	0	2	1	0	100%
high blood pressure	7	2	2	3	0	71%
low blood pressure	8	2	2	3	1	63%
other	5	1	2	2	0	80%
Total	51	8	11	31	1	
Percent		16%	21%	61%	2%	82%

Table 5. Nervous

	T	NC	E	I	W	E+I%
MS	5	4	0	1	0	20%
Bells palsy	1	0	0	1	0	100%
shingles	1	0	0	0	1	0%
numbness	20	7	2	11	0	65%
tingling	18	5	4	8	1	68%
epilepsy	2	0	1	1	0	100%
Dr. Said nerves	11	0	2	9	0	100%
shakes	14	1	3	10	0	93%
twitching	20	2	6	11	1	85%
other	5	0	1	4	0	100%
Total	97	19	19	56	3	
Percent		19%	19%	59%	3%	77%

The subject was asked to check the symptom in the questionnaire that was present within the year before amalgam removal and then check the status of the symptom after removal.

Table 6. Digestion

	T	NC	E	I	W	E+I%
diverticulosis	3	1	1	1	0	67%
ulcers	3	2	0	1	0	33%
Chrones disease	0	0	0	0	0	0%
Graves disease	1	1	0	0	0	0%
indigestion	*26*	6	2	18	0	74%
bloated	24	3	3	18	0	81%
heart burn	20	4	4	11	1	75%
poor appetite	11	3	3	5	0	73%
diarrhea	11	2	1	8	0	82%
other	13	3	2	8	0	77%
Total	112	25	16	70	1	
Percent		22%	14%	62%	1%	76%

Table 7. Blood Disorders

	T	NC	E	I	W	E+I%
mono-nucleosis	1	0	1	0	0	100%
anemia	5	0	3	2	0	100%
other	1	0	1	0	0	
Total	7	0	5	2	0	
Percent		0%	71%	29%	0%	100%

Table 8. Endocrine

	T	NC	E	I	W	E+I%
thyroid	13	7	0	6	0	46%
pancreas	6	2	0	4	0	67%
diabetes	1	0	1	0	0	100%
hypoglycemia	26	10	2	14	0	62%
hypothyroid	3	1	0	2	0	67%
ovaries	6	0	2	4	0	100%
testes	0	0	0	0	0	0%
menstruation	12	2	2	7	1	75%
hysterectomy	5	5	0	0	0	0%
tipped uterus	3	1	0	2	0	67%
cervical erosion	1	1	0	0	0	0%
prostate	3	1	0	2	0	67%
overweight	21	12	2	6	1	38%
underweight other	6	2	0	4	0	66%
	0	0	0	0	0	0%
Total	106	44	9	51	2	
Percent		42%	8%	48%	2%	57%

Table 9. Emotional and Mental

	T	NC	E	I	W	E+I%
sudden anger	31	3	5	23	0	90%
depression	38	4	4	28	2	84%
wish dead	17	0	7	10	0	100%
irritability	34	5	4	25	0	85%
suicidal	10	0	3	7	0	100%
divorced	5	1	0	4	0	80%
frequent anxiety	35	4	3	28	0	89%
peace of mind freq.	4	1	0	3	0	75%
nervous	28	3	5	18	2	82%
fear	19	1	5	12	1	89%
lack attention	21	4	2	15	0	81%
shyness	18	1	5	11	1	89%
nightmares	12	0	3	9	0	100%
forgetfulness	32	11	1	19	1	63%
lack „ confidence	25	3	3	18	1	84%
inability to concentrate	31	10	7	14	0	68%
loss memory	26	7	1	18	0	73%
lack interest	18	3	3	10	2	72%
other	5	0	1	4	0	100%
Total	409	61	62	276	10	
Percent		5%	15%	68%	2%	83%

Table 11. Allergies

	T	NC	E	I	W	E+I%
metal	9	4	0	5	0	56%
food	25	8	0	17	0	68%
fabrics	9	3	0	6	0	67%
soaps	10	3	0	7	0	70%
hayfever	24	7	2	15	0	71%
other	15	9	0	6	0	40%
Total	92	34	2	56	0	
Percent		37%	2%	61%	0%	63%

Table 12. Diseases

	T	NC	E	I	W	E+I%
arthritis	20	4	1	13	2	70%
bursitis	4	2	0	2	0	50%
tennis elbow	1	0	1	0	0	100%
painful joints	20	6	1	12	1	65%
asthma	3	1	1	1	0	67%
surgery	6	1	0	3	2	50%
frequent colds	21	2	7	12	0	90%
osteomylitis	0	0	0	0	0	0%
psoriasis	2	0	1	1	0	50%
sickle cell	0	0	0	0	0	0%
chronic anemia	4	0	2	2	0	100%
kidney stones	0	0	0	0	0	0%
anorexia	2	0	0	2	0	100%
other	2	0	0	2	0	100%
Total	85	16	14	50	5	
Percent		19%	16%	59%	6%	75%

Table 10. Dental

	T	NC	E	I	W	E+I%
metallic taste	32	1	14	16	1	94%
burning sensation	10	0	4	6	0	100%
increased saliva	8	1	1	5	1	75%
periodontal disease	7	1	2	4	0	86%
gum disease	4	0	1	3	0	100%
foul breath	18	3	6	8	1	78%
bleeding gum	23	3	4	8	15	1 1 83%
grind teeth	23	4		10		78%
Total	125	13	40	67	5	
Percent		10%	32%	54%	4%	86%

Table 13. The Eye

	T	NC	E	I	W	E+I%
distance RX	35	25	1	7	2	23%
near RX	28	19	1	6	2	25%
poor night vision	18	10	2	4	2	33%
night drive bad	12	5	1	5	1	50%
trouble adjusting dark	12	4	1	6	1	58%
bloodshot eyes	11	4	3	4	0	64%
sensitive to light	25	13	2	9	1	44%
eyes tire	24	11	1	1	11	1 1 50%
reading other	7	1		4		
Total	172	92	13	56	11	
Percent		53%	8%	33%	6%	41%

Table 14. Annoying Symptoms

	T	NC	E	I	W	E+I%		T	NC	E	I	W	E+I%
frequent headaches	22	5	3	14	0	77%	slow heal	13	4	3	5	1	62%
migraines	14	4	3	6	1	64%	leg cramps	16	5	2	9	0	69%
noises ear	23	8	4	10	1	61%	dizziness	28	8	6	13	1	68%
eye inflammation	9	2	1	5	1	67%	frequent night urine	17	6	2	9	0	65%
fatigue	34	13	6	12	3	53%	frequent day urine	11	6	0	5	0	45%
tire easily	39	17	3	18	1	53%	insomnia	26	14	1	10	1	42%
swollen lymph	15	4	4	7	0	73%	tired morning	36	17	4	14	1	50%
hearing problems	11	5	1	5	0	55%	tremors	7	3	2	2	0	57%
excessive sweat	13	3	1	8	1	69%	edema	3	1	1	1	0	67%
cold hands and feet	28	12	4	12	0	57%	loss of appetite	9	1	3	3	2	67%
low temperature	19	8	2	9	0	58%	trouble decisions	26	6	5	14	1	73%
motion sickness	16	5	4	7	0	69%	headaches	22	6	1	14	1	68%
							frequent colds	23	7	3	13	0	70%
							other	2	0	2	0	0	100%
							Total	472	170	71	225	16	
							Percent		36%	15%	46%	3%	61%

Table 15. Summary

Category	Total Symptoms	No Change	Eliminated	Improved	Worse	Eliminated & Improved
skin	87	19 (22%)	24 (28%)	40 (46%)	4 (5%)	74%
cardiovascular	51	8 (16%)	11 (22%)	31 (61%)	1 (2%)	83%
nervous	97	19 (19%)	19 (19%)	56 (58%)	3 (3%)	77%
digestion	112	25 (22%)	16 (14%)	70 (61%)	1 (1%)	76%
blood	7	0 (0%)	5 (71%)	2 (29%)	0 (0%)	100%
endocrine	106	44 (42%)	9 (8%)	51 (48%)	2 (2%)	57%
emotional	409	61 (15%)	62 (15%)	276 (68%)	10 (2%)	82%
annoying symptoms	472	170 (36%)	71 (15%)	225 (47%)	16 (3%)	61%
allergies	92	34 (37%)	2 (2%)	56 (61%)	0 (0%)	63%
diseases	85	16 (19%)	14 (16%)	50 (59%)	5 (6%)	75%
eye	172	92 (53%)	13 (8%)	56 (33%)	11 (6%)	40%
dental	125	13 (10%)	4 (32%)	67 (54%)	5 (4%)	86%
Total	1815	501 (27%)	286 (16%)	980 (54%)	58 (3%)	69.8%