

A dental implant with a white crown and a threaded titanium base stands next to a natural tooth. Both are resting on a dark surface that reflects them. In the background, there is a technical drawing of a tooth with various labels and lines, suggesting a scientific or engineering context. The text "Science and Art Imitating Nature" is overlaid on the image.

By Drs. Jerome Smith and Daniel Domingue

Introduction

In the extensive history of dentistry, there is little debate amongst dental healthcare professionals and patients alike that the advent of the modern dental implant has revolutionized treatment for patients in restoring their mouths/dentition to a maximum state of comfort, esthetics and function. That being said, when one considers the fact that the human mouth is a **“dynamic biologic machine”**, it is so important for so many reasons and is so central to so many functions, there’s little question that the need for a heightened awareness as to the necessity of understanding the importance of maintenance of implants and teeth alike cannot be overstated. When one purchases a new automobile, lawnmower, CPAP machine, iPhone, generator, pressure washer, etc., these ingenious revolutionary devices come with owner’s manuals, and for good reason. To the extent that the new owner follows the recommendations advocated in any owner’s manual by the manufacturer with respect to maintenance, he or she can expect a minimum or problems with their purchase.

A typical checklist for an automobile would include periodic oil change, checking the radiator/antifreeze levels, tire pressure, battery, brakes and so forth. Failure to abide by those routine maintenance recommendations will inevitably result in breakdowns, possibly being stranded or having to be towed and/or costly repairs and overall disappointment. In Dentistry, in particular in the field of dental implants, we see many similarities. So for patients with one or more dental implants, we have compiled an **“Implant Owner’s Manual”** for reasons similar as stated above. And specific maintenance schedules and recommendations for all of our implant patients appears on the last two pages of this Manual.



J. Jerome Smith, DDS • Daniel Domingue, DDS

GENERAL DENTISTRY

Comprehensive Adult Care • Implants • Cosmetic Dentistry

Implant Maintenance for Long Term Predictability

Congratulations. Your implant or implant(s) is similar to a new automobile that you've just driven off the car lot. It is the result of decades of research and development, trial and error, "going back to the drawing board" and consumer feedback that has been going on throughout the world in search of a viable replacement for a missing tooth or teeth that will afford long term predictability. However, when we consider the fact that not all implants will last a lifetime, it is important to address what happens to implants over time if periodic professional exam and observation is not employed and if stringent daily homecare and maintenance are not a priority for patients. The lack of information regarding why implants can become problematic over time is among the subjects that will be addressed in this **Implant Owner's Manual**.

The Mouth—A Dynamic Machine

When one really closely examines and understands the complexities of the human mouth as a biological machine including all of the components that have to function harmoniously, it isn't any wonder that the Profession of Dentistry had to become its own specialty both apart from Medicine, but also an important part of Medicine. It is a unique profession in that it encompasses oral medicine, biology, microbiology, physics, chemistry, engineering, and art.

Dentists are regarded as physicians of the mouth because they diagnose and treat diseases of the mouth (including teeth, gums, underlying bone, the tongue, the muscles of mastication (chewing muscles) and the temporomandibular joints. Those components mentioned above must be maintained in a state of optimal health as this **"biological machine"** serves to function not only to begin the process of digestion through the ingestion and mastication (chewing) of foods, but also in the production of speech. And, the **human smile is vitally important part of one's appearance**.

"You'll find that life is still worthwhile, if you just smile"

—Charlie Chaplin

What Could Possibly Go Wrong?

As stated in a previous paragraph, the mouth is a **“dynamic biologic machine”**. Simply stated, it is the sum total of many moving parts including the five muscles involved in chewing, the Temporomandibular joints, the teeth and their alignment, the surrounding gingival (gum) tissues, the supporting alveolar bone, the tongue, sinuses, vestibular tissues(i.e. cheek, lip, palate, salivary glands) , the biting forces during chewing , etc. In addition, the mouth harbors trillions of bacteria, some of which if not kept in check via stringent home care and regular dental cleanings can cause peri-implantitis around dental implants (**Figure 2.**) which is analogous to periodontal or “gum disease” around ones natural teeth (**Figure 3.**) In addition to these bacterial insults and the damage that they can cause, there are other factors to consider as contributory factors in peri-implantitis such as smoking, clenching of the teeth and bruxism, to name a few.

Figure 1.

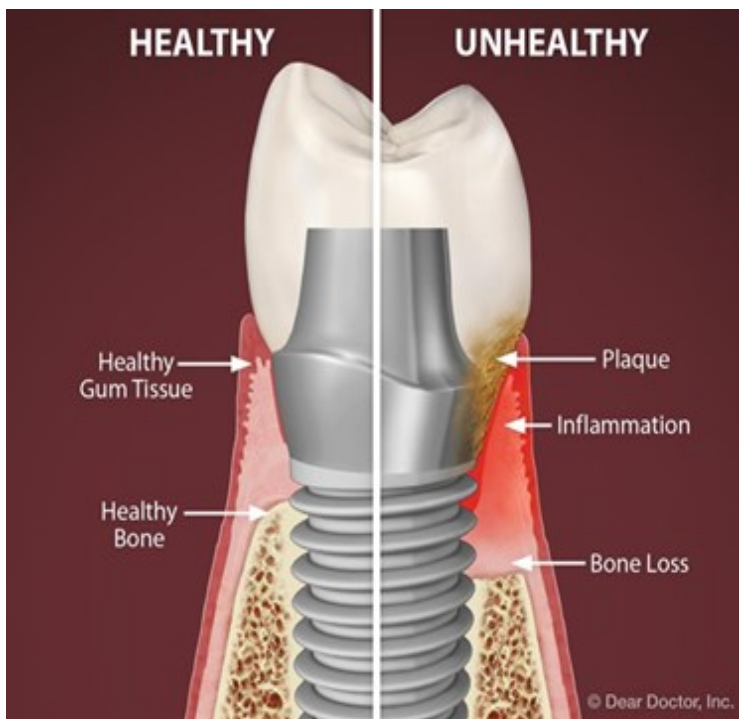


Figure 2.

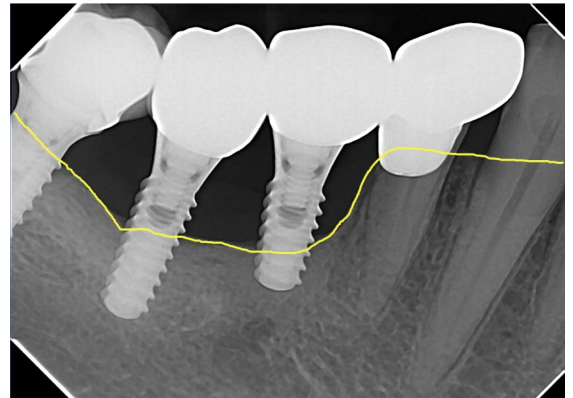
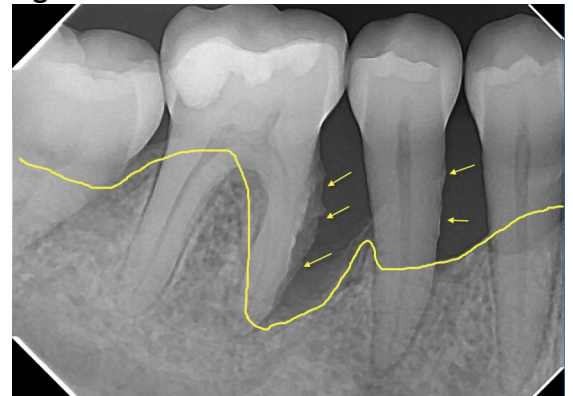


Figure 3.



"The mouth in its entirety is an important and even wondrous part of our anatomy, our emotion, our life . . it deserves the greatest care it can receive at any sacrifice."

-F. Harold Wirth, DDS

Peri-Implant Diseases

Peri-implant diseases are inflammatory conditions affecting the soft and hard gum tissues around dental implants. Similar to a natural tooth, bacteria can build up on the base of the implant, below the gum line. Over time, the bacteria irritate the gum tissue, causing it to become inflamed, damaging the tissue and if not caught early, causing the bone structure below the implant to deteriorate. This is illustrated on the previous page in **Figures 1 and 2**.

Peri-implant diseases are classified into two categories.

In **Peri-implant mucositis**, gum inflammation is found only around the soft tissues of the dental implant, with no signs of bone loss. Generally peri-implant mucositis is a precursor to peri-implantitis. Evidence suggests that peri-implant mucositis may be successfully treated and is reversible if caught early.

In **Peri-implantitis**, gum inflammation is found around the soft tissue and there is deterioration in the bone supporting the dental implant. Peri-implantitis usually requires surgical treatment. Signs of peri-implant diseases are similar to symptoms of gum disease: red or tender gums around the implants, or bleeding when brushing. And just like your natural teeth, implants require regular tooth brushing and flossing and regular check-ups from a dental professional. Other risk factors for developing peri-implant disease include previous periodontal disease diagnosis, poor plaque control, smoking, and diabetes. It is essential to routinely monitor dental implants as part of a comprehensive periodontal evaluation.

The up side to dental implants is they function just like your natural tooth. The down side is, they are capable of becoming diseased just like a natural tooth. With a proper oral health routine, your dental implant can last a lifetime.



Early Bone Loss and Infection Around Two Dental Implants

What Kind of “Bugs” are Causing These Problems:

Who are “the bad guys”? First of all, this infection is a poly-microbial anaerobic infection with a number of culprits involved, all of whose names you may not find very meaningful. Poly-microbial means “multiple bacteria involved in the infection. Anaerobic to a particular type of bacteria that thrive in environments without oxygen, such as below the gum line. For the record, they include:

Prevotella intermedia, Prevotella nigrescens, Streptococcus constellatus, Aggregatibacter actinomycetemcomitans, Porphyromonas gingivalis, Treponema denticola
and *Tannerella forsythia*

In particular, the Staph organism shows a high affinity for titanium.

Treatment:

First and foremost, there are a number of considerations when evaluating implant cases and deciding upon the best course of treatment. Early detection definitely offers a better prognosis for successful treatment of this condition for a number of reasons which will be discussed later in this section.

Initial Therapy:

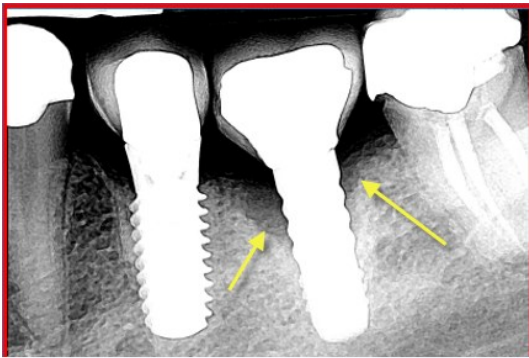
This usually involves a thorough cleaning around all involved implants with the dental hygienist utilizing ultrasonic cleaning and irrigation. Patients return for follow-up evaluation after several weeks of adhering to differing oral hygiene homecare recommendations by the Doctors or by the dental hygienist.

Periodic Monitoring:

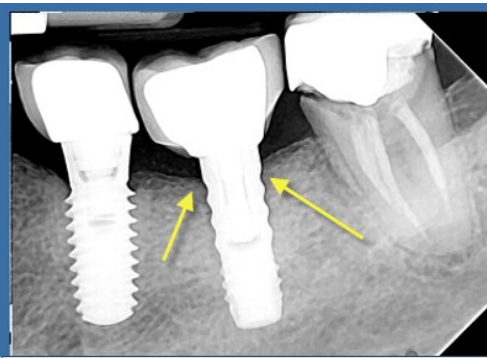
If at the follow-up visit, the condition has improved, stabilized and or completely resolved, we will recommend regular recall appointments with the dental hygienist including timely radiographs (x-rays) of the area or areas of concern.

Surgical Revision:

In a significant number of cases, in particular where there is significant visible bone loss on x-rays along with redness of the gum tissues, bleeding upon probing with a periodontal measuring probe, the presence of periodontal pockets that are 5mm or greater, the presence of pus, etc., surgical revision is indicated. This usually involved anesthesia, reflecting back those infected/inflamed gum tissues, cleaning and detoxifying the contaminated implants surfaces, bone grafting and sometimes even the addition of connective tissues (gum grafting) in combination with oral antibiotics for a week. This works reasonably well in most cases, but is directly affected by the initial condition of the site and the severity of infection, post operative patient compliance with regard to taking prescribed antibiotics, adhering to post operative instructions, consistent effective care of the site or sites as directed .



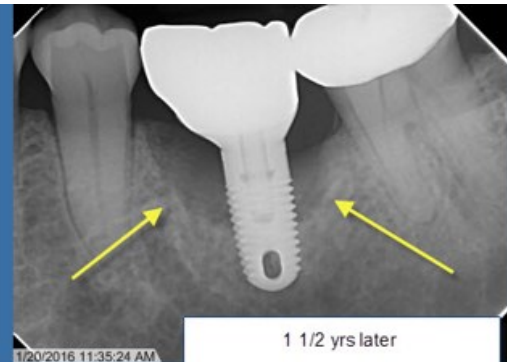
Arrows showing areas of bone loss of the second implant



1 1/2 years after Surgical Revision procedure with great results



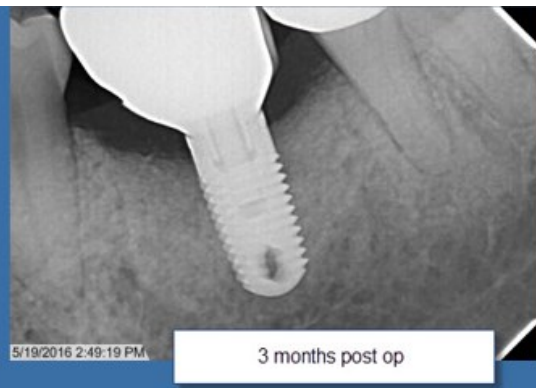
1 yr later.... "irritation"



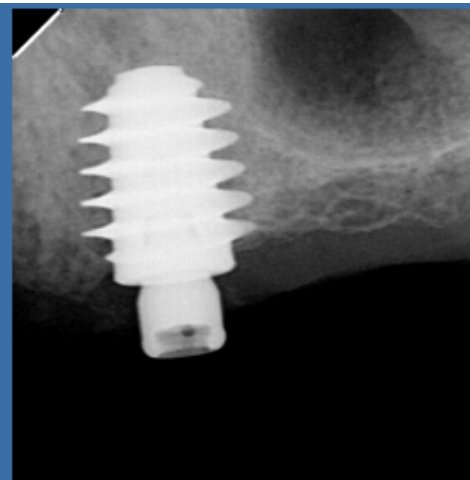
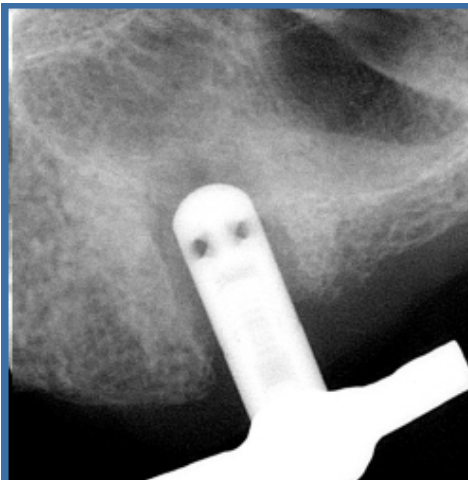
1 1/2 yrs later



Crown/abutment unscrewed; surgical revision procedure



3 months post op



Upper implant with total loss of "bone integration" after being in function for 15 years (Fig 1.) Replacement implant with newer design and a superior prognosis due to this design and advanced surface technology

Smoking and Problems with Dental Implants

Implants May Not Properly Bond With Jawbone

Right off the bat, smoking regularly before you receive implants may make it harder for the implant to fully fuse with your jawbone. Cigarette, pipe and cigar smoking has been found to cause jawbone loss, severe periodontal (gum and bone) disease and delayed wound healing, according to the College of Dental Hygienists of Ontario. The tobacco you consume while smoking limits blood flow to your gums, reducing the oxygen and nutrients they need to stay healthy, recover and fight off bacterial infection.

If your jawbone, gum tissue, and muscle surrounding the implant aren't healthy and cannot properly heal after you've received the implant, your implant may not be able to fuse with your jaw bone. The soft tissues of your gums typically take a few weeks to heal around the implant, and the jaw takes months to osseointegrate with the implant.

Studies have found that patients who smoked during the implant placement surgery had a higher rate of early implant failure than nonsmokers. This makes sense, as smoking negatively affects the health of your jaw and gums. It's best to avoid smoking during the early stages of your implant surgery to allow the implant to fully osseointegrate correctly. Otherwise, your implant may need to be taken out soon after your surgery.

Increases Chances of Infection

Like all surgeries, there is a risk of infection with dental implants. But the risk is very low for patients with great oral health and a strong immune system. Smokers, on the other hand, are more likely to develop an infection after they receive implants because it's harder for their gums and jaw to fully recover. If patients smoke soon after their surgery, their wounds are also exposed to chemicals, making infection more likely. While antibiotics can be used to treat infection, smoking can reduce the effectiveness of these drugs.

Greater Risk of Developing Peri-Implantitis

Smoking doesn't just affect the success of your dental implants in the early stages of healing. Peri-implantitis can occur years after your dental implant surgery and often causes implant failure. Peri-implantitis is an infectious disease that results in inflammation around gums and bone surrounding a dental implant. If left untreated, it can lead to progressive bone loss around the implant and eventual implant failure. Fortunately, peri-implantitis is rare. But smoking has been found to increase your risk of developing the disease. Smokers are also especially susceptible to bone loss.

How to Increase Your Chances of Dental Implant Success As a Smoker

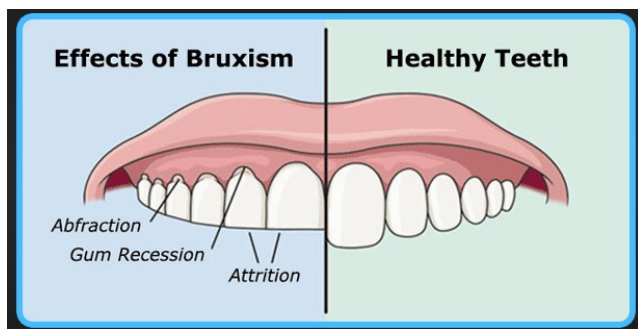
Don't worry, smokers. It's not all bad news. While smoking does increase the chance that your dental implant won't last long, many patients who smoke have successful treatments with implants that last their entire lives. It's also important to note that ex-smokers who have not smoked in years increase their success rate. The best thing you can do for yourself and your dental implant is to stop smoking. Countless studies have noted that patients should stop smoking to decrease their risk of implant failure. You can find a variety of resources designed to help you quit smoking [here](#).

Just The Facts

On an average day Americans age 15 or older spent **67 minutes** in primary eating and drinking. The **force generated** during routine chewing of food like carrots or meat is about 16-34 pounds. The **maximum masticatory force** in some people may reach up to 110-160 pounds. During **sleep the force of bruxing** can be up to 6 times greater than normal waking biting pressure, approximately **250 pounds of force per square inch**, and last for up to 40 minutes per hour of sleep.

Over time the complications of teeth grinding may cause permanent damage to the teeth and uncomfortable oral and facial pain. The complications can include:

- Damage to teeth including fractures requiring extraction(s)
- Wear to the teeth with associated chipping and irregularities
- Broken Fillings and Crowns
- Fractured Implant Coping/Abutment Screws and Fractured Implants Requiring Removal
- Acceleration of Bone Loss around Teeth and Implants
- Loosening of Natural Teeth as well as dental implants
- Jaw Pain, Joint Pain and Headaches
- Limited Jaw Movement (i.e. limited opening and/or difficulty chewing)
- Tooth Sensitivity



"Preventive dentistry can add 10 years to human life." By the preservation of natural teeth people are able to eat and properly assimilate their food, and they can choose what they eat, rather than having artificial dentures make this important decision for them.

—**Dr. Charles Mayo, founder of the Mayo Clinic**

Examples of Implant Problems:

Below are examples of problems that can occur with dental implants from time to time. Although this is not that commonplace, with lack of follow-up care and lack of adequate homecare (including wearing nighttime bite guards), problems such as progressive bone loss resulting in loss of the implant can occur. (See **Figure 1.**) We will also see “implant overloading” occur resulting in implant mobility, discomfort and the need for removal/replacement. This occurs when changes in the bite occur over time and patient has not been in for regular follow-up and/or not wearing protective nighttime guard. (See **Figure 2.**) However, often times we can easily remove the implant and replace it with a larger diameter implant if remaining bone is adequate (**Figures 5 and 6.**), however, this entails significant costs including a new crown, etc. And, from time to time we’ll see a fractured implant body which can occur for the very same reasons as stated above in implant overloading. (**Figure 3 and 4.**) In addition to all of this, fractured porcelain crowns over implants can occur resulting in “food traps”

between teeth, sharp edges and “esthetic compromise”, which is just another reason for protective night guards for those patients that clench and grind their teeth during sleep. And, chewing extra hard/dense items such as hard candy, frozen Candy bars, “cracklins”, peanut brittle, etc. can result in porcelain fractures as well as fractures in implant retained removable overdentures

Figure 1.

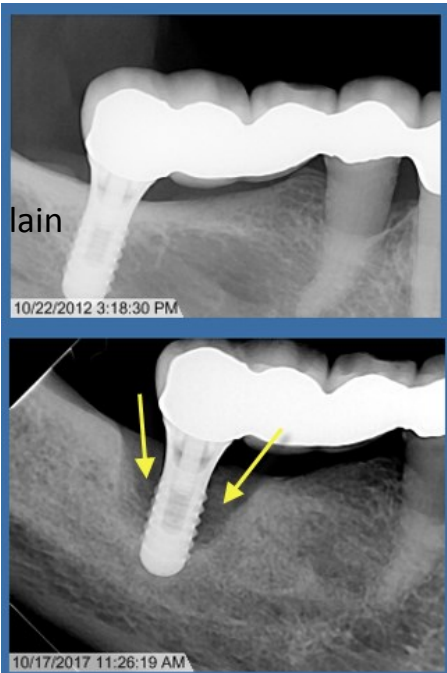


Figure 2.

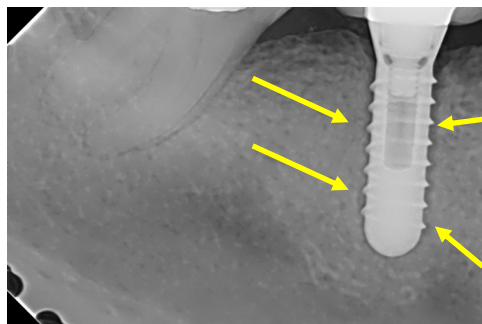


Figure 3.

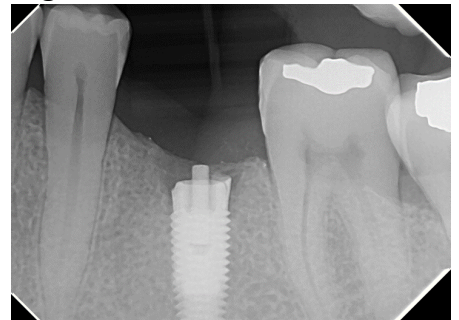


Figure 4.

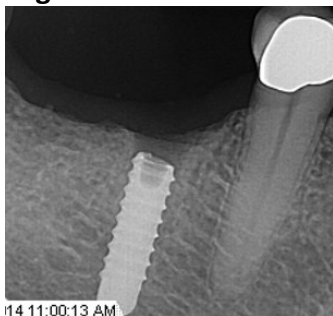


Figure 5.

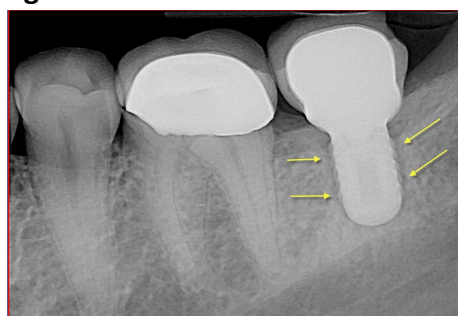


Figure 6.



Modern Diagnostics and Experienced Care

“When I started my involvement with the use of dental implants for tooth replacement dating back to 1985, it was the result of some degree of frustration (disappointing results that we were seeing) using conventional removable partial and full dentures. Patients were able to only eat certain foods comfortably. In chewing foods, patients could only generate approximately 25% of the chewing forces that was formerly afforded by their natural teeth prior to extractions and denture fabrication. In addition, the sole purpose of the alveolar bone (the bone that surrounds teeth) is to support teeth. When teeth are removed, the supporting bone resorbs away at an alarming rate though disuse atrophy. This results in dentures and removable partial dentures constantly losing their initial fit/retention and over time patients will notice a sunken premature aged appearance. That combined with denture ulcers, sore spots, food entrapment, slippage, etc. illustrate a treatment which in many respects is akin to a “wooden leg or glass eye”.



In addition, if a patient lost a tooth or a few teeth, the standard protocol was to grind down the adjacent teeth to create a fixed cemented bridge to “bridge the gap”. While initially, this seemed to solve the missing tooth/teeth problem, studies show that the failure rate for such tooth borne cemented bridges was excessive after 5-10 years. This is largely due to the difficulty in cleaning around these tooth borne bridges, necessity for root canal therapy “after” the bridge insertion due to pulpal death/necrosis/abscess, dissolution of cements and/or loosening of the bridge on one of the supporting teeth often resulting in recurrent decay, compromise of the tooth and very often loss of the supporting tooth itself. In short, conventional dentistry as I was taught in dental school solved some problems, but inevitably cause new problems often associated with reoccurring costs and unhappy patients.”

—Dr. Smith

“If you are reading this then you are well aware of the benefits of dental implant therapy to replace missing teeth and advantages it provides as opposed to other methods of modern day treatment. Our practice has seen an incredible 95% long term success rate amongst our cases. Hopefully, this **‘Implant Owners Manual’** will spell out how to prevent the pitfalls, complications, issues, and other minor problems we have seen over time so that we can further increase our success rate, thus increasing patient satisfaction. In a brief summary of the below text, the main component in the most successful long term cases we see are all directly related to patient compliance, impeccable daily home hygiene, routine dental office cleanings, and general knowledge of what is considered normal care. Recall the famous quote by Ben Franklin: **‘An Ounce of Prevention is worth a pound of cure’**, no truer words could be said for preventing cavities that lead to fillings, crowns, root canals, or implants. Now that we are at the implant stage whatever circumstances that got you here, implementing and ounce of prevention now will ensure patient and doctor long term satisfaction.”

—Dr. Domingue

“A smile is without a doubt, the most effective means of communication ever devised by the gods”

-Benton

Dental Implants—Nuts, Bolts and Nightmares and Disease

This is actually the title of a course that I gave throughout the US to dentists in years gone by. Loose screws, fractured implants, broken fixed implant bridges, worn implant attachments for removable Implant supported bridges (overdentures), worn down prosthetic teeth, etc. are circumstances that invariably arise when these revolutionary treatment options are subjected to the forces and environment of this “dynamic machine” we call the human mouth. This machine is influenced by varying strains of bacteria that attach to plaque (that invisible film that deposits on our teeth daily) that is present on our teeth as well as below the gum line, and to the extent that these bacteria are not managed (removed) on a daily basis, chronic problems will ensue including loss of gum tissue and supporting bone around implants. In addition, tartar or calculus, forms both above and below the gum line on teeth and implants alike. And, this is analogous to barnacles on a boat or pier. It is tenacious and must be removed with professional cleaning by a dentist or dental hygienist on a periodic basis. The problem with tartar is that it is like a “bacterial magnet” and hold bacteria by the millions in the most vulnerable areas around implants—at and beneath the gum line. Failure to remove this buildup of tartar will invariably result in bone loss and if not treated in a timely fashion will result in loss of not only the implant itself, but in the loss of the supporting alveolar bone. And, once that bone is lost, it is very difficult to regenerate more bone in that site(s) for future implant replacement.

More To This Story

This “dynamic machine” is also affected by clenching (biting down) and bruxism (grinding) during sleep. Many patients that do this are unaware, unless a dentist recognizes wear and/or tooth mobility. In some individuals, facial pain with or without headaches accompanies this excessive nocturnal activity. Our concerns beyond this has to do with the fact that those patients need to have a protective night guard which helps protect the supporting bone for implants and teeth alike as well as to prevent “wear and tear”, which includes fractured teeth, fractured fillings and crowns, severe wear and associated sensitivity, gum recession, and bone loss with resultant loss of teeth and implants in response to these overload forces exceeding the “bone threshold”.

Mouth Disease and Cardiovascular or Heart Disease

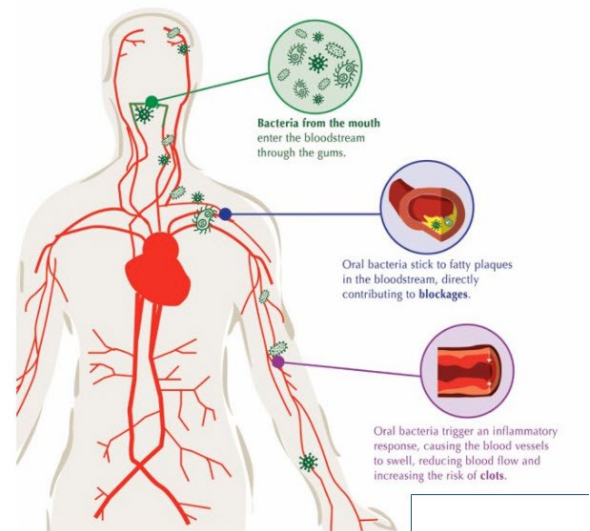
Does a healthy mouth equal a healthy heart? More and more, the research says “yes.” Doctors have been talking about the potential link for nearly two decades and with good reason. **Heart disease is a serious problem around the world. So is poor oral health.** Could better brushing and flossing give you a healthier heart? So what is the link? In a word, **inflammation, or swelling.** Scientists know that it leads to hardened arteries, also called atherosclerosis. That’s a condition that makes it hard for blood to flow to your heart. It puts you at greater risk for heart attack and stroke.

Inflammation is also a sure sign of gum disease. Sore, swollen gums are the main symptom. There are two main types: gingivitis, which causes red, painful, tender gums, and periodontitis (gum disease around natural teeth” or peri-implantitis (gum disease around dental implants) which leads to infected pockets of germy pus. That’s the type that raises the worry for heart problems. It allows bacteria and other toxins to spread below the gum line.

Your gums are very vascular, meaning they’re full of blood vessels. And, your mouth is full of bacteria. If you disrupt the gum layer even a little bit, you’re going to get bacteria in your bloodstream, which can go anywhere and trigger inflammation throughout the body. Inflammation is one of the main things that cause damage to blood vessels, including those of the heart.”

Studies show that the bacteria found in periodontal and peri-implant diseases-- including *Streptococcus sanguis*, which plays a role in strokes-- spreads to the heart. The two appear to go hand-in-hand. In the absence of gum disease, there is significantly less of these bacteria in the heart.

Gum Disease and Heart Disease: **The Bacteria Connection**

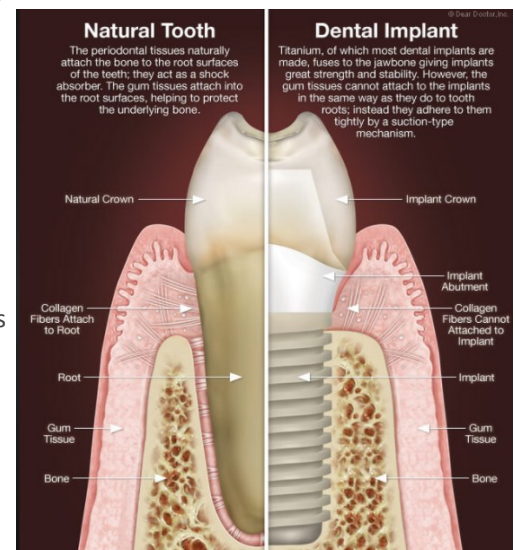


There is nothing quite more frustrating to dental Implantologists and patients alike to receive that dreaded news “we see some problems around your implant(s) that needs to be addressed. Or, “your implant(s) is(are) failing” This immediately creates for the patient intense feelings of disappointment, dread about future treatment and associated costs, pain, loss of time from work and family and sometimes loss of confidence dental Implantology and in their dentist. On the other hand, the dentist is faced with having to deliver the bad news, which he/she knows could’ve been averted by routine effective and consistent homecare (e.g. electric toothbrush, waterpick, flossing, interdental picks, antibacterial rinses) smoking cessation, diabetes management, and most importantly of all, routine dental hygiene recall appointments. At these appointments, assessment of the patient’s effectiveness of their daily homecare is assessed by the dental hygienist and dentist, the need for adjunctive devices for proper cleaning at home can be addressed, and the clinical and radiographic health of the implant(s) can be assessed as well. In that regard, early detection of problems such as incipient bone loss with associated peri-implant pockets, loose abutment screws, changes in the occlusion (bite) resulting in excessive bite forces on an Implant or implants can result in prevention of major issues and problems if left undetected. Also, at these visits, screening for **Oral Cancer** is included.

Preventive maintenance and early detection are concepts that run throughout the field of medicine. Colonoscopies for early detection of colon cancer, annual mammography for early detection of breast cancer, PSA blood levels in males for early detection of prostate cancer, stress tests (typical and nuclear) for early detection of heart issues, along with conventional blood tests at physical exams by MD’s for early detection of everything from anemia to elevated cholesterol levels. You hear of a recent cancer diagnose for a friend, but “they caught it early!” Same goes for dental disease—we have to catch it early. A small cavity can develop into a painful tooth abscess because of an infected nerve and now the patient is faced with a root canal and crown if the tooth is savable or extraction and implant if not. By the same token, early detection of periodontal and peri-implant problems around teeth and implants can mean the difference between being able to on some level, “cure the problem” versus having to throw in the towel and start over, redo, remake, etc. Thus, the need for regular follow-up examinations and cleanings combined with stringent homecare is the key to long term predictability and longevity when it comes to teeth and dental implants.

In conclusion, in some respects, dental implants are seemingly superior to our God given teeth in that they are not susceptible to dental decay. In addition, dental implants do not have a living pulp (the viable internal portion of a natural tooth which is a conglomeration of microscopic blood vessels and nerves) rendering it non responsive to heat and cold or the classic toothache, when these pulpal tissue or “nerve” becomes infected as a result of a deep cavity or thermal trauma from dental procedures. In addition teeth can fracture (especially teeth that have had root canal therapy) and ultimately wind up either with a bone infection as a result of a fractured tooth or simply can no longer support a crown. On the other hand, because teeth supported by implants are directly in contact with bone and do not have a suspensory ligament holding them in sockets as teeth do, it is imperative that biting forces on these implants be consistently monitored/checked by the dentist at these routine recall visits. Failure to do so can result in “bone overload” (**Figure 2 and 5. Page 10**) in which the forces on the Implant supporting bone has a threshold that is exceeded resulting in bone loss, possible fractures of any of the implant components and sometimes loss of the implant itself as mentioned in previous paragraphs. And, lastly and most important, the effective daily removal of dental plaque from around each and every tooth and tooth/implant simply cannot be overstated. Failure to do so will result in bacterial invasion of the fragile gum attachment to implants rendering periodontal or peri-implant pockets that cannot be cleansed effectively with toothbrushes or even the waterpick, requiring “revision surgeries” to eradicate these pockets. It should be mentioned that the gum attachment around teeth is a far superior barrier to bacterial invasion than the fragile gum attachments around dental implants, thus making it even more important for daily plaque removal around dental implants. (See Figure A.) The science behind this “revision surgery” is pretty straightforward. If a peri-implant pocket forms around a dental implant, the face that has lost bone surrounding it becomes contaminated with bacteria and must be re-exposed surgically, cleaned and detoxified, and often times additional bone grafting materials must be placed in these affected sites, often times in conjunction with either donor tissue (skin) or tissue from the palate to assist in regenerating the defect back to a healthy state. The bottom line is “an ounce of prevention is worth a pound of cure”. As dentists we recognize our responsibility to our patients to be as honest, painless, empathetic, cost conscious, and caring as possible. We also realize our responsibility in educating and motivating our patients as much as possible so as to help minimize problems associated with their natural and implant supported dentition with long term success as our primary goal. And, it is imperative that patients accept their responsibility for consistent and effective homecare in plaque removal as well as routine follow-up and recall visits.

Figure A.



Implant Treatment Cost Considerations—An Investment in Your Oral and Systemic Health

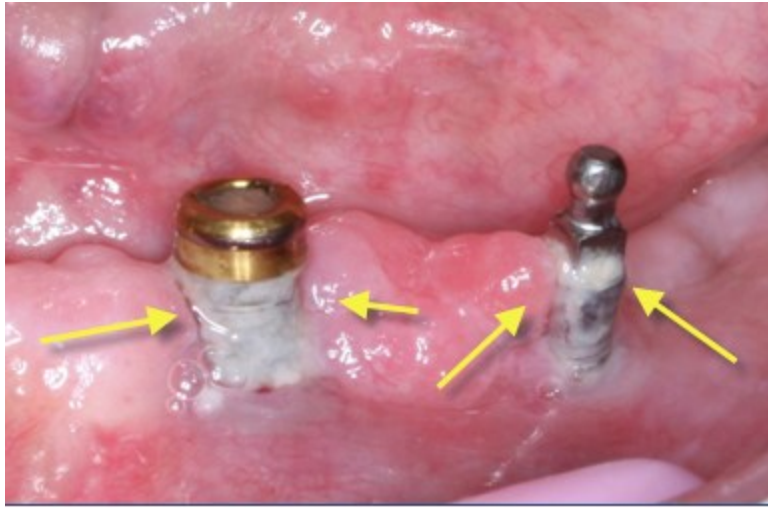
Why Does This Cost So Much?

This is a question that our office hears from time to time we are certainly well aware of the concerns that patients have with regard to costs. When one combines costs associated with “the business of dentistry” we realize fully realize that having the best experienced, responsible, caring and knowledgeable employees that are fairly compensated, modern equipment including in house CT scans/3D imaging, dental equipment and supply costs, insurance (including malpractice), ongoing continuing education, HIPPA and OSHA compliance, IV sedation availability, utilities, laboratory fees, building maintenance, surgical setups and so forth all adds up. We do realize that there are dentists “marketing implants and other assorted dental procedures” with lower fees than what is usual and customary in our area and quite often are faced with patients that have had treatment in such settings with unsatisfactory results. For the most part, in America, you usually get what you pay for. We use the expression, “beware of bargains on parachutes and dentistry”. We also have seen a rise in corporate dental offices throughout our country along with discounted insurance plans. We utilize a universal fee survey annually with regard to what is usual and customary in our area/zip code and work diligently with our patients to make Implant dentistry more affordable including the use of third party financing, phased treatment, and “teaching cases” for our semi-annual course for advanced training for “experienced implant dentists” from throughout the USA. Our practice does NOT advertise on billboards, television, radio, mailers or otherwise. We solely rely on referrals from over 100 dentists throughout Louisiana and Mississippi along with patients in our practice that are happy with our office and refer via word of mouth.

How Long Will My Implants Last?

Will My Implants Last Forever?

The answer to this question varies greatly and is “patient dependent” for the most part. As dental implantologists that place, restore and repair implants, we recognize our responsibility for proper diagnosis and technical implantation of dental implant treatment. At the same time, it needs to be mentioned that the **#1 cause of implant complications has to do with lack of patient compliance**. And those factors in compliance include **lack of timely follow-up care including x-rays and dental cleanings, not wearing prescribed nighttime guards, smoking, and not adequately and consistently removing bacterial plaque buildup around dental implants and implant restorations**. And, it would be important to mention that there are some contributing factors such as **dry mouth, dementia, existing periodontal disease around other natural teeth** that are still in the mouth, and even certain prescribed medications such as **SSRI's (Selective Serotonin Uptake Inhibitors such as Celexa, Paxil, Lexapro and Zoloft)**. And lastly, we have to acknowledge that there are some subtle co-factors in the cause of peri-implantitis that are only partially understood including the body's own immune system and the variability that exists from one patient to the next in terms of disease susceptibility. Diabetes, vitamin and mineral deficiencies along with certain systemic diseases would be included here. We see patients that do only a marginal job with their oral hygiene and NEVER have problems with dental decay, periodontal disease or peri-implant disease. On the other hand, we have patients that try to “follow all of the rules” but will have problems over time. Therein lies the some of the challenges that we face in trying to help our patients maintain their teeth and dental implants for the remainder of their lives.



Dental Bacterial Plaque Buildup Around Overdenture Implant Abutments with Resulting Peri-Implantitis



Maintenance Check list

Cleaning around your implants is not difficult or a daunting task. Patients should expect to maintain their implants at home on a daily basis using all forms of recommended protocol for their individual needs.

Patients with fixed teeth should be using water pics, floss, and tooth brush with tooth paste.

Patients with removable teeth should be removing their prosthesis nightly to clean around the implants with tooth paste and a tooth brush. It's best to also clean the prosthesis itself at this same time with solution based productions (i.e. Efferdent). Scrubbing dentures with regular toothbrushes should be avoided. There are denture specific toothbrushes

Red Flags:

Sites of Food Impaction



It is very important to note that if food is being “trapped” between teeth or implants, if not removed in a timely fashion, interdental or “in between the teeth” disease is inevitable. This includes interproximal tooth decay around natural teeth, but also bone loss around otherwise healthy implants because bacteria can thrive on this “food source” quite readily. The use of various interdental brushes, floss and/or the waterpick is essential for keeping these areas clean. It is also important to let us know of these areas when you are in the office for your dental hygiene recall cleaning and exams so that this problem(s) can be addressed.

Gum Recession

Although gum or gingival recession isn’t necessarily regarded as a “disease” it is certain a consequence of a number of contributing factors. Those contributing factors include: Overly aggressive brushing with medium to hard bristle toothbrushes, tooth clenching and grinding, and thin biotype (refers to inherently thin tissue and thin overlying bone on the facial surfaces of teeth). If recession occurs in the “smile zone”, it can result in less than optimal esthetics (**Figure 1.**), and in the case of a dental implant, can render a grey appearance of the gum tissue adjacent to the implant/crown. (**Figure 2.**) This recession can be treated in our office with various tissue grafting procedures, when indicated.

Figure 1.



Figure 2.



Overdentures and Maintenance

For our patients that wear implant retained overdentures, it is important to note that over time, some “wear and tear” will occur over time. This includes wearing down of the inserts in the prosthesis. (**Figure 2.**) The retention can be “renewed again” in most cases by simply having us change out the inserts in the prosthesis with new ones, which are color coded and offer various degrees of retention or tightness and stability of the prosthesis. We also see over time in some patients severe wear of the Locator Overdenture attachments themselves. (**Figure 3.**) You can see the difference in **Figure 1.**, (attachments are brand new/just inserted after three months of healing) and those in **Figure 3.** One of the main causes of this wear of the implant abutments is NOT cleaning out inserts and the attachments themselves when brushing the implant abutments and the inside of the overdenture. If food particles, residual toothpaste, etc. are allowing to stay in the inserts and around the Locator attachments, extreme wear will occur resulting in loss of retention and the need for replacement, which can be quite time consuming and reoccurring unanticipated expense. And lastly, we have to consider the wearing down of the teeth on the prosthesis. This varies from patient to patient and can be attributed to a number of factors including diet, age of the prosthesis, clenching/bruxism with out night guard protection. This wear results in decrease in chewing efficiency, inability to properly masticate certain foods, and in some cases, facial pain, ear/joint pain and/or headaches. The solution is either replacement of the prosthesis or removing the existing worn teeth and having the laboratory set and process new teeth to the existing prosthesis. Sometimes, however, it is best to replace or remake the prosthesis if it been in function for greater than five years and if the “wear and tear” has exceeded the clinical usefulness of the prosthesis. After the new one has been made, inserted and adjusted for esthetics, speech, comfort and function, the original prosthesis can serve as a “spare or backup” in the event of loss or breakage.



Figure 1.



Figure 2.

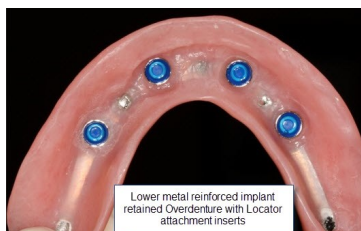


Figure 3.



Figure 4.



Specific Rx for: _____

Toothbrush Type

☐ Soft Manual with Sulcular Technique

☐ Electric ☐ Type _____

Waterpick

☐ Tap Water

☐ Dilution of Listerine

☐ Dilution of Dakin's Solution

Rinses

☐ Listerine Rinse

☐ Peridex Rinse

☐ Microcyn Rinse

Dentifrices

☐ Conventional Toothpaste

☐ Baking Soda and Peroxide Mix

☐ Phisohex on Rotary Brush

Interdental Cleaners

☐ Conventional Dental Floss (e.g. Glide Floss)

☐ Superfloss (for around fixed bridgework)

☐ Floss Threaders (for around fixed bridgework)

Bite guard for Nighttime Wear

☐ Soft guard

☐ Hard Lab Fabricated Custom Night guard

Follow-up Care

☐ Six month Recall Visits with the Dental Hygienist

☐ Annual Recalls Visits with the Dental Hygienist

☐ Routine X-rays and Implant Health Assessment

Individual Recommendations: (circled)

