Many people have been told their health problems are all in their head because their symptoms or diseases have no medically known cause or treatment. Dr. Huggins has discovered that dental toxicity due to mercury in amalgam fillings is the cause of many of these unexplained diseases and symptoms. Other standard dental practices such as root canals have also been shown to contribute to many health issues that the medical community has no explanation for.

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Are Dental Materials Toxic?

The Truth:
- Many unexplained symptoms are related to dental mercury and root canals.
- Many diseases of unknown origin are related to dental mercury and root canals. Mercury fillings cause negative blood chemistry shifts.
- Typical mercury damage sites have now been identified.
- There are other dental toxins.

Help is available!

Visit our website!
Www.DrHuggins.com
Autoimmune diseases can be stopped and many times reversed by a Dr. Huggins’ Protocol involving neutralizing reactions to dental materials.

What is an autoimmune disease? One in which your body’s immune white blood cells destroy your own body’s tissue cells. Examples of autoimmune nervous diseases are Multiple sclerosis, Amyotrophic lateral sclerosis, Alzheimer’s, Lupus, Leukemia, Diabetes and seizures. Examples of hormonal autoimmune problems are diabetes, Hashimoto’s thyroiditis and infertility.

What creates the mistaken identity of cells as initiated from dental materials is the formation of a “Hapten”. A Hapten is a normal cell that acquires a hitchhiker that alters the cells “self” identification code.

In this picture, mercury, as from a common dental silver-mercury filling (about 50% mercury), is shown attaching itself to a normal cell. The new cell - called the Hapten – is mistaken by the immune system as being a foreign cell.

Dr. Hal A Huggins has been a cutting edge researcher in dental toxicity since 1973. Why cutting edge? Because he follows changes in immune reactivity relative to sensitivities to dental toxins—and reports them. He uses blood chemistry evaluations to determine what dental materials and supplements are “naughty” and which are “nice”. This upsets a great financial institution that has had a low key white knight reputation for over 100 years. What are the consequences of his observations? Exposure of massive liability. Resulting in lie-ability. Greater liability than Enron. Greater than the tobacco fiasco. Who does it affect? Most everyone. Probably you.

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Which dental materials are implicated? Mercury, nickel, beryllium, copper, and toxins formed in dead or root canal teeth as well as in cavitations.
Mercury from fillings can also create many common symptoms of “unknown” origin. Most commonly seen are symptoms of depression, anxiety, chronic fatigue, chronic headaches, digestive upsets and memory problems. These come from one or more of the three forms of mercury that can be created from the surface of “amalgam” fillings.

The three forms of mercury (called the 3 costumes of mercury) are:

1.) The vapor form - as it usually comes off from the filling (Chew, ‘91; Svare ‘81; Wataha ‘91)

2.) The ionic mercury form - also from the surface of the filling (Heintze ‘83)

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These sympathetic hormones create a premature degeneration removal of tissues that are not really at the end of their life span - but there is no regeneration action to fill the vacancy. Thus, a new disease is created.

When fillings are removed sequentially, that is, with the negative fillings replaced first, the opposite scenarios takes place. As negative fillings are removed, a potassium efflux occurs at the synapse calling for an increase in parasympathetic hormones (parathyroid, insulin, posterior pituitary and estrogen). The result is to stimulate healing.

**References**


How does this relate to people getting well or becoming more ill? The body is constantly balancing “degeneration versus regeneration”. This is a natural phenomena. We constantly get rid of aging cells, and replace them with new cells. Red blood cells live for 120 days, then are recycled out and replaced. White blood cells live only a week or two.

Degeneration—Regeneration.

Autonomic Nervous System

How does this happen? This decision is under the control of what is called the autonomic nervous system (ANS). The ANS decides when it is time to destroy and replace. It has two divisions. One for degeneration and one for regeneration. They are known as the sympathetic and para-sympathetic divisions. The sympathetic division is also known as the fight or flight division. When stimulated, these glands produce fight or die in trying hormones. To be specific, they are represented by the thyroid hormone, adrenalin, anterior pituitary and testosterone.

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Demonstrates high white blood cell count dropping.

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Demonstrates low white blood cell count increasing.

Further examples of immune dysfunction are shown by sophisticated studies of T-lymphocytes (a specific type of white blood cell) performed at the University of Colorado during his post doctoral masters studies. He showed the destruction of T-cells by placement of dental materials within a few days. Methods of recovery were also revealed. (See figures III, IV and V on page 6)
Protons and Electrons

In touching a probe from an ammeter to a filling, the filling will generally register positive or negative. Sometimes it registers zero, which means that the filling has too much corrosion on it to allow electrical charges to escape. This does not mean that these fillings are safe. Actually, as a person eats, these corrosion products (several times more damaging than mercury vapor coming off the filling) are abraded off and mix with the food that is headed for the stomach, intestinal tract, and into the blood stream, with access to all parts of the body.

Here is my theory that explains the value of sequential removal.

When a filling registers “positive”, that means that protons are bombarding the ammeter’s probe, and, equal and opposite, electrons are rushing out the root end of the tooth. Directing our thoughts to the positive fillings, what is happening is that electrons are racing into the synapses of the brain. This influx of electrons creates an imbalance at the synapses, which causes the chemistry at the synapse to have to compensate, representing accommodation for survival.

Accommodation in this case involves bringing additional sodium ions into the synapse. Why? Because sodium can compensate for excess electrons and re-establish equilibrium in brain synaptic metabolism.

When the source of excess electrons is removed suddenly, as by the removal of a positively charged filling, compensating excess sodium no longer needed, but, at that moment, the synapse is over-saturated. Your nervous system has been compensating by leaning into the wind, so to speak, by providing excess sodium, and now it has to de-compensate because the electron challenge is no longer there.
In describing nerve impulse transmission, the most important element is the “synapse”, or space in between nerves. Nerves are not continuous, but are little snippets of nerve that convey electrical impulses along their fibers to a space that they have to jump to land on and to stimulate the next nerve fiber. A lot of complex bio-electro-chemical processes take place in that small space. There are chemicals called neurotransmitters that create chemicals at the end of one nerve. These chemicals jump into the space, and are directed to the other end of the chasm by calcium, magnesium, manganese, sodium, potassium and chloride all working in concert.

**How it works...**

Much of the action involves moving electrons (negatively charged) and protons (positively charged) within this space called the synaptic cleft. When everything is in balance, neurotransmitters stimulate the electrolytes to emit electrons that interact with protons and all the other electrolytes in that space resulting in the transfer of electrical energy from one nerve to the next.

Presence of abnormal proteins in spinal fluid in patients with Multiple Sclerosis that recovered to no abnormal proteins within 12 days utilizing the Protocol he discusses.

*(See figure VI)*
In 1996 Dr. Huggins and a few friends funded a study to bring several extremely ill British Gulf War Syndrome Vets to Colorado in the USA for treatment. This was an attempt to see if his Protocol would be effective against their conditions. His Protocol reversed the ravages of their conditions within a few days. Today all have recovered and are doing well.

Obviously, this data is upsetting to the dental profession due to the massive potential for litigation. Huggins proposes that the dental profession and the public set aside legal issues and accusations and proceed toward the elimination of unnecessary diseases and symptoms.

**A Word of Caution**

Huggins cautions that the random removal of silver mercury fillings and root canal teeth can readily create new diseases. The Protocol he suggests involves using blood chemistries to guide health practitioner teams toward improving health and ridding the body of toxicity. It takes 3 days just to instruct the dentists in the methods of replacement of toxic substances with safer ones. Physicians need much more time to absorb the biochemical supportive and reconstructive methods for the injured immune system that must coordinate with the dental revisions.

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Sequential Removal

When we first discovered the tremendous advantage to removing fillings sequentially, we could see improvements in blood chemistry and symptoms very distinctily, but we had no clue as to why removing the negative fillings first produced improvements, and removing the positive fillings first produced a worsening of symptoms.

After 27 years of wondering, the answer suddenly appeared. I took a semester’s course in Forensic Toxicology at the University of Colorado in 2005, and while studying brain reactions to prescription drugs, the “Aha!” occurred. All the bits and pieces of information leading to answering the question “Why does sequential removal produce so much benefit?” became clear.

I quickly wrote up the 20 pages of brain electro-biochemistry and incorporated it with endocrinology. The result was pretty thorough, but pretty complex to read. I have condensed the salient points into the following paragraphs. This appears to be the most important of multiple aspects of the Protocol in terms of what is lost if it is omitted.
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Huggins has much more scientific data from thousands of patients that clearly demonstrates that certain dental materials (specifically mercury fillings and root canals) are not in the best interests of the health of unsuspecting, trusting patients.
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Good news!

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Silver-mercury fillings—also called dental or mercury amalgams—have been used in dentistry since 1832. In 1840, the dental association of the day argued over whether to use mercury as a filling material because it was cheap, or to withdraw it because it was toxic. The safety debate had already begun and could be called “Amalgam War I.” In the late 1920s, Dr Alfred Stock, a biochemist and researcher, wrote close to 30 articles describing the toxicity of mercury and linking it to dental amalgam fillings—this then became “Amalgam War II.” In 1973, some dentists and their patients began to question the safety of silver-mercury fillings when it became apparent that some patients were reporting health improvements after removal of their mercury amalgam fillings. The primary purpose of this review is to bring together much of the available research and literature that focuses on health issues associated with mercury in dental fillings, some of the basic science information that is known about how the body processes mercury, and to offer some observations from the practices of dentists removing dental mercury from their patients. We also hope this review will draw attention to the potential connections between mercury released from dental fillings and autoimmune diseases. Many autoimmune diseases are classified as diseases of unknown etiology; yet, the well-documented toxic effects of mercury may explain some of the symptoms observed in autoimmune diseases.

**INTRODUCTION**

Mercury is generally accepted to be one of the most toxic of all the metals in the periodic chart that are not radioactive. It comes in several forms—some are more destructive than others—and each has its own mechanism of toxicity. There are four possible forms of mercury (called oxidation states), yet only three are commonly encountered. One is the vapor form (Hg0), another is the ionic form, (Hg+), and the most toxic is the organic form (CH3-Hg+) or methyl mercury.

Mercury vapor damage (Hg0) is almost entirely limited to the central nervous system. This is the state in which mercury commonly escapes from silver-mercury fillings. Ionic mercury (Hg+) toxicity is often acute and produces local damage to adjacent tissues—primarily directed toward organ systems. The kidney is often the primary target organ, although it can damage many other tissues.

Methyl mercury is by far the most toxic of the mercury compounds. This is due to its motility. It effortlessly travels to any tissue, recognizes no barriers, and can enter any cell without permission. Within a cell, it can destroy the various components selectively or in totality by unleashing lysosomes, damaging DNA, and by rupturing the cell membrane. Its effects upon the peripheral nervous system are demonstrated in diseases like seizures, tremors, multiple sclerosis (MS), and amyotrophic lateral sclerosis, to name but a few. Mental and emotional diseases may also result, as well as interferences in hormonal production and function.

Dental fillings containing mercury are often called silver fillings, primarily as a marketing tool that describes their color. Mercury is the primary component, making up close to 50% of the content; copper is next, comprising almost 30%. The remaining 20% is divided among tin, silver, and zinc. There are several other names associated with these fillings. Dentists frequently refer to the silver-colored filling as an amalgam, which means mixed with mercury. Mercury appears to dissolve many metals into a liquid phase that can be easily placed into multi-shaped containers, like the spaces dentists cut into teeth as they remove cavities. Other names are also seen, most of which seem to be an effort to avoid using the word mercury. Given the underlying toxicity of mercury, our first consideration should be how much mercury is being released from dental fillings containing mercury.

**RELEASE OF MERCURY FROM AMALGAMS**

Mercury is released from silver-mercury-amalgam-alloy fillings by four basic methods:

1. **Mechanical Compression.** Articles on the increased (up to 15,000%) release of mercury from chewing gum have been published. Eating and trauma are also contributing factors to the release and subsequent storage of mercury in various parts of the body.

2. **Chemical.** When dissimilar metals are placed together in saliva (an electrolytelike solution), an electrochemical reaction can occur. With dental amalgams, the combination of the five different positively charged metals form at least 16 different corrosive products on the surface of the filling. Other foods bring a variety of chemicals in contact with the electrically charged metallic fillings, with a resultant multitude of other potentially corrosive products created, many of which may be toxic. These products may be abraded off during chewing or washed off by acidic foods like vinegar and oil dressing, soft drinks, fruits, and juices, and released along with mercury vapor.

3. **Electrical.** Chemical reactions among the various combinations of metals on the surface of amalgam produce electrical current that can be measured. The negative pole of the electrical current produced by these metals can release mercury vapor. When measured, the amounts given off can exceed OSHA’s limits for 40 hour per week.
exposures. Further confusion is created by the fact that different federal agencies have different safe-level standards.⁴ And exposures from fillings occur 24 hours per day, not 40 hours per week, and therefore could exceed the recommended safe limits.

4. Temperature. Hot beverages, hot soups, and other hot foods increase the temperature of the surface of the fillings. Mercury follows the law of physics that states that chemical reactions double for every 10°C increase in temperature. Coffee and tea are at the top of the list for increasing mercury release due to temperature increases.

Where Does Mercury Go After Being Released From the Fillings?

Mercury mixed with foods goes into the stomach, and from there it can go into the intestinal tract and then on to the blood stream. The mercury released directly into the mouth is absorbed into the cheeks or sublingually—both routes of absorption end up in the blood stream. Most of the mercury that reaches the gastrointestinal tract is converted into methyl mercury by gastrointestinal tract bacteria⁵ that can be absorbed through most cell membranes.

Inhalation of mercury vapor directly from the oral cavity may enter the lungs, where it may be absorbed directly into the blood stream. If mercury vapor remains in the blood stream for more than a few seconds, it may be methylated—as methyl mercury it could pass through the blood brain barrier (BBB), after which it can be oxidized into the ionic form that damages brain tissue. Glial cells in the brain have the highest affinity for absorption and storage of mercury of any cells in the body.

Another method by which mercury is released from a filling into the body is by going from the filling, through the dentin, into the pulp chamber of the tooth,⁶,⁷ and into the blood stream, or by retrograde axonal transport, going directly into the brain.⁸

Different forms of mercury in the body and different potential modes of toxicity have been associated with the following:

- interaction with macromolecules⁹
- cross-linking of cell membranes¹⁰,¹¹
- rupturing the cell membrane⁹
- lysing DNA¹¹
- mitochondrial interference¹²
- interference with nerve impulse transmission¹³
- alteration of the three-dimensional structure of a molecule¹⁴,¹⁵
- interference with DNA replication¹¹
- interference with DNA repair¹³,¹⁶
- alteration of cell membrane permeability¹⁷
- altering the methylation/demethylation balance in the gut¹⁸
- destruction of lysosomes within cells, releasing hydrolytic enzymes that destroy cell contents and surrounding structures¹⁹

From the practical standpoint, interference with these mechanisms may be responsible for potential functional aberrations, including:

- stimulation of the onset of autoimmune diseases²⁰
- interference with endocrine function²¹
- alteration of enzyme function²²
- displacement of other minerals, such as Ca, Mg, Zn, and Cr¹¹
- alteration in digestion and absorption²³
- formation of plasmids²⁴
- creation of birth defects²³,²⁵,²⁹

MERCURY VAPOR

Mercury vapor (Hg⁰) released from fillings is the first form that attacks the body.²,³⁰-³² It can travel through the nervous system to the optic nerve and create optic neuritis,³³ or it can travel into the nasal sinus from which it has direct access into the temporal region of the brain.³⁴,³⁵ In the brain, mercury vapor can produce high neurological damage, but low systemic damage.³⁶,³⁷

On the way to the lungs, mercury vapor can travel via the vagus nerve to the central nuclei in the brain stem,³⁸ directly to the lung,³⁹ or to the gastrointestinal tract.³⁸ From the lungs, mercury vapor can be transported into the blood stream, where it may react with cells in the blood. Mercury vapor has been documented to suppress the activity of polymorphonuclear leukocytes.¹⁰ When mercury vapor enters erythrocytes, it may be oxidized to form ionic mercury, which can immediately kill red blood cells.³⁷ If the mercury vapor does not immediately kill the cell, it may displace oxygen on hemoglobin,³⁷ altering the three-dimensional structure of the molecule.¹⁴ Mercury does not release from hemoglobin once it attaches, which means that a complete blood count may show a normal red cell count, hemoglobin, and hematocrit; however, the displacement of oxygen by mercury means the peripheral tissues may not be adequately oxygenated. The hematocrit can show as much as a 4% drop in less than a week by using procedures designed to rid the body of mercury-contaminated hemoglobin, whereas the urine mercury increases several hundred percent, suggesting increased mercury elimination from the contaminated red blood cells. There is also a simultaneous increase in oxyhemoglobin saturation of between 10% and 30%.

Methylation of mercury vapor in the blood⁴⁰ can also easily enter the placenta. Developmental effects may include:

- exposure at weeks 0 to 2 may result in a lack of implantation⁴⁰
- exposure at weeks three to four may result in adverse effects involving the brain, heart, eyes, limbs, and ears⁴⁰
- exposure at weeks six to seven may result in adverse effects involving the brain, heart, eyes, limbs, and ears, and contribute to the formation of cleft palate⁴⁰
- exposure at weeks 9 to 12 may result in adverse effects involving the eyes⁴⁰

Not only can the placental barrier be penetrated by the methylation of mercury vapor, but the BBB and the central nervous system can also be breached.³¹,³² Mercury vapor interacts with amino acid carriers in the BBB as well as with sulphydryl groups in the barrier itself.³²

IONIC MERCURY

Ionic mercury (Hg⁺⁺) species can be formed on the surface of amalgam³,⁴³ and be swallowed with or without food, ending up
in the stomach. In the intestinal tract, there is absorption through the adjacent linings\(^{16}\) that may leave a leaky membrane in its wake.\(^9\) Ionic mercury enters cells by access through the calcium channels\(^8\) and interferes with cell membrane function, including both the entrance of raw materials and the exit of waste products. In the stomach, ionic mercury forms mercuric chloride that may kill friendly bacteria, leading to indigestion and malabsorption,\(^{44-46}\) or it may cause ulcers.\(^9\)

Cells destroyed by ionic mercury spread their contents throughout the surrounding tissues\(^9\) and are ultimately absorbed into the lymphatic drainage system; this may stress the liver or kidney. When ionic mercury enters tissue cells, it can alter its DNA\(^{10}\) as well as destroy mitochondria.\(^{12}\) There is also a reduction in cellular energy if the mercury interferes with the sodium-potassium pump mechanism.\(^{42}\)

In the nervous system, ionic mercury is again toxic.\(^{42}\) Even though it (unlike methyl mercury) cannot pass through the BBB,\(^{47}\) methyl mercury can be converted into ionic mercury once it has passed the BBB. It can then enter the cells via the sodium and calcium channel,\(^{48}\) and disrupt nerve impulse transmission by displacing ionic calcium from the cell membrane.\(^9\) Excretion of ionic mercury from the brain is especially slow and is measured in years.\(^{45}\)

In the immune system, ionic mercury exposure lowers the viability of lymphocytes.\(^{50}\) Consequently, the differential count from a complete blood count may give a false impression of the body’s defense ability. These compromised lymphocytes may still appear in the cell counters or on histopathologic slides. It is ironic that in scientific laboratories, injection of ionic mercury is used to increase the percentage of experimental animals with autoimmune disease.\(^{50}\) Could this effect be at work in humans as well?

**METHYL MERCURY**

Mercy vapor can be converted to methyl mercury (MeHg) by the action of bacteria.\(^5,49\) Plasmids, a defense mechanism for bacteria to survive mercury toxicity, have the ability to convert ionic mercury to methyl mercury.\(^{24}\) This is a lifesaving procedure for the bacteria because methyl mercury can be eliminated by the bacterium through its cell wall before the ionic species can destroy the contents of the bacterium. To make matters worse, when bacteria form plasmids to deal with mercury toxicity, they may simultaneously become resistant to many antibiotics. Methylation of mercury is encouraged by antibiotics, while at the same time demethylation is slowed.\(^9\)

Methyl mercury can also be formed by the action of negative electrical charge on the surface of saliva-coated amalgam fillings as mercury vapor escapes from the fillings.\(^5,50,51\) A little recognized method of methylation may be the action of vitamin B\(_{12}\).\(^{52}\) Cysteine, a dietary supplement, also methylates mercury.\(^{53}\) As methyl mercury cysteine, it is resorbed in the large bowel and transported via the hepatic portal system to the duodenum.

Methyl mercury is 45 times more lipid soluble than ionic mercury (Hg\(^{+}\)\(^+)\).\(^{49}\) This makes it particularly dangerous to nerve cells, where the cell membranes have a higher lipid content (75% vs 40%) compared with cells from other tissue. Upon arrival in the cell, methyl mercury is oxidized into ionic mercury and begins its destruction as outlined in the previous section. Plasma membranes are the primary organ target for methyl mercury (MeHg).\(^{44}\) It attacks myelin protein,\(^7\) creates degeneration of nerve cones,\(^{55}\) and causes the development of sensory neuropathy.\(^{56}\) Methyl mercury may prevent synaptic transactions\(^{13,57}\) that may lead to numbness and tingling of the hands and feet,\(^58\) some of the first signs associated with MS. Motor nuclei accumulation of methyl mercury may also cause constriction of visual fields, another sign of MS.\(^{59,60}\) Demethylation may decrease, but does not eliminate, the toxicity of MeHg.\(^{56,61}\)

Methyl mercury is not only dangerous because of its ability to enter cell membranes—another aspect of its toxicity is related to its interactions with enzyme bonds. This bonding induces a change in conformation of the tertiary structure of proteins that may result in a loss on enzymatic activity.\(^{18}\)

Methyl mercury may also cause birth defects, as noted above, for mercury vapor. These may include alterations in the brain, heart, eyes, limbs, ears, cleft palate, cleft lip, and sex organs, as well as chromosomal damage, single strand breaks, and DNA-DNA cross-links.\(^{10,62}\) There may be enough mercury in sperm at the time of conception to create birth defects.

**DENTAL RELEASE OF MERCURY**

Direct exposure of mercury in the oral cavity is not the only method of introduction of mercury into the brain and nervous system through retrograde axonal transport backwards along the trigeminal nerve to the brain. This fifth cranial nerve enervates all of the teeth and has direct communication with the brain. Mercury can be transported from fillings into the pulp chamber.\(^6,7,48\) From the pulp chamber, it may be transported into the main branch of the nervous system via the trigeminal nerve. As mercury travels along the trigeminal nerve, it creates inflammation, resulting in adhesions on the ganglion that may contribute to trigeminal neuralgia and migraine headaches.\(^{48}\)

In the maxillary branch of the trigeminal nerve, mercury that has traveled from the filling through the dentinal tubules into the pulp chamber can move backward up the trigeminal nerve. The speed of retrograde axonal transport of mercury along the mandibular branch of the trigeminal nerve has been measured at 70 mm per 24 hours into the trigeminal ganglion at the base inside the skull.\(^{63}\) This provides a pathway for microbial toxins as well as mercury into the cranial cavity.\(^{63}\) Retrograde axonal transport is not limited to mercury.\(^7,35,64-69\) This retrograde axonal transport system may move copper, antiseptics, bleach, decay products, root canal toxins, and antibiotics.\(^6,70\)

The hypoglossal nerve (XII) may also transport ionic and methyl mercury sublingually into the brain from the motor nerve terminals via sodium and calcium channels.\(^{48}\) This mercury may be picked up sublingually because this is a primary absorption area close to the fillings.

Mercury can also travel along the parallel valveless cranial venous system as well and might contribute to neurological diseases such as MS.\(^{21}\) Mercury in the central nervous system concentrates in the glial cells, which act as scavengers for the nervous system.
Bacterial infection and inflammation at the apex of teeth may occur around root canals or dead teeth. Specifically, *Actinomyces* bacteria may move by retrograde axonal transport from dead teeth directly into the brain.70

**CLINICAL IMPLICATIONS**

**Does Mercury Play a Role in Autoimmune Disease?**

The immune system has a surveillance team of white blood cells that constantly monitor the cells of the body for their permission to be there. This monitoring is done through the major histocompatibility complex (MHC), which identifies the cells of the body as “self.” All the body’s cells are coded with the same MHC, except red blood cells and sperm. If the MHC is altered—as with organ transplants—the surveillance team flags the cell and another cell of the immune system will come along and destroy it. When normal cells (such as nerve cells) have as little as a single atom of mercury attached to a free sulfhydryl bond, the MHC is distorted by one digit, and the immune system may identify this cell as “nonself.” This type of cell with a hitchhiker is called a hapten, a normal cell with an MHC distortion.

White blood cells are particularly sensitive to the presence of mercury and other toxic materials, many of which are used in modern dentistry. In human studies, it is sometimes difficult to differentiate which material might have caused damage in a living organism; however, we can isolate the biochemical reactions in the laboratory.

**Figure 1** demonstrates the trend for white blood cells to drop toward the stability point when the total protocol is followed. Even in extreme cases like leukemia, a positive response can be determined within a few days.

Even more difficult than reducing high white blood cells is raising low white blood cell counts (Figure 2). The trend seems to be that upon initial exposure to mercury, white cells elevate in an effort to eliminate the cause of hapten formation. Since mercury cannot be “killed” and is difficult to eliminate, it in turn may kill white blood cells, and after a period of time the white blood cell count may drop below the stability point. **Figure 2** demonstrates that there can still be a quick response toward the stability point when the primary irritant is removed sequentially.

Viability tests can be run on separated lymphocytes in a laboratory by using a standardized test focusing on lymphocyte degradation to separate living from dead cells. It is frequently assumed in a conventional complete blood count differential that all the white cells were alive at the time the slide was exposed to air, dipped in alcohol, and stained. This may not be true, and if so, could give a false estimate of actual immune capacity.

**Figure 3** demonstrates what happens when isolated live lymphocytes are viewed under a fluorescent microscopy by using special dyes, such as propidium iodide, to allow visual separation of live from dead cells in live cultures. On the initial day of the test, 100% of the lymphocytes are alive—or viable—in this patient. Viability counts use state-of-the-art method for separating live from dead lymphocytes. A small amount of mercury (approximating the amount that could theoretically be in the blood of someone with four amalgams) was added. By day two, the control segment has dropped to 97% and the mercury test group has dropped to 92%. By day four, the control group of cells still maintains a viability of 97%, but the viability of the mercury-exposed lymphocytes has dropped to 21%. This difference will not be shown on the conventional differential count, which does not look at viability.

In the case of autoimmune diseases, the nervous system—part of your “self”—is being destroyed by your own immune system,
see Figure 4. This onset may be associated with, but not limited to, mercury toxicity. Toxins from anaerobes associated with root canals may also be in part responsible for some of the same type of autoimmune reactions.

Figure 5 shows the results of [$^{32}$P]8N3ATP photo labeling of eight cerebrospinal fluid samples taken pre- and 48-hour post–dental revision procedures. These four patients were diagnosed with MS by magnetic resonance imaging prior to treatment. Cerebrospinal fluid solubilized proteins were then subjected to SDS-polyacrylamide gel electrophoresis. The only proteins that are expected to be seen in healthy persons are albumins, and they were present pretreatment and post-treatment. There were multiple abnormal proteins present in the pretreatment samples, but none in the posttreatment samples. All four patients improved symptomatically as the spinal fluid cleared.

Evaluation by two-dimensional gel did not identify the abnormal proteins, and later it was postulated that they were fragments of brain tissue found floating down from the brain into the cerebrospinal fluid, and its source was eliminated by the removal of dental toxins.

Figure 6 demonstrates the very low (12 mcg per 24-hour urine collection) amount of urinary porphyrin in an adult who never had dental materials in his mouth. In other MS patients, the reduction of urinary porphyrins was related to clinical improvements.

As a comparison in Figure 7, another MS patient shows 2,100 μg of urinary porphyrin predental revision. These were divided between the 4, 5, 6, 7, and 8 carboxy porphyrins. This reduction
CONCLUSION

The toxicity of mercury has been known for centuries and has often been underestimated. We have yet to fully appreciate the potential relationship between illness and the body’s exposure to mercury from a variety of sources, including dental amalgams. It behooves us to be aware of these relationships when assessing the health of patients today, and further research, although complex and fraught with many confounding variables, is urgently needed.

REFERENCES


