

# ALDRICH DENTAL CARE

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## Periodontal Disease and Systemic Health

### BACTERIA

Research clearly shows that there is a strong correlation between oral (periodontal) infections and generalized (systemic) medical problems. There are over 500 different types of bacterial microorganisms that have been found in the mouth, and the mouth is connected to the entire body. Approximately 15 of these bacterial species have been implicated for playing a role in periodontal disease. Whether you get periodontal disease or not depends on a complex interplay between these bacteria, your immune system response mechanisms and environmental factors, such as smoking. Your saliva includes proteins, antibacterial and antifungal agents, which help get rid of oral bacteria.



*To simplify things a bit, your level of resistance and whether or not you get gum disease depends on what you do or do not do and your immune system's ability to actively identify and fight the disease causing bacteria.*

A gum infection is similar to an infection that might occur elsewhere in your body. Bacteria are everywhere, including your mouths. When the bacteria multiply past a critical number, problems begin. Why would the bacterial count change? Poor oral self-care, genetics, prescription medication, illness or systemic problems, and diminished salivary flow might contribute. When the body recognizes bacterial invaders, the immune system initiates a response to fight off the invasion and if all goes well the bacteria is destroyed; problems come when this does not happen.



You might say, "My gums have always bled like this," and not seek treatment. Is gum bleeding normal? No. Imagine seeing blood gushing from your eyes when you washed your face. What if your hands starting to bleed when you wash them? You would seek immediate medical attention; perhaps even go to an emergency room immediately!



*Put bluntly periodontal gum disease is a bone deep bacterial infection caused by billions of bacteria.*

When bacteria is grown in the laboratory for study the microbiologist provide a warm, moist, dark environment with lots of sugars and starch as a food source. This exactly describes the mouth, which is a perfect breeding place for billions of bacteria.

## WHAT ARE THE HEALTH RISKS ASSOCIATED WITH GUM DISEASE?

Gum disease is an infection in your mouth, no different than any other infection elsewhere in your body. In the mouth bacteria invades the soft tissues and the bone around the tooth and gets below the gums and into the bloodstream. In this way, the bacteria are then able to circulate throughout the entire body. The bone is a direct route of entry to the circulatory system. Along with the bacteria are dead cells, metabolic by-products, toxins, food debris, and viruses.

Just as we know that smoking has an adverse affect on our health, science is examining a link between gum disease and many systemic conditions such as cardiovascular disease, atherosclerosis, sudden cardiac death syndrome, respiratory disease, chronic obstructive pulmonary disease, stroke, premature birth and low birth weight, preeclampsia, diabetes mellitus, early onset of adult diabetes, pancreatic cancer, kidney cancer, blood cancer and possibly rheumatoid arthritis. Although the scientific data has yet to confirm all the links as diagnostic indicators, it is important for us to recognize the implications. The oral cavity is part of the human beings biology linked to all the other body systems and is a route of entry for a host of infective organisms. It only makes sense to keep it as clean as possible to reduce the risk of not only oral infection but possibly systemic inflammation as well.

Thorough oral self-care need not be difficult or time-consuming. The benefits are more than just sweet breath or a great looking smile. Spending just a few minutes a day caring for your teeth and gums and coming in for the professional hygiene visits at the intervals we advise will make the difference between whole body health and disease. After all, the jawbones are connected to all our other bones and the body processes!

## SMOKING AND ADULT PERIODONTITIS

If you are a smoker, you are at a higher risk for not only lung and circulatory problems but oral disease as well. Smoking causes cell death vascular clamp down and may be responsible for more than 50% of cases of adult periodontitis. It has been reported that more than 85% of all periodontal cases are present in people who smoke. And, more than 90% of gum infections that appear to be resistant to treatment (refractory gum disease) are found among smokers. Smokers are 2.6 to 6 times more likely to have periodontal disease. Former smokers are more likely to have periodontal disease. A person who smokes will not heal as well and does not respond as well to periodontal therapy as does a nonsmoker.

Thousands of chemicals are released during smoking, which causes a profound effect on the immune system that is responsible for helping us ward off infections. And since we now know that periodontal disease is an infection, it is easy to make the connection.

*Many smokers show few areas of bleeding during a periodontal charting because one of the effects of smoking is reduced circulation and mask or other wise hide the symptoms of gum disease.*

### Marijuana Smoker Beware

February 2008 a study of 903 New Zealander found that the smokers of marijuana (cannabis) had triple the risk of severe periodontal disease and 60% higher risk of mild form as compared to those



individuals who did not smoke marijuana. The exact reason for the findings is not known however it is thought that the chemical carcinogens in the marijuana cause the restriction of blood flow in the tissues and prevent the immune system's defense of the gums from the bacteria.

## **SIGNS SYMPTOMS AND TYPES OF PERIODONTAL DISEASE**

Common symptoms of periodontal disease include, red, swollen or tender gums. Bleeding while brushing or flossing. Gums pulling away from the teeth. Loose, moving and separating teeth. Pus coming from between the gum and tooth. Persistent bad breath. A change in the way teeth fit together when you bite together. Changes in the fit of partial dentures.

### **TYPES OF GUM DISEASE**

**Gingivitis** is the mildest form, and causes the gums to become red, swollen and bleed easily. There is usually no discomfort at this stage.

**Chronic periodontitis** is a condition resulting in inflammation within the soft tissues surrounding the teeth causing progressive attachment and bone loss. The bone loss, gum pockets and receding gums are diagnosed through a periodontal examination and dental X-rays. Although chronic periodontitis occurs at any age, it's most common in adults. This type of periodontal disease comes in mild moderate and advanced stages, sometimes all occurring in different areas of the same mouth.

**Aggressive periodontitis** occurs in patients who are otherwise in good health. Common features include rapid soft tissue destruction and bone destruction. There are two forms of aggressive periodontitis:

**Localized aggressive periodontitis** – most often occurs near puberty and usually involves tissue destruction around first molars and/or front teeth but may involve one or two additional teeth.

**Generalized aggressive periodontitis** – often affects people under 30 years of age, but not always. It involves tissue destruction on at least three permanent teeth in addition to first molars and incisors.

## **HEART HEALTH**

Research is racing to help health care professionals further understand how periodontal disease (Gum disease) may be linked to cardiovascular disease. The pressure is on to get a pulse on how improved periodontal health may positively impact patients with cardiovascular disease. Cardiovascular (heart disease) is the leading cause of death in the United States.

Is your heart thumping yet?

Relax, take a deep breath, and consider this when you are measuring your oral *and* overall health.

You're probably aware that smoking, being overweight and having diabetes, high cholesterol and or high blood pressure levels can thwart a healthy body by putting you at increased risk for heart disease. But, you may not know that healthy gums play a vital role in maintaining a healthy body, too. For a long time, we've known that periodontal disease is a strain on the immune system because of chronic infection. Today, researchers have found that periodontal diseases is be linked to atherosclerosis (hardening of the arteries) and common forms of heart disease that cause heart attack and stroke. Periodontal



disease has been established as causing a rise in the C-reactive protein, which is a predisposing factor in heart disease. The bacterial genetic markers have been found in the plaques that form in the heart from the bacteria that causes periodontal disease. Once thought to be impossible, recently it has been established that when the periodontal disease is brought under control that the atherosclerosis has shown improvement.

Seem like a massive stretch? Well, normal tasks such as chewing or brushing can injure the gum tissue and allow bacterial toxins to enter the bloodstream. Scientists now believe that these bacterial byproducts directly and indirectly cause an inflammation of the blood vessel wall, which results in blockage of an artery. This may be how your periodontal disease could lead to a heart attack.

You can not afford to ignore the facts, because you or someone you know may be more at more at risk than you think...Patients with heart disease are clogging up hospitals, with more than 60 million Americans (one in four) having some form of cardiovascular disease. Nearly \$300 billion dollars is spent annually on health care and lost productivity from cardiovascular disease and heart attacks, and the number is climbing. These statistics coupled with the fact that one in three U.S. adults aged 30 to 54 and a startling 50 percent of adults aged 55 to 90 have some form of periodontal disease, builds up to a potentially big problem.

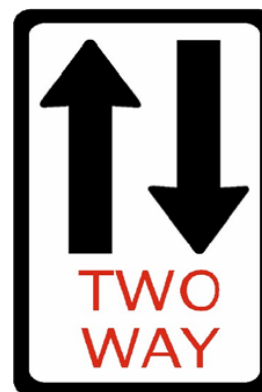
## DIABETES AND PERIODONTAL DISEASE

### A Two-Way Street

If you have diabetes, you know that it's important to regulate your blood sugar levels for the wellbeing of your body from head to toe. Diabetes affects more than 21 million individuals in the United States. Approximately 6 million of these individual have the disease but are undiagnosed. More than 171 million individuals worldwide have diabetes and it has reached epidemic status. Diabetes is also recognized as an important risk factor for more severe and progressive periodontal infections (gum infections).

Most people think of gum disease, or periodontal disease, as an infection localized to the oral cavity with tissue destruction confined to the mouth. However, mounting research over the last 20 years provides evidence that the pathways of inflammation link oral infections, such as periodontal disease, to whole body damage. The strongest evidence of a link relates to diabetes and periodontal disease. Studies show that diabetic patients are up to 4.2 times more likely to develop periodontal diseases than those without diabetes. Periodontal disease has been reported as the sixth complication of diabetes, along with neuropathy, nephropathy, retinopathy, and micro- and macrovascular diseases.

Many studies have been published describing the bidirectional interrelationship exhibited by diabetes and periodontal disease. Studies have provided evidence that control of periodontal infections has an impact on improvement of glycemic control evidenced by a decrease in demand for insulin and decreased hemoglobin levels. Periodontal disease often goes unrecognized by physicians who treat diabetic patients. People with diabetes are much more susceptible to periodontal disease and once periodontal disease is established in a diabetic patient, metabolic control (glycemic control or blood sugar levels) of diabetes is complicated from the constant reservoir of gram-negative anaerobic bacteria that sit at the bottom of the gum pockets producing infection and low grade inflammation throughout the body. That is why the relationship between diabetes and periodontal disease is sometimes referred to as a two-way street, and the reason why diagnosis and treatment



of periodontal disease, just like optimal glycemic control, are essential in the medical management of diabetes.

Research suggests that the relationship between periodontal diseases and diabetes goes both ways - periodontal diseases may make it more difficult for people who have diabetes to control their blood sugar. Periodontal diseases may increase blood sugar, contributing to increased periods of time when the body functions with a high blood sugar. Consequently, it is important for diabetic patients to treat periodontal diseases to eliminate the infection. In fact, periodontal treatment has been shown to improve blood sugar levels in diabetic patients, suggesting that treating patients' periodontal diseases could decrease insulin requirements.

Diabetes and periodontal disease are common chronic diseases observed in the U.S. population. These diseases are thought to be associated biologically, and a number of reviews and studies have proposed mechanisms to explain the relationship, including 1) microvascular disease, 2) changes in components of gingival crevicular fluid, 3) changes in collagen metabolism, 4) an altered host response, 5) altered subgingival flora, 6) genetic predisposition, and 7) nonenzymatic glycation.

Most importantly, when a periodontal infection goes untreated in the diabetic patient, it puts them at greater risk for developing the long-term complications associated with diabetes and cardiovascular disease. There is also research to suggest that insulin-dependent diabetic individuals may be genetically predisposed to an exaggerated inflammatory response to gram-negative bacterial infections like those found in periodontal disease.

Currently there is no cure for diabetes or periodontal disease, but if you are a motivated patient who complies with your dental and medical providers' recommendations, these diseases can be controlled. Successful management of these diseases requires frequent monitoring of and careful attention to your immune system's response to treatment, and monitoring of both glycemic control (blood sugar levels) and periodontal status.

## ORAL COMPLICATIONS OF DIABETES

- Infection
- Xerostomia (dry mouth)
- Dental caries (cavities)
- Candidiasis (yeast infection)
- Lichen Planus
- Burning mouth syndrome
- Poor wound healing

## RHEUMATOID ARTHRITIS AND PERIODONTAL DISEASE

Arthritis is the leading cause of disability, limiting daily activities for more than 7 million citizens. Because of its debilitating nature, the disease can take a tremendous toll on a person's life whereby they are physically unable to continue daily activities such as oral hygiene.

### **Swollen joints and missing teeth often go hand in hand**

If you are a rheumatoid arthritis (RA) patients you have a greater risk of losing your teeth to periodontal disease, a bacterial infection of the gums.

A study published in the *Journal of Periodontology* found that people with rheumatoid arthritis were twice as likely to have periodontal disease with moderate to severe jawbone loss.

The joint connection between rheumatoid arthritis and periodontal disease is due to similar

pathologies; damage caused by the immune system and chronic inflammation is central to both diseases.

In RA, the immune system attacks a person's own cells inside their joints. White blood cells that are part of the normal immune system travel to the synovium (a thin layer of cells that line joints and produce lubricating fluid) and cause inflammation. As rheumatoid arthritis progresses, these abnormal cells invade and destroy cartilage and bone within joints. Muscles, ligaments and tendons that support and stabilize joints become weak and unable to function normally.

In turn, periodontal infections inflame the supporting tissues of the teeth and destroy attachment fibers and supporting bone that hold teeth into the mouth.

At this point, researchers are saying the relationship between the two diseases seem more than causal. However, some scientists think bacterial infections may trigger the disease process in some of the estimated 2.1 million people with rheumatoid arthritis.

## STUDY LINKS PERIODONTAL DISEASE WITH CANCER

According to the National Institutes of Health, of the 1.2 million Americans diagnosed with cancer each year.

**Researchers found that men with gum disease were 49% more likely to develop kidney cancer, 54% more likely to develop pancreatic cancer, and 30% more likely to develop blood cancers.**



The June 2008 issue of *The Lancet Oncology* contains a study indicating that men with periodontal disease may be more likely to develop cancer than men with healthy gums. Dr. Dominique Michaud and her colleagues evaluated the data from the Health Professionals Follow-Up Study (HPFS) which includes health-related data on men in the healthcare industry from 1986 through January 31, 2004. The HPFS, originally conducted at Harvard University's School of Public Health, observed more than 48,000 subjects via surveys every two years. Researchers found that men with a history of gum disease were 14% more likely to develop cancer than men with healthy gums. More specifically, men with gum disease were 49% more likely to develop kidney cancer, 54% more likely to develop pancreatic cancer, and 30% more likely to develop blood cancers.

These study findings are significant in that they suggest that cancer is potentially another systemic disease state associated with periodontal disease.

## PERIODONTAL DISEASE AND PREGNANCY

**Infertility Treatment and Oral Health** - Researchers found that women undergoing ovulation induction for infertility treatment for more than three menstrual cycles experience higher gingival inflammation, bleeding and gingival crevicular fluid. (This fluid contains enzymes and tissue products that are potential markers for the progression of periodontitis.) These effects are presumably associated with increased levels of progesterone and estrogen.

Several studies also provided evidence that the presence of infection is associated with unsuccessful embryo development and implantation failure in in vitro fertilization patients.

Since periodontal disease is a chronic bacterial infection, future studies may determine the effects of periodontal status and periodontal treatment on the outcome of infertility treatment.



## **Pregnancy Complication is Associated with Periodontal Destruction**

The January 2005 *Journal of Periodontology* reported that periodontal inflammation plays a possible role in the development of preeclampsia, a potentially deadly condition that affects approximately five percent of U.S. pregnancies.

Researchers found that periodontal disease was more severe in the preeclampsia patients, which suggests an interaction between periodontal disease and pregnancy. In fact, the protein levels of cytokines in the preeclamptic group were nearly three times greater than the healthy group.

You are pregnant or planning on becoming pregnant! Whether or not you want it, everyone you know will be giving you advice about how to eat, sleep, exercise, and take care of your body during this exciting time.

However, what some might forget to add to that list is the importance of taking care of your oral health.

Good oral health is always important. However, it may be especially important for expecting mothers as recent research suggests that pregnant women with periodontal diseases may be up to seven times more likely to have a baby that's born too early and too small. Preterm births are dangerous for both baby and mother. They are the leading cause of neonatal death and can lead to life-long health problems such as cerebral palsy, mental retardation, and difficulties with blindness and lung disease.

The likely culprit of this possible connection is a labor-inducing chemical found in oral bacteria called prostaglandin. Very high levels of prostaglandin are found in women with severe cases of periodontal disease.

In addition, other research has identified bacteria commonly found in the mouth and associated with periodontal diseases in the amniotic fluid of some pregnant women. Amniotic fluid is a liquid that surrounds an unborn baby during pregnancy. Any disruptions in the amniotic fluid, such as a bacterial infection, could potentially be dangerous to both the mother and baby.

Don't panic! Take your concerns to your dental professional. If you're diagnosed with periodontal disease, your dentist or periodontist might recommend a common non-surgical procedure called scaling and root planing. During this procedure, your tooth-root surfaces are cleaned to remove plaque and tartar from deep periodontal pockets and to smooth the root to remove bacterial toxins. Research suggests that scaling and root planing may reduce the risk of preterm birth in pregnant women with periodontal disease by up to 84 percent.

## **PERIODONTAL DISEASE AND WOMEN**

### **Oral Contraceptives:**

A recent study found that women taking oral contraceptive pills had more gingival bleeding upon probing and deeper periodontal pockets than those who were not taking oral contraceptive pills. It is important for women to alert their dental practitioners about any medications they are taking, such as oral contraceptive pills, because it is possible that their oral health may be affected.

One study looked at women between the ages of 20 to 35 with varying forms of periodontitis. The study looked at women who were currently taking oral contraceptive pills had more gingival bleeding upon probing deeper periodontal pockets (signs of periodontitis) than those who were not taking oral contraceptive.

### **Menopause:**

Another study showed that postmenopausal women with periodontal bacteria in their mouths were also more likely to have bone loss in the oral cavity, which can lead to tooth loss if not treated.

## Pay Attention To Your Mouth For Health Clues

Investigate your mouth and take note of some of the following clues:

- Bleeding gums when you brush or floss
- Red, swollen or tender gums
- Gums that have pulled away from your teeth
- Teeth moving and or changes in the way your teeth come together when you bite
- Dry mouth

If you notice any of the clues listed above, you will want to contact dentist, and inform them of your symptoms. You can have periodontal diseases without any symptoms, so a periodontal evaluation is the best way to know if you have any periodontal diseases.

Proper oral hygiene is the best method to prevent periodontal diseases. Prevention includes daily flossing to break up the bacterial colonies between the teeth, proper daily brushing to prevent plaque buildup and professional cleanings at least twice a year and for some predisposed patients four times a year may be required to remove plaque and calculus from places the toothbrush may have missed.

You may also want to visit the American Academy of Periodontology Web site at <http://www.perio.org>

Another very informative public Web site is <http://www.floss.com>

