

Dental Glossary



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Amalgam

Amalgam is the generic term applied to a variety of very similar products used in dentistry to fill 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 amalgam will set at room temperature, and, most importantly, within a few minutes.

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 an amalgam filling is only around five years according to Dr. Leon Silverstone at the University of Colorado, some amalgam fillings have been known to last for up to 20 years.

Three times now, amalgam has been accused of initiating diseases. The first 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.

Bridges—Fixed

There are two types of bridges, "fixed" and "removable". Most of the time the term bridge refers to an appliance that is cemented to teeth, and cannot be removed. For a description of removable bridges, see the section called "Bridges - Removable". The purpose of a bridge is to replace one or more missing teeth where there is a tooth (called an abutment) on each side of the missing teeth. The enamel is removed from the abutment teeth and a crown is made replacing the amount of enamel that was removed with metal. The missing teeth are also made of metal or combinations of metal and tooth colored porcelain or plastic. After all the pieces are constructed, the segments are soldered together, and the whole bridge is usually cemented onto the abutment teeth in one unit. Bridges feel very much like your original teeth, and require only slightly more care in cleaning than your original teeth. They can normally be expected to last for 10 to 20 years if they do not replace more than 2 teeth. Longer bridges do not last as long. The disadvantage is that if the abutment teeth are whole teeth, good teeth have been cut down in order to make the abutment crowns. Bridges can be constructed from a variety of materials. These materials are covered in the pages describing gold crowns and non-precious metal crowns.

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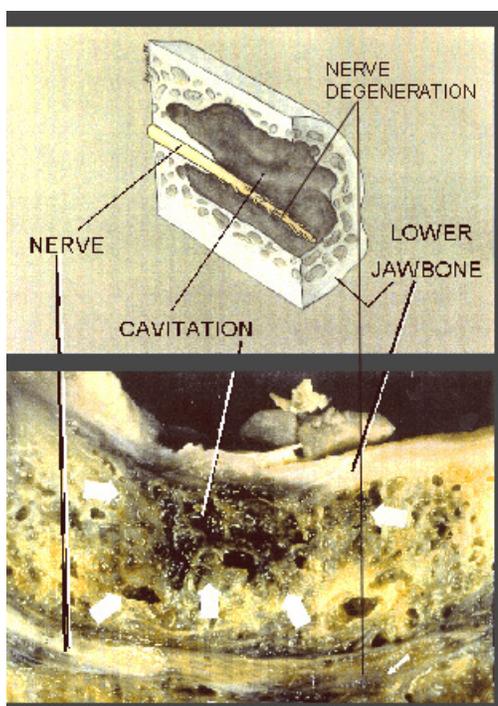
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Bridges—Removable

There are a lot of names describing appliances that replace missing teeth. Usually a fixed, or permanent bridge is cemented into existing teeth and cannot be removed. Removable bridges, or removable partial dentures, removable partials all refer to something that can come out at night. They may be constructed out of nickel, chrome - cobalt combinations, plastic, titanium or gold. Gold and titanium are the safest. Gold is really expensive and heavy, but patient acceptance and tolerance is super. Titanium is about the most biocompatible material, and the partials made from it are thin and light. Nickel is the most common (sometimes called stainless steel) and, for toxic reasons, we do not recommend it. All of these removable appliances have cast clasps that hold onto existing teeth. Plastic removable partials may or may not have clasps embedded into them. The clasps may be gold or nickel. Plastic partials either with or without clasps do not fit nearly as tightly as the metal-based partials with cast clasps. Regardless of what they are constructed from, food can catch under the partials and they should be removed and rinsed under a faucet after eating. The advantage of removable partials is that you do not have to destroy adjacent teeth by cutting off the enamel like you do for a permanent bridge, but they do require more care.

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 direct attachment between tooth and bone. 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 also 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 (curettling 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** 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.

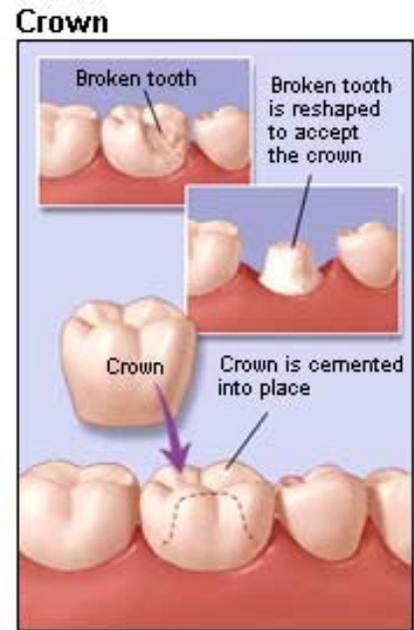
Composite

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. Unlike amalgam, composites can bind to the tooth structure itself thereby making the tooth 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.



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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 after receiving "chrome crowns", when before the crowns were placed he had a pleasing personality, suspect a nickel reaction. 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—Gold

Gold crowns are made from gold alloyed with many other metals. The actual gold content can range from 90% to as low as 5%. Gold in its pure state is too soft to withstand the rigors of functioning in the mouth. Platinum or palladium is frequently added to harden the gold. There are some disadvantages. Both raise the already high melting point of the alloy. Platinum is expensive, palladium has been outlawed in some countries because it is toxic, and both turn the gold color to silver. Copper is added to restore the gold color, but it has a reddish tint, is toxic, and forms bubbles in the alloy. Silver can be added to get rid of the red color, and zinc is a toxic metal, but it is in small quantities and it will eliminate the air bubbles. The latter metals also reduce the melting temperature. Crowns replace what is missing from a tooth, and generally cover the entire crown of the tooth, or that part that is exposed to the mouth. A good crown is the same size and shape as the original tooth, unless it was malformed or malaligned, then the final product is better than the original. Gold crowns are cemented to the teeth, and are not removable by the patient. They are tough, can withstand chewing without breaking, and usually last from 10 to 20 years. Porcelain or plastic can be attached to the esthetic parts of the crowns, and they can look quite life-like. Care is the same as for the natural tooth.

Crowns—Laboratory Processed Composites

When a person does not want the hazards of porcelain, what options are there? Probably the best at the current time is what is called "laboratory processed composite". Composite, a plastic that is used for tooth fillings can be modified, made harder and more durable by heating the resin in special ovens. They can be formed into crowns in and of themselves or processed onto a gold thimble that fits the tooth. Although their esthetics is only 90 to 95% as good as porcelain, and the durability a couple of years less than porcelain, many people are electing to use these in "teeth that show" and reduce the toxic challenge to their bodies brought about by aluminum in porcelain.

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, or titanium. Titanium is the best choice at this time.



Filings—Silver Mercury

Mercury comprises about 50% of the most common filling in the world called silver-mercury amalgam. Amalgam also contains copper, tin, silver and zinc. Due to the high mercury content, it is silver colored when first placed; therefore, the name, "silver" filling. After it has been in the mouth, the mercury begins to react chemically and the resultant corrosion products are black. The blacker the filling, the more tarnish has taken place. 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 amalgam started taking over the market. Mercury is released 50 times faster from high copper (around 30%) amalgam than the "conventional" amalgam of before that time.



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Fillings—How Much Mercury is in a Filling?

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 per filling (per square centimeter of filling exposed) per day. These tests were done on fillings sitting in pure 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. 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 by 1500% as published by the ADA. 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 mouth with acidic foods, bruxism, chewing gum, eating foods and several hundred bacterial strains is greater than any of today's estimates.

Fillings—Mercury Toxicity

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 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, it 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 hit 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, it should not be allowed to enter for any reason.

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

Braces—Orthodontic Braces

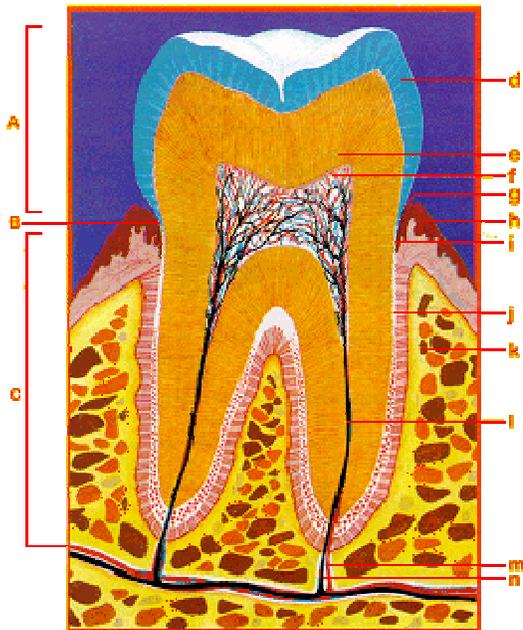
There are many types of orthodontic appliances in use today. The time honored "bands" of "tin grin" fame are giving way to less conspicuous methods. The conventional bands are composed of nickel, chromium, cobalt, iron, and possibly a few other metals. The nickel is not desirable. Sometimes a wire mesh is impregnated with plastic, and this combination is used to cement a bracket that holds 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.

Structure of a Tooth



- A. Tooth crown
- B. Neck of a tooth
- C. Root of a tooth
- D. Enamel
- E. Dentine
- F. Pulp Chamber
- G. Gingival Crevice or Sulcus
- H. Gingiva/gum
- I. Gum attachment to tooth (1)
- J. Periodontal fibers (2)
- K. Cementum (3)
- L. Bone/alveolus (4)
- M. 1+2+3+4= Periodontium
- N. Root canal

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