

Biological Dentistry

The term “Biological” Dentistry is being used for a whole new paradigm of dental care. Traditional dentistry has typically followed an outmoded, problem-oriented model, focusing on individual problems with individual teeth. The whole body, and whole person, has often been overlooked. Evidence is growing that traditional dentistry, however well intentioned, may have been contributing to generations of health problems. What has been overlooked is attention to concerns about how various dental materials and techniques may affect overall health. Biological dentistry, though not a certified or recognized “specialty”, aims at optimal health for the whole individual. Materials and techniques are chosen that are *compatible* with health.

A great deal of concern has surfaced in the last two decades about materials used in dentistry that may actually be *toxic* to the body. Is there really cause for alarm? We believe there is, and that current scientific evidence supports this position. Chief among the offenders is the long-standard filling material, “silver” amalgam. When you look in your (or someone else’s) mouth and see silver or dark gray fillings, these are amalgam fillings. Amalgam is a mixture of mercury, silver, copper and tin. It is approximately **50% mercury**. That is where the problem lies. Although there is clear and irrefutable evidence that some mercury does escape from this unstable compound, it is still widely used by the majority of American dentists.

Amalgam fillings

It is well established, scientifically, that elemental mercury (mostly in the form of mercury vapor) is released in small amounts from amalgam fillings on an ongoing, daily basis. Chewing or heat increases the vapor release some ten-fold, and it remains at that high level for an hour and a half or more. The exact amount of release is subject to some variation, but a panel of experts from the World Health Organization (WHO) has agreed that the single greatest source of exposure to mercury in humans is from amalgam fillings. It is greater than food (including fish), air, water and environmental sources combined. When we add to this the fact that mercury is an extremely toxic material, rated more toxic than the other heavy metals such as lead, cadmium and arsenic, then there should be some serious cause for concern about the safety of this material in dentistry.

The uptake of this mercury into the body has been well established. Careful animal studies have demonstrated that mercury does, in fact, accumulate in body tissues. This long-term, low-level exposure continues as long as the fillings are in the mouth. Mercury vapor may be inhaled, absorbing rapidly and almost completely into the bloodstream. Some may be incorporated into food while chewing and absorbed into the bloodstream through the digestive system. The fate of this absorbed, toxic mercury will be discussed below. Given even the above limited information, one wonders why the organized profession of dentistry in the U.S. has not sought to restrict or limit its use. Rather, the American Dental Association (ADA), a professional trade organization representing the majority of American dentists, still maintains that mercury amalgam is a safe and appropriate filling material.

One can hold the *opinion* that amalgam is safe. But when opinion is at odds with fact, then opinion should be revised. The following are *facts*. That is, they are well established by scientific method (our thanks to Dr. Murray Vimy and his book, *Your Toxic Teeth*, for this list):

Mercury is an extremely dangerous poison.

There is no safe level of mercury exposure for humans.

Dental “silver” amalgam fillings contain 50% pure elemental mercury

Mercury is released continuously from amalgam fillings, because these fillings are

chemically *unstable*.

In humans, mercury fillings produce a pharmacologically significant daily dose of poisonous mercury.

Mercury fillings are the largest source of toxic mercury exposure in the general population.

Toxic mercury released from mercury fillings collects in all adult human tissues, being highest in the kidney, liver and then the brain.

Dental mercury crosses the placenta and collects in the developing unborn baby and exposes the newborn via mother's milk.

Mercury from dental fillings reduces kidney function.

Mercury from dental fillings alters the normal bacterial populations in the intestinal tract, producing antibiotic resistance.

Mercury from dental fillings has been implicated in nervous system disorders such as Alzheimer's Disease.

A list of some references is found at the end of this paper for any who want to see more details on mercury-amalgam research.

The above information is enough to cause those of us practicing "Biological" dentistry to reject amalgam as a filling material. It isn't necessary to prove that mercury from amalgams will cause "XYZ Disease." It isn't necessary (or appropriate), at this point in time, to claim that removing mercury fillings will bring about a specific positive health benefit. The above simple and irrefutable facts are enough to declare mercury amalgam to be an unsuitable material in people's mouths. Outside of the United States, many other countries are officially agreeing. Several countries have severe restrictions or outright bans on the use of amalgam fillings.

The History of the Use of Amalgam Fillings

In the first half of the 1800's, dentistry consisted mainly of restoring teeth with gold for those who could afford it, and a lot of extractions for those who could not. In about 1860, two brothers came from Europe with a new material that's not much different from what is still used today as dental amalgam. It revolutionized dentistry, in that teeth could be filled with a material that was relatively inexpensive and easy to use. This meant that many more people could afford to have fillings done than ever before.

Many of the dentists at the time, however, were very concerned about this material, believing that it was not a good material (not healthy) and that it shouldn't be used. Proponents of this new material fought a heavy battle. The dentists who were against this material they believed to be inferior tried to get fellow dentists to sign an oath not to use it. In the end, economic pressures won out. A new society was formed of those dentists who decided to adopt mercury amalgam. This new society eventually became the American Dental Association.

In the 1920's, a German chemistry professor named Stock published research articles and scientific letters attacking the use of amalgam fillings on the basis of possible mercury toxic effects. Again, the dental profession's opinion prevailed and the controversy faded to the background until the late 1970's and early 1980's. A dentist and well-known nutritional advisor, Dr. Hal Huggins, began to champion the anti-amalgam position after learning about amalgam's mercury effects from Dr. Olympio Pinto of Brazil. Dr. Huggins was finding that his work with patients in balancing their body chemistry through nutrition was enhanced when he paid attention to their mercury load and removed their mercury fillings. His clinical success led him to conclude that the use of mercury amalgam fillings in dentistry has been causing health problems in many people.

Dr. Huggins' ideas were slow to take hold. However, new scientific research in the early 80's began to give credibility to the idea that amalgam use might be risky.

Studies were done using careful and sophisticated measurements with a highly sensitive mercury vapor analyzer, and it was conclusively shown that mercury vapor does indeed come out of amalgam fillings in the mouth (a fact previously denied by the ADA). This led the way for further scientific investigation. In 1984, an organization was formed called the International Academy of Oral Medicine and Toxicology (IAOMT). This academy is dedicated to spreading information in the scientific community on the research being done regarding issues of mercury as well as other related topics in biocompatible dentistry. Some of the leading current research has come about from IAOMT members or as a result of IAOMT support. If one has any doubt about whether mercury vapor escapes from amalgam fillings, simply watch the "Smoking Teeth" video on the IAOMT website (see "Links").

Today, the IAOMT has chapters worldwide, and is the leading authoritative body in the field of mercury in dentistry (although the ADA would probably not agree with that statement). The ADA, in spite of a huge accumulated body of valid, scientific, peer-reviewed research, still maintains their position that amalgam is a safe and appropriate material. We, in the growing ranks of biological dentistry, regard it as an inferior, toxic, 19th century dental material that has no place whatsoever in 21st century dentistry.

Alternatives to amalgam fillings

The question of what to use instead of amalgam fillings is the challenge for the biological dentist. There are a variety of materials and techniques developed over the last several years that satisfy our requirements of providing long-lasting, comfortable, esthetic and non-toxic restorations of teeth. There is no "perfect" material. The best is still to have undamaged, natural tooth structure. So, prevention is still the first goal in dentistry. However, when damage does occur and needs repair, there are enough good materials available that make mercury amalgam obsolete. Dentists who were committed to mercury-free dentistry in the early 80's had to struggle with these materials in their emerging stages of development and refinement. Today, they continue to be improved as a revolution in non-metal dental materials has developed.

Most versatile of dental materials today are those in the category of ceramics. This includes "composite resin," porcelains, and hybrids between the two. They can be used anywhere that amalgam was used, with expectations of equivalent longevity and strength, or better. Their esthetic properties, when used properly, can nicely mimic the beauty of natural teeth and become virtually "invisible" in the mouth. Much study has been done on the biocompatibility of these materials, and they come out quite favorably. Gold is still preferred by some practitioners, and better gold alloys have been developed for improved biocompatibility. All of these materials do take more time and skill and advanced training to master. Unfortunately, many of these materials and techniques are still not being taught widely in dental schools. They are also more expensive to the patient than the old amalgam fillings. However, when patients are given the real truth about the toxic potential of amalgam, few choose to stick with this inferior material just to save some money.

There is also the option today of doing individualized biocompatibility testing of dental materials. This may be particularly valuable for patients with multiple chemical, food or environmental sensitivities. One of the most reliable is a test of blood serum (requiring a blood sample), checking the immune response to the ingredients of hundreds of dental materials and brands. This helps guide the dentist to select the most appropriate materials and brands for an individual patient. Other methods, such as "energetic" testing by means of "muscle testing" or acupuncture meridian testing have been found by some to be useful. We don't consider these tests to be foolproof, but often they may be helpful and appropriate. Based on the thousands of such tests done by Clifford Consulting Labs (and others), a pattern emerges where some materials appear to be widely compatible.

We try to use these “best” materials routinely, when individual testing is not done.

“Should I replace my amalgam fillings?”

It is our recommendation that you never allow another amalgam filling to be placed in your mouth (of course, that would never happen in *our* office). The decision to replace amalgam fillings that are already in the mouth needs to be considered more carefully. Many of our patients come to us because their physician feels that they may have some health problems where heavy metal (mercury) exposure or accumulation may be part of the problem. As an adjunct to their medical treatment, they recommend having their amalgam fillings carefully replaced (see below) with a more biocompatible material. Others come to us because they have read and learned enough about the mercury issues that they have decided they don’t want this material in their mouths anymore and request that we replace it. In our opinion, either of these is a wise and valid reason for replacing the old mercury amalgam. We won’t take the position that everyone in our office *should* replace all his or her previous amalgam fillings. We do, however, feel a responsibility to educate everyone on the mercury issues, and let them know that a mercury-free mouth is always *available* in our office, should you choose. It’s always your choice. Biological dentists generally would agree they wouldn’t want to allow this material to be in their mouths, or in the mouths of their families or staff. That is more or less the standard we like to hold to for our patients in all that we do here.

You may notice we are not saying that if you replace your amalgam fillings you will have benefit “XYZ” in your life. We do see, over and over again (as do our colleagues worldwide), patients who have experienced significant, positive health changes when they have followed closely the amalgam replacement protocols described below. But that experience is by no means universal, and we want to be clear that we are making no specific health claims for replacing amalgam fillings. At the very least, you’ll be reducing your exposure to, and body burden of, a known toxic material.

What’s involved in amalgam replacement?

The first step is the decision to do it. This decision should be carefully considered. It may involve discussion with your physician, or one that we can recommend. It may involve some form of testing for body burden of mercury by your physician. It may just be a matter of learning and digesting the facts about mercury and amalgam. Once that decision is made, there are several factors that we feel are very important in proceeding with your decision. First, the treatment should be done by a dentist experienced with, and committed to, mercury-free dentistry because of the potential complexities involved. Deciding to replace your amalgams, and then deciding to run off to the nearest of cheapest dentist and talk them into doing it would not be wise.

The dental treatment needs to be done cautiously, in order to protect the patient from exposure to additional mercury during the course of the dental procedures. This is a very important point, and one that is likely to be overlooked by most dentists who are not committed to mercury-free dentistry. There are several steps we take to minimize, as much as possible, the chance of any additional mercury exposure to the patient (and to the doctor and staff as well). We follow protective protocols developed and outlined by the IAOMT. As we learn more and better ways to accomplish this, we will continue to make those adaptations.

The choice of replacement materials also needs to be carefully considered. We want materials that are strong, long lasting, comfortable, esthetically pleasing, and *biocompatible*. We believe all these factors can be achieved. As mentioned above,

individualized biocompatibility testing may be advised for some patients at this point.

Lastly, it needs to be understood that removing amalgams from the mouth is only part of becoming mercury-free. As long as amalgam fillings have been in a person's mouth, that person has been continuously exposed to a low level of mercury coming out of the fillings, most of which has been accumulating in their body. It takes some help to get rid of this accumulated mercury. The body doesn't do it very effectively by itself. When appropriate, we will help steer you to medical practitioners who are experienced in dealing with *heavy metal detoxification*. This a very important step to make sure that everything is being done (according to current understanding) to reduce or eliminate mercury in the system and reduce its potential toxic damage.

Of course, most people wonder about the cost of replacing amalgams. This will vary widely according to the number and size of the fillings and what materials and techniques are best used to replace them. Our consultations will always provide you with a written estimate of the cost of the treatment that you choose.

Amalgam and the Environment

There is a related issue on mercury in the environment. It's clear that mercury is toxic to humans. It is also well established that mercury is a significant environmental contaminant, and there are millions of dollars spent on cleaning up toxic sites from industrial sites that have spilled mercury. There is also a great deal of effort being made to control mercury emissions from industrial settings where mercury is used. Here in Washington State, the Department of Ecology has included mercury on its list of the top nine targeted "Persistent Bioaccumulative Toxins" (PBT's) to be eliminated in our environment. What has been overlooked, until fairly recently, is that *dentistry* is one industry that is spilling a significant amount of mercury into the environment!

Wastewater treatment agencies in several parts of the U.S. and Canada recently have been studying this problem in earnest. They find that wastewater entering the municipal treatment plants, often contains unacceptable levels of heavy metals, including mercury. Wastewater treatment plants are not designed to process heavy metals. It is important that this contamination is cut off at the source. Their studies have estimated that anywhere from 14% to 70-80% or more of the mercury contamination of wastewater entering the treatment plants is coming from dental offices!

How does this happen? Any time a mercury amalgam filling is placed or removed, there is a significant amount of amalgam sludge that is vacuumed up by the chairside dental assistant. It doesn't just disappear. That mercury-laden sludge goes down the drain and into the wastewater system. In most offices, this goes completely unchecked. Several European countries have had regulations for years that require dental offices to be equipped with special mercury-separator devices that filter out or trap mercury before the wastewater leaves the dental office. Prior to, 2001, no such regulations exist in any U.S. area. This year (2001), such regulations began to take effect in some Canadian cities. In the U.S., King County (Washington) was the first area to mandate compliance. Other counties, and other areas in the country are likely to follow. There is also mercury vapor contained in air vented to the outside of dental office buildings and as yet no easy technological solution for this emission.

We are proud to say that we have had such a wastewater protective device in place for several years. In fact, we were one of the first ever installed in the U.S. The pioneering efforts by Dr. Paul Rubin, to be proactive in this area and to educate the dental profession on this issue, has earned a local environmental awards. We continue to fight

to make this a required feature of all dental offices. It's a simple step that makes a significant environmental impact.

Other “Biocompatible” concerns

There are other issues that, once we are committed to Biological Dentistry, we can't help finding ourselves involved with as well. We won't try to cover them all here, but two of them are fluoridation, and root canal treatment. With these, as with many other issues, we find ourselves in a “minority” position with respect to most of the dental profession.

Fluoridation

The use of fluoride, and particularly fluoridation of drinking water, has been touted for the last few decades as a huge boon to dental health. Dental societies and public health agencies have vigorously promoted water fluoridation as one of the most beneficial public health policies ever. We think, however, that the wool has been pulled over the eyes of the public and dental profession alike.

Without elaborating on details, we are convinced that an objective, careful look at the relevant science shows that the toxic properties of fluoride and fluorine containing compounds have been grossly overlooked, while the “benefits” of fluoridation have been widely overrated. To state it simply, it is poisonous and probably doesn't even work! If you'd like more information on this point of view, you can download the IAOMT's “Position Paper on Fluoride” or visit www.fluoridealert.org. We strongly disagree with most of what is presented in the American Dental Association's publication “Fluoride Facts” (2005), but you may want to look at that as an example of the more traditional viewpoint (see HYPERLINK "<http://www.ada.org>" www.ada.org). We do not do “fluoride treatments” on kids or adults in this office. We do not support public water fluoridation. We do not prescribe fluoride supplements.

Root Canal Treatment

“Endodontic” or “root canal” treatment is another area of current controversy. The rationale for this treatment is to save teeth where the “nerve” or “pulp” of the tooth has become irreversibly damaged or infected and cannot recover, and the only other option is extracting the tooth. Of course, dentists are always in favor of saving teeth. Root canal treatment clearly has saved millions of teeth from extraction, and allowed them to function comfortably and esthetically. However, the question that has arisen: at what cost?

Again, this is a long and complex story. We have another “Fact Sheet” on root canals that tell a little more complete picture. The short version is this: Teeth that have been treated with root canal treatment, even when the treatment looks and feels “successful” from all traditional criteria, still may harbor residual toxins that can enter the body as a whole. The original research calling attention to this was done by Dr. Weston Price in the 1920's or so. His work is summarized well in a recent book, [Root Canal Cover-up Exposed](#), by Dr. George Meinig. Very little modern research has been applied to this question. The one outstanding exception is the current work of Dr. Boyd Haley and Dr. Curt Pendergrass at Affinity Labeling Technologies. Their sophisticated research has confirmed that many root canal treated teeth still have significant toxic potential. Their research is well laid out in their website, HYPERLINK <http://www.altcorp.com> www.altcorp.com .

The questions that arise from this are 1) should root canal treatments be done

(the alternative being extracting the tooth), and 2) are existing root canal treated teeth a health risk and should they be extracted? At the present time, we don't feel these questions have a clear, black-and-white answer. We will evaluate and advise patient situations on an individual basis. The IAOMT has a standing committee on "Endodontic" concerns, and they have been wrestling with this issue. Currently, they still have no consensus on the simple, core question: "root canals: yes or no?" There does exist now a clinical test that seems to be fairly reliable at detecting the presence of toxins from a root canal treated tooth, and has helped us in our clinical advice.

Non-Surgical, "Biological" Periodontal Therapy

It is estimated that over three fourths of the adult American population show some signs of periodontal disease. This may range from mild inflammation of the gums to advanced, destructive infection. Medicine is now recognizing that there is a significant correlation between periodontal disease and other health problems. Periodontal disease is a risk factor for some types of heart disease, ulcers, arthritis, low-birthweight premature babies, and more. The good news is that there have been advances in the understanding of the multiple causes of periodontal disease, and more effective ways of controlling it. It needs to be treated as an infectious process. Many traditional, *gum surgery* approaches of the past have been shown to be rather ineffective long term.

A variety of *non-surgical* approaches to therapy are now being used. They may include such things as laser treatment, irrigation under the gums with herbal antimicrobial agents, supportive nutritional supplements, and others. Use of a phase contrast microscope to examine live plaque samples from our patients has been a valuable tool in diagnosing and monitoring periodontal health. We believe it is crucial to monitor the microscopic environment since periodontal disease is largely a microbial problem. Home care techniques may be very different from what most people are used to. Treatment is aimed at creating a healing environment for the tissues to return to a more complete and stable state of health.

Many of the old ways just don't work very well, including the almost universal recommendation to have your teeth "cleaned" every six months with the dental hygienist. An individualized assessment of what really is appropriate for each patient is very important.

In summary, we have moved away from the often cavalier attitude that something works well simply because we've always done it that way. Many techniques, materials and attitudes of dentistry in the past need to be reassessed in light of their effect on the individual as a whole person. That is the aim of biological dentistry, and we will continue to strive toward that. We always welcome your questions and comments, and will always try to stay very current on all that is going on in this field worldwide.

A brief list of references for more in-depth information:

Dentistry Without Mercury, Sam Ziff and Dr. Michael Ziff (available in our office, in most health food stores, some bookstores, or through the IAOMT ([HYPERLINK "http://www.iaomt.org"](http://www.iaomt.org) www.iaomt.org))

Your Toxic Teeth, Murray J. Vimy, DMD (available in our office).

Mercury Detoxification, Tom McGuire, DDS (available from [HYPERLINK "http://www.dentalwellness4u.com"](http://www.dentalwellness4u.com) www.dentalwellness4u.com)

Lorscheider, F.L., Vimy, M.J. and Summers, A.O. "Mercury exposure from "silver" tooth fillings:

Emerging evidence questions a traditional dental paradigm." FASEB J. 9, 504-508, 1995.

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Please see also the "Links" section of this website.

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