

Setting It Straight - Amalgam Fillings By Dr. Hal Huggins (www.drhuggins.com)

- Background -

Amalgam is the generic term applied to the silver-mercury filling commonly used in dentistry to restore teeth. Amalgam is also known as the "silver filling" (due to its shiny appearance) or the silver-mercury filling. Amalgam literally means mixed with mercury, and in the dental sense that is true. Powdered metals and metal compounds consisting of silver, copper, tin, and zinc are mixed with about an equal weight of liquid mercury. Three different types of chemical reactions take place within this mixture, and the resultant silver-mercury amalgam will set at room temperature, and, most importantly, within a few minutes.

Silver-mercury amalgam has been used as a filling material for 160 years and has enjoyed the reputation of being an inexpensive, long lasting filling. The materials alone only cost about one dollar. Although the average life span of a silver-mercury amalgam filling is only around five years, according to Dr. Leon Silverstone at the University of Colorado School of Dentistry, some amalgam fillings have been known to last for up to 20 years.

Three times now, mercury from fillings has been accused of initiating diseases. The first time was in the 1830's, again in the 1920's, and the third time a movement started in 1973 in which more substantial information has been available to determine the toxicity of mercury. Up until recently, it was felt that the mercury stayed within the filling. Now it is known that mercury leaches out every minute of the day.

- Today's Fillings -

Mercury comprises about 50% of the most common filling in the world called silver-mercury amalgam. Amalgam also contains copper, tin, silver, and zinc. It is silver colored when first placed; therefore, the name, "silver" filling. After it has been in the mouth, mercury fillings begin to tarnish. The blacker the filling, the more tarnish has taken place. Silver-mercury fillings have an electrical current which can be measured. The higher the current, the faster mercury is being released. As of 1976, the new ADA sponsored (and patent holder) high copper mercury amalgam started taking over the market. Mercury is released 50 times faster from high copper (around 30%) amalgam than the "conventional" silver-mercury amalgam of before that time.

Currently dental amalgam fillings contain around 48 to 51% mercury by weight. Copper comes in second with the high copper amalgam now leading the markets. Copper can be from 24 to 33% of the amalgam. The higher the copper level, the faster the mercury and copper - both - are emitted from the fillings. If a gold crown is anywhere in the mouth, mercury comes off faster. According to university studies done by Dr. Chew, over the first two years after placement, amalgams release about 34 micrograms of mercury per filling (per square centimeter of filling exposed) per day. These tests were done of silver-mercury fillings sitting in water and tested daily.

There are many things that make mercury come out faster. As just mentioned, any other metals such as gold crowns, nickel crowns and removable bridges will increase the speed of release of mercury. Chewing foods increases the emissions, dramatically. Hot liquids, like coffee, increase the release by thousands of percent, but only for 10 or 15 minutes. Abrasion from chewing gum increases the release of mercury by 1500% as published. Abrasion during the grinding of teeth during waking or sleeping hours, called "bruxism," also releases mercury vapor.

Compression of the filling from chewing releases mercury into the mouth. The electrical charge on a filling gives a hint as to how fast mercury, copper and other metals are being released. The higher the current measured, the faster the mercury release. The total amount of mercury released would be difficult to measure, but suffice it to say that the current measurements are adequate to contribute significantly to disease processes, and the actual total mercury release in a living human being with saliva (which has a much higher electrical potential with dissimilar metals than water), in a warm, with acidic foods, bruxism, chewing gum, eating foods and several hundred bacterial strains is greater than any of today's estimates.

Where does all of this mercury go? Into your body. Absorption of mercury from the area under your tongue and the insides of your cheeks are the fastest absorption. These areas, of course, are in close proximity to the mercury fillings, so efficiency of absorption is great. From these tissues, the mercury can destroy adjacent tissues, or travel to the lymphatic drainage system and directly into the blood stream. From the blood stream, mercury can travel to any cell in the body, where it can either disable or destroy the tissues. Mercury can also travel directly from the fillings into the lungs, into the blood stream and, as before described, every cell in the body becomes a valid target.

Mercury and its compounds are adept at traveling through the "lipid soluble" cells membranes. Cell membranes contain roughly 60% protein and 40% fat. Nerve cells are an exception, containing nearly 75% fat. These fat-rich membranes determine what enters the cell and what does not. Methyl mercury is oxidized into the "ionic" form of mercury. This is a very destructive form of mercury. (Its problem is that it cannot travel very far.) Methyl mercury is the

most dangerous form due to its ability to travel great distances and enter all cells. After the trip, methyl mercury is converted into ionic form. The ionic form is what actually disrupts internal structures and metabolic pathways that keep a cell alive and producing proteins, enzymes, hormones, whatever, that are the purpose of the existence of the cell.

All of this travel and destruction is what defines mercury toxicity. It may favor nerve tissue for a destruction target, but the kidney is high up on its list of tissues to destroy. After these two areas, it can wreak havoc in any tissue that might get in its way. For this reason, it is difficult to devise a change in the normal chemistry of the body, called a test, which would "prove" mercury toxicity. It can alter almost anything in the body; therefore, mercury should not be allowed to enter for any reason.

Three times now, amalgam has been accused of initiating diseases. The first time was in the 1830's, again in the 1920's, and the third time a movement started in 1973 in which more substantial information has been available to determine the toxicity of the substance. Up until recently, it was felt that the mercury stayed within the filling. Now it is known that mercury leaches out every minute of the day. The average amalgam filling releases about 34 (plus-minus 2) micrograms of mercury daily.

Mercury changes forms. It has different costumes. It ducks into phone booths as organic, and comes out as inorganic, and then darts into a dark cell to do its damage leaving someone else's fingerprints. Mystery. It did take scientists a long time to determine how mercury changes faces so fast. Each form attacks a different aspect of the cell membrane, or your DNA or your enzymes.

Mercury atoms can attach to any cell in the body rendering it abnormal, and subject to destruction by the immune system. This condition is collectively referred to as "auto immune disease".

Autoimmune Disease - What Is It?

Bottom line answer is that your body is destroying your body. The word auto means self. Immune refers to your white blood cells, which are assigned to defend your body by eliminating harmful materials. Just how does your body determine whether something is harmful or not?

If your body manufactured it, then it has a special code (called the major histocompatibility complex, or MHC) stamped on it. This is like your own license plate number or social security number. It belongs to you and you alone. Your body has a special surveillance team that checks out every cell in your body several times each day. It has only two responses, kill, or let it alone.

It has only two things that it looks for in determining this decision. Is the object under examination "self" or "non-self?" If the object is, say, a liver cell, then it will have a MHC code that identifies it as "self," or made by you. If no code, or an altered code exists, then the object is identified as "non-self," and a flag is implanted on its surface that says to the killing immune cells, "Kill this object; it is not one of us." Should the object be a splinter, there is no MHC on it, and white blood cells will create an infection around it and destroy it.

Now, how does the body become non-self? If a normal cell that has undergone dozens of investigations and been pronounced self each time is suddenly invaded by mercury, there is a change. Should mercury become attached to the outside of a cell, the I.D. number is changed from self to self-plus-mercury. To the immune system, anything except pure self is automatically non-self. This normal cell with mercury on its membrane is thus flagged for destruction by your own immune system, and an autoimmune disease has started. Should that tissue be kidney, the disease might be glomerular nephritis, or autoimmune disease of the kidney.

Should mercury attach to a nerve cell, the disease response could be called Multiple Sclerosis, Lou Gehrig's disease, seizures or several other things. If mercury attaches to an antibody in a nerve cell, it could result in Lupus. If mercury attaches to a nerve fiber and causes the Tau protein to disassemble and curl up in "neurofibrillar tangles," then the resultant autoimmune disease would be called diabetes. The list is actually quite long, but the process is similar for all autoimmune diseases. A proper interpretation by your immune system of a minor defect results in destruction of your normal tissue, resulting in a disease process that you may have "caught" in a dental office.

There are a variety of symptoms that frequently accompany autoimmune diseases, thus confusing the diagnosis process. Many people with autoimmune diseases, even in the early "prior to diagnosis" stages, may experience chronic fatigue, depression, changes in sleeping habits, recurring headaches, memory loss and anxiety. For some reason, low back pain occurs in a high percentage of patients. Because it goes away quickly upon proper dental revision treatment, there appears to be an "association" between the autoimmune process and the symptom, but no direct connection has been offered yet.

Some of these more common dentally related autoimmune diseases are:

- * Multiple Sclerosis
- * Lou Gehrig's Disease (otherwise known as Amyotrophic Lateral Sclerosis, or ALS for short)
- * Lupus
- * Arthritis
- * Diabetes
- * Alzheimer's Disease
- * Parkinson's Disease
- * Leukemia
- * Seizures
- * Gulf War Syndrome
- * Birth Defects

Setting It Straight - Symptoms of Mercury Toxicity

The following are all symptoms that can be caused by Mercury Toxicity:

- * Chronic Fatigue
- * Emotional Problems, including depression, anxiety, and unexplained anger
- * Suicide
- * Brain Fog and Memory Problems
- * Indigestion
- * Unexplained Headaches
- * Numbness and Tingling

ARE THERE ANY OTHER DENTAL DANGERS WE SHOULD KNOW ABOUT?

Yes, there are other potential hazards. Maybe not so much in themselves, but when combined with other challenges to your immune system, they can become highly significant. You need to be informed.

Cavitations

Found under a series of names, such as NICO (Neuralgia-Inducing Cavitational Osteonecrosis) and Alveolar Cavitational Osteopathy, a cavitation is a hole within the upper or lower jaw bone. This hole is roughly the size and shape of the root that once occupied that space in bone, because that was its origin. It is an area of incomplete healing.

When a woman delivers a baby, she must also deliver the afterbirth. When a tooth is delivered, there is an equivalent of the afterbirth. It is called the periodontal ligament. This is a group of fibers, half of which originate within the tooth, and the other half from the bone surrounding the tooth. They blend together and form a hammock-like structure that unites tooth and bone. There is normally no bony attachment between the two.

When a tooth has a root canal, or is in a dying state, bacteria within the tooth produce very strong chemicals that are highly neurotoxic and kill many critical enzymes within the body. When the tooth is removed, and the ligament left in place (normal procedure) these chemicals remain within the ligament and can slowly seep into the body, potentially creating disease states.

If a tooth is removed and the ligament is left in place, a cap of two to three millimeters of bone heals over the top of the socket, leaving a cesspool of these chemicals lining the hole, and sealed within the bone. X-ray has a hard time identifying these areas, for one is taking a picture of a piece of air within bone.

After the tooth is removed, or years later when the cavitation is being cleaned, the walls of the socket must be cut out with a dental burr. Just scraping it out (curetting is the term) pushes the toxins into the lymphatic drainage system, and patients frequently become ill for several days without knowing why.

The procedure of cleaning out a cavitation is simple, just like landing a 747. It is simple when someone knows how to do it. Care must be taken to prevent the toxic materials from getting out of the opened cavitation into the mouth. High suction and saline flushes help to accomplish this. Since this is a problem of chemical toxins and not a bacterial infection generating pus, antibiotics are of little value in the treatment. Sometimes Intravenous Vitamin C is utilized.

According to certain toxicologists, toxic responses can take place just as fast as electrical responses within the body. This may explain why it is not unusual to see a body part that has been responding to the presence of these toxins demonstrate a positive improvement within seconds of the cleaning of a cavitation. Responses within a day or two

are common.

Composites

Composite is another word for a specific type of plastic that can be used to fill teeth. It is frequently the "white filling" that dentists place, or sometimes it is called "porcelain". It is not porcelain, for true porcelain is fired at very high temperatures, and cannot be fired in your mouth. The term porcelain is used only because the filling is tooth colored.

Some composites can last as long as amalgam, but most of the time amalgam will outlive composites. The question becomes, which is more important, the life of the filling or the life of the patient? Composites are not always the white knight, for they contain some chemicals that leach out also. Do these chemicals sound like something you want in your mouth? Acrylate, aluminum, formaldehyde, hexane, hydroquinone, phenol, polyurethane, silane, strontium, toluene and xylene. These and more constitute composite fillings. In general it is true that they are not as toxic as mercury and copper, but there are blood tests that can tell you which composites are more compatible with your immune system.

Aluminum makes the composite filling last longer. The patient may not last longer, but filling longevity is the key to success in many dental offices. Higher aluminum content gives greater resistance to the rigors of life in the oral cavity. However, the aluminum appears to leach out in quantities large enough to affect nerve impulse transmission - and even gall bladder problems. Finding out the composition of a composite, or "white filling" is formidable at best. One of the most reliable ways is to look at a filling on the X-ray. If it nearly resembles a silver-mercury filling in appearance compared with some composites that are actually hard to see on X-rays - it is probably a high aluminum filling. Having seen patient relief of symptoms on the same day of removal many times, it is difficult for us to recommend just yanking out mercury fillings and replacing them randomly with whatever the dentist has on the shelf. Are you getting the idea that dental materials provide a serious problem?

Unlike amalgam, composites can bind to the tooth structure itself thereby making the filling stronger by holding the fragments together. Amalgam sits passively in the hole that the dentist drilled into the tooth. Neither filling can stand much chewing force without breaking, so they are both limited in size. If a filling is to replace over 40% of the chewing surface of a tooth, materials other than amalgam or composite should be considered.

Composites require more time and skill to place than amalgam, so one can expect them to cost 40 or 50% more than amalgam.

Crowns - Ceramic/Porcelain

I became curious about the composition of porcelain crowns and called one of the manufacturers. I was told their porcelain was pure ceramic. Thanks. I called another and asked what their ceramic was made out of. Porcelain I was told. I called another and asked what their porcelain ceramic was made out of. Natural products. Knowing that mercury was "natural" I went to scientists other than manufacturers. Natural porcelain ceramic is made from clay B kaolin specifically B which is 45% aluminum oxide. Oh! So porcelain crowns are really aluminum. The aluminum does come out of the crown and I have personally seen some tragic cases of poisoning from dental porcelain ceramic aluminum crowns. Obviously not everyone has violent reactions, but when they occur, it is not a happy site.

Porcelain is most often fired onto a metal base that fits onto the tooth. Occasionally these are gold bases, but most often it is the strong and cheap substitute, nickel. Check out nickel in these definitions. It is highly carcinogenic, or cancer producing.

Porcelain is prettier and more durable than its competition the laboratory processed composite plastic. Considering what aluminum does to one's immune system and nervous system, is the esthetic value worth it? Your choice, now that you are informed.

Crowns - Chrome Crowns for Children

When children's teeth have cavities that are large, it is common to take a preformed nickel, chromium, cobalt alloy crown, trim it down to fit the teeth that has also been trimmed down to a cone shaped object, and cement it on. With a little practice, a good dentist can make one of these in a short period of time. The cutesy name of chrome crowns has been used for decades, and these crowns allow baby teeth to last for another two to five years. That is usually all that is necessary, for permanent teeth replacing the baby molars are usually in by age 10 or 11. Used on front teeth, they are quite ugly, and usually have some influence on the child's self esteem, but in the back teeth they are not usually seen.

Nickel, of course, has its problems with human biochemistry, but there are things noted in children that are not as

obvious in adults with nickel crown. In children, the main thing I noticed is that these kids have to start wearing glasses within a few months of receiving the crowns. Look closely, sometimes these are bifocals and I even saw a 5 year old with trifocals once. Check it out. Behavior is another notable change. If your child becomes cranky and misbehaves when before the crowns were placed he had a pleasing personality, check it out.

What can you do? These can be replaced with composite crowns the same shape as the chrome crowns. You may have to twist your dentist's arm severely, but compare your child's health and behavior to pre-crown days and you should be able to make a determination as to whether or not you feel it is worth it to change the crowns. After all, the choice should be yours.

As with any dental work, before having crowns placed it is important to have "Compatibility Testing" done to determine what dental materials will be the safest to put in the patient's mouth.

Crowns - Nickel (Non-Precious)

Non-precious metal used in dentistry is a term that generally refers to crowns made of nickel, chrome, cobalt and molybdenum. It further means that there is no gold or platinum in them. They cost much less than gold crowns, for you can easily see that a melted down nickel coin could easily cover one tooth.

Nickel is the number one cancer stimulating metal, even worse than mercury - because mercury usually kills cells, whereas nickel just turns the cell malignant. Although cobalt and chromium individually do not cause cancer, if they are combined into one mixture, they will cause cancer.

Nickel causes DNA damage in preventing cells from repairing and from duplicating. It has pronounced adverse effects on the immune system, destroying T-cells and especially the NK cells that are our major defense against cancer. Alteration of chromosomes is another pastime of nickel.

Sounds pretty unsafe doesn't it? But it's cheap. That's why we find it in removable partial dentures, orthodontic braces, adult crowns and bridges (especially as the base under porcelain crowns) and children's "chrome crowns", a cutesy name for nickel.

My personal advice is totally against the use of nickel in dentistry, but, I will allow you to choose whatever you want - as long as you are informed.

Implants

The term implant usually refers to something inserted into the bone of the jaw, although occasionally one will see fillings referred to as implants because they are in a body tissue, and are not readily removable. Dental implants are metal (nickel, titanium, and other metals), or ceramic (aluminum oxide) devices that are placed into holes that are drilled out of the bone. After bone has filled in around the implant, dentures, crowns, or bridges can be fitted to them and they offer great stability.

As far as the biological aspect is concerned, the body will launch an autoimmune response against anything that is inserted into bone. The only difference is the speed of the reaction. Some may react within days, others may go for years before the reaction is noted. Even relatively non-reactive metals like titanium can be used as a crown or removable partial denture in a person who has been shown to generate an autoimmune disease when the same titanium is implanted into their jaw bone. This is not good news for many dentists and patients, for implants are becoming quite popular.

Braces - Orthodontic Braces

There are many types of orthodontic appliances in use today. The time honored "bands" of "tin grin" fame are giving way to less conspicuous methods. The conventional bands are composed of nickel, chromium, cobalt, iron, and possibly a few other metals. The nickel is not desirable. Sometimes a wire mesh is impregnated with plastic, and this combination is used to cement a bracket that hold the action wires in place. This is called bonding. Ceramic brackets (ceramic is another word for aluminum oxide) are now popular.

Usually nickel wires (called arch wires) are used to guide the tooth movement. Other metals are available, but quite difficult to find. Titanium is a metal that is very low in reactivity if used in the mouth and not inserted into the bone. Plastic brackets are available which offer minimum challenge, but many orthodontists do not care for them because due to the wear in the plastic, they do not offer the accuracy of directing forces that metal offers.

How do you know if a reaction is taking place? Notably, allergies either appear for the first time, or worsen. Behavior may become "teen-age", which in this case is a toxic reaction, not a monster that suddenly appeared that

certainly has its roots in your spouse's family. School grades may drop about a point and a half. That is from a B to C-minus. Should any of these problems become issues, you may want to think about another method of moving teeth, or not doing it at all. The solution is yours to call.

Root Canals

Root canal is a term applied to a tooth that has been treated by removing the contents of the nerve chamber. The pulp chamber, as it is called, contains small arteries, veins, nerves, and a lymphatic drainage system. All this is removed and replaced most of the time with a wax material called gutta percha. The root of the tooth is still intact, and for practical purposes, the whole tooth is the same size and shape that it was originally. The tooth is now dead, and the body must come to some kind of agreement with the tooth as to how much necrotic tissue the body will accept in exchange for providing a much needed dental prosthesis.

There have been dozens of articles and several books written on the subject of leaving dead teeth in the body. Of late, a revival of the information provided by the National Dental Association has brought scientists to their laboratories in search of the secrets of the root canal tooth. Preliminary data suggests that root canals may have a limited life expectancy in those people who are interested in their health.

From the outside, a root canal tooth looks like and acts like a normal tooth. Sometimes they are painful or produce a feeling of awareness. This is a sign that the patient's immune system is healthy, and it is rejecting a dead item. Root canal teeth are strong for the most part, in fact, they frequently act like they have fused to the bone when a dentist tries to remove them.

Dentures

This is a term that describes an appliance that replaces teeth. It can be a full denture, or a partial denture. Full dentures (commonly called "plates") replace all the teeth, and are held in by the attraction formed between tissues and plastic due to the saliva in between. Full dentures are constructed of plastic with either porcelain or plastic teeth. The plastic is colored pink to assimilate the color of gums. The pigments that are used to form the pink color are usually mercury sulfate, cadmium sulfate, or a combination of both.

"Immediate dentures" are placed immediately after the teeth are removed, and are a type of splint to hold the tissues in place while healing takes place. They need to be "relined" in a few months, for shrinkage of bone and tissue takes place daily, and the fit is worse each day. Relining is adding new plastic on the tissue side of the denture so that an improved fit can be established.

"Partial dentures" are dentures that replace several, but not all of the teeth in either the upper or lower arch. They generally contain plastic that hold the teeth, and the plastic is processed onto a metal framework that has little arms called clasps that hold onto the remaining teeth. There is a bit more stress on the remaining teeth, but it is offset by the added chewing surface area provided by the additional teeth.

Metals in the partial dentures can be gold (now really rare), nickel, beryllium, cobalt and chromium with a few other metals at levels of one percent or so.