

- Steps to prevent oral health
- Pit & fissure sealants
- Bleaching
- Paediatric dentistry
- Complete and partial dentures
- Orthodontics
- Frenectomy
- Guided tissue regeneration
- Sinus lift operation
- Periodontal health & pregnancy
- Relationship of periodontal health and Heart diseases
- Relationship of periodontal health and Diabetes:
- Relationship of periodontal health and Respiratory diseases :

Steps to Protect Oral Health

Careful periodontal monitoring and excellent oral hygiene is very important for every individual and especially for women who may be noticing changes in their mouths during times of hormonal fluctuation. To help ensure good oral (and overall) health, be sure to:

- See a dental professional for cleaning at least twice a year.
- [See a periodontist in your area](#) if you or your dentist notice problems with your gum tissue. Problems may include:
 - Bleeding gums during brushing
 - Red, swollen or tender gums
 - Gums that have pulled away from the teeth
 - Persistent bad breath
 - Pus between the teeth and gums
 - Loose or separating teeth
 - A change in the way your teeth fit together when you bite
 - A change in the fit of your dentures
- Keep your dental professionals informed about any medications you are taking and any changes in your health history.

Brush and floss properly every day.

PIT & FISSURE Sealants:

What are fissure sealants?

These are resin coatings placed on teeth to protect them from decay.

Why use sealants?

Tooth surfaces are not smooth. In particular, the biting surface (occlusal), and those surfaces adjacent to the cheek (buccal) and tongue (lingual) exhibit developmental pits and fissures. These can be difficult to keep clean and retained plaque can lead to decay which will require removal and filling.



This decay accounts for more than 50% of the decay treated by dentists. The use of sealants has been shown to significantly reduce the prevalence of this decay. An unsealed tooth is three times more likely to develop pit and fissure decay than a sealed tooth.

When should teeth be sealed?

Ideally, deep pits and fissures should be sealed soon after the teeth have erupted in the mouth. This is when they are most susceptible to decay. Practically, the need for sealants is made on an individual basis, depending on the depth of the pits and fissures, their cleansability, and the patient's decay susceptibility.

Which Teeth?

Although all molars and premolars develop pits and fissures, the molars are particularly susceptible to decay and sealants are more commonly recommended for them only.



Before



After

How are they placed?

The teeth are cleaned, conditioned and dried. A special low-viscosity resin is flowed in the susceptible pits and fissures and cured with a bright light. No local anaesthetic is necessary and no cavity preparation is required in most cases.

Fissure sealants should last at least three years. They should be checked at yearly recall visits and may be repaired or extended in a manner similar to their initial placement.

Bleaching:

Am I a candidate for bleaching?

Yes you definitely are a candidate for bleaching if you have tea, coffee or cigarette stains. Today, whither teeth are no longer a monopoly of film stars and models. Even you can get your teeth bleached provide you have a desire for a bright smile with whiter teeth.

Is bleaching associated with any side effects?

Bleaching of teeth in some cases causes temporary sensitivity of teeth and slight irritation to gums. But both these problems are transitory in nature and might probably be avoided if the manufacturer's instructions are followed.

How long the whitening does lasts?

Tooth Whitening may last up to 5 years depending on your food habits, personal habits and your oral hygiene. Food habits which effect bleaching are spicy food with red chilies and food with turmeric. Personal habits include tea, coffee and smoking. Lastly and most importantly, how you maintain your teeth after bleaching with regular brushing will decide the time the whitening stays.

What can I expect after treatment?

Bleaching of teeth is generally associated with unrealistic expectations. It is a very common misunderstanding that teeth become perfect white after bleaching. Generally the shade of the teeth gets light by 2 to 3 shades. Nobody can predict with absolute certainty the result before the start of the procedure. Individual results vary depending on the types and intensity of the stains and the quality of the enamel in the tooth. Sometimes, within the same tooth some areas respond to treatment in a better way than other areas depending on the thickness of enamel.

Paediatric Dentistry

A common question that parents ask is “why spend on the maintenance of milk teeth when they are to be finally replaced by the permanent ones?”

Milk teeth are as important as the permanent ones because

- Baby teeth are important in proper feeding and nutrition.
- Milk teeth serve as space maintainers for the proper spacing and alignment of the permanent teeth.
- Healthy milk teeth are crucial in helping the baby learn how to speak properly.
- Healthy looking teeth are important in building self-confidence at an early age. Small children because of immaturity are quick to tease peers about ugly looking or decayed teeth.

Nursing Bottle Caries

The term describes a dental condition which involves the rapid decay of many or all the baby teeth of an infant or child. It is caused by long exposure of a child's teeth to liquid containing sugars generally when the baby falls asleep with a bottle containing milk or juice. During sleep, the bacteria living in baby's mouth, turns the milk sugar or other sugars to acid which causes the decay.

By the time the condition is noticed by the parents it may be too late and extractions of the decayed teeth may be necessary. As a result, your child may suffer from long term disorders which include difficulty in speech, possible psychological damage, crooked or crowded teeth, and poor oral health.

Pit and Fissure sealants

The chewing surfaces of teeth are never flat. They have in fact certain depressions called Pit and Fissures which serve as potential traps for food and bacteria making the teeth susceptible for decay. Pits and fissures have been suggested as “the single most important anatomic feature leading to the development of tooth decay”. Therefore as a preventive measure certain pits and fissure sealants are placed. The decay inhibiting properties of sealants are attributed to the physical obstruction of the pits and grooves. This prevents penetration of fermentable sugars and the bacteria cannot produce acid that causes tooth decay.

Space Maintainers

A space maintainer is a removable or fixed appliance designed to maintain an existing space.

Space maintainers are usually fitted in children when they have lost baby teeth early. The gap left from losing this tooth needs to be held open for the permanent tooth to erupt in the correct position.

Habit breaking appliances

Frequently children acquire certain habits that may either temporarily or permanently be harmful to teeth and tooth supporting structures. Some common oral habits seen in children include thumb sucking, mouth breathing, tongue thrusting, lip biting, grinding of teeth and nail biting.

Habit breaking appliances are basically reminding appliances that assist the child who is willing to quit the habit but is not able to do so as the habit has entered the subconscious level. They may be removable or fixed appliances.

Root Canal Treatment in milk teeth

In cases where tooth decay extends deep into the nerve portion of the tooth it might be necessary to perform a root canal as described for the permanent tooth. Although the morphology of milk teeth makes the treatment difficult, it might still be considered as a better alternative to tooth extraction.

Fluoride application

A child's teeth are more prone to decay due to lack of proper brushing. Application of fluoride varnishes at regular intervals strengthens the tooth structure by incorporating fluoride ions into the structure making them more resistant to caries. Not only do the permanent but also milk teeth benefit from fluoride treatment.

- The professional application of fluoride is particularly recommended because of the ease of application, patient acceptance and proven anti -decay benefits. For maximum benefits, reapplication should be made every 4 months.

Complete & Partial Dentures

COMPLETE DENTURES: This is the most economic and most traditional method of tooth replacement. Dentures are removable objects that simulate the look and function of the tooth and its surrounding tissue. Most dentures are constructed with acrylic resins along with some composite materials. However patient can chose from a variety of options such as Traditional plastic denture and Flexible denture (valplast).



The full denture replaces an entire jaw's dentition. Most patients of full dentures are in their later years and have lost most of their teeth. Patients of partial dentures are usually people who have lost a tooth to gum disease or injury. All patients receiving dentures find that their chewing improves, their oral hygiene becomes easier, and their speech clears up. On the outside, a denture can drastically improve your smile.

Dentures are specifically made for each patient's unique anatomy. Initially they will feel awkward, no matter how well they may fit you. The fact remains that it is not a living part of your mouth and it will feel foreign to you. However, after a short period of adjustment most people don't even notice that they're wearing the dentures anymore.

Regular checkups with your dentist are encouraged in order to track changing conditions in your mouth. Should your teeth shift or your bones change shape with time, you'll need a new set. Dentures have been around for a long time and are a proven way to replace lost teeth.

THE PLASTIC REMOVABLE PARTIAL DENTURE



This is the least expensive of all the removable partial dentures.

These dentures generally replace multiple or single teeth where there are still healthy teeth present. A partial denture also serves as a spacer to prevent the living teeth from shifting position. The one pictured above replaces 4 missing teeth, leaving spaces for 7 natural teeth. Two of the natural teeth are clasped with wrought wire clasps which are cured into the structure of the denture base.

The pink material of the denture base is hard plastic and the same material used to make complete dentures. The main single advantage to this type of RPD is the cost. Also the new teeth and new denture base can easily be added to an existing treatment RPD. These are frequently fabricated even if the remaining teeth have existing decay or periodontal disease and their prognosis is doubtful. If later in the course of treatment some of the existing natural teeth are extracted for any reason, new false teeth can be added quickly to the partial, maintaining the patient's appearance.

IMMEDIATE PARTIAL DENTURE

Another common and in fact more important use of these appliances is as an "immediate partial denture". This means that the appliance can be made before the teeth are removed, and inserted immediately after the extraction of the planned teeth so that the patient is never without teeth. This is of special help when anterior teeth are to be extracted and patient wants to return back to his/her normal routine immediately.

However in spite of these advantages they have a number of disadvantages too.

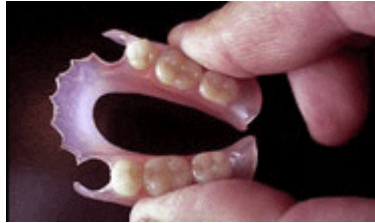
They are basically plastic and due to their irregular shape, these partials tend to break frequently, especially those made for the lower arch. (Full dentures are more regular in shape and tend to be fairly strong as a result.)

These appliances are less stable. Also cases of allergy to this material have also been reported.

As the gums resorb, the false teeth tend to sink below their original level making it necessary to reline them frequently, and sometimes even to reset the teeth which adds to their expense.

They are most frequently retained with wire clasps. These are frequently unsightly due to the limitations that pertain to their placement.

FLEXIBLE DENTURES (VALPLAST)



The most recent advance in dental materials has been the application of flexible materials for the fabrication of dental appliances. This material generally replaces the metal, and the pink acrylic denture material used to build the framework for standard removable partial dentures. Flexible partial dentures are the comfortable, beautiful, and affordable choice.

The flexibility, combined with strength and light weight, provides total comfort and great looks! It is nearly unbreakable, is colored pink like the gums, can be built quite thin, and can form not only the denture base, but the clasps as well.

The preparation is relatively simple because your natural teeth don't need to be altered in any way. The Valplast® partial is virtually invisible because there are no metal clasps and the material itself blends with the tissue in your mouth so that the only thing that shows is your beautiful smile.

Valplast® appliances are very durable and are designed to give long term performance under normal usage. Small accidents such as dropping the appliance in the sink or on the floor will not damage the Valplast®.

VALPLAST KEY BENEFITS ARE

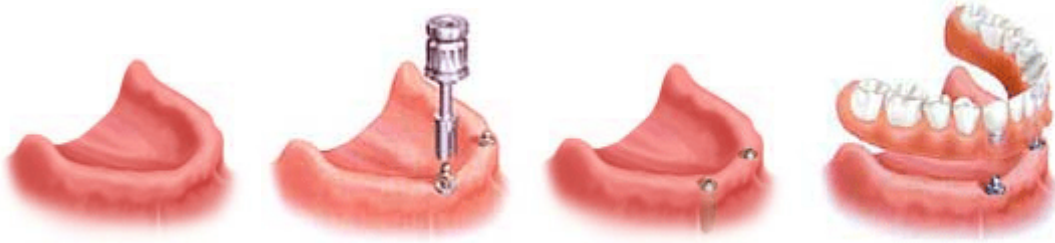
- Retention - flexes into a retentive position, below the undercut.
- Comfort - thin, lightweight and flexible.
- Esthetics-pink shades allow natural tissue tone to appear through material.
- Strength - clinically unbreakable, more durable than acrylic and won't absorb stains or odors.
- Ease - no tooth or tissue preparation is required so you can offer patients a conservative and pain-free solution

VALPLAST INDICATIONS:

- Allergies to conventional denture material
- History of frequent denture breakage
- Alternative to implants or fixed products

IMPLANT SUPPORTED OVERDENTURES (ISOD)

We also provide **Implant supported overdentures (ISOD)**. These are especially useful when the upper or lower jaw bone is poor and causes the denture to be loose. ISODs offer much better retention.



INDICATIONS OF IMPLANT SUPPORTED OVERDENTURES

- Denture stabilized with implants. So renewed confidence and improved quality of life as well
- Possible to use existing dentures
- Removable
- Simple and relatively Inexpensive

ORTHODONTICS:

Orthodontics is the branch of dentistry that deals with straightening and correcting the tooth alignment and the dental specialist who does this is called an "Orthodontist". Braces are the most efficient and accurate way of moving teeth.

Who Needs Orthodontic Treatment?

Today children as well as adults are choosing to have orthodontic treatment. More than half of all children have problems with their teeth or jaws, including front teeth that stick out because of thumb sucking, teeth that don't come out properly, spaces in between the teeth, poorly aligned bites, and crowded or missing teeth. The key is early orthodontic care. **The ideal age to get your child for the First Orthodontic check-up is 7-8 years.**

For teens and grownups, the most common reason for orthodontics is appearance. age is no longer a factor that governs the feasibility of the treatment. But as you grow older the duration of the treatment is increased since it is easier to shift and align teeth during the growth phase of the jaws.

What Orthodontist does?

Their work consists of treating different conditions such as tooth crowding, malaligned teeth, overbites, underbites and gaps between teeth.

They use corrective appliances such as braces, removable appliances and retainers to treat these problems.

The results of orthodontic treatment can be dramatic - beautiful smiles, improved dental health and an enhanced quality of life for many people of all ages.

Extractions and other preliminary procedures

Sometimes it is necessary to remove teeth to gain sufficient space to align the remaining teeth. Any decayed teeth should be filled and the teeth sometimes need to be cleaned before orthodontic treatment is started.

How Long?

Orthodontic treatment usually takes 18 - 24 months. Some cases may be finished earlier and others may take longer to complete. The total treatment time depends on the severity of the original malocclusion, the type of treatment carried out, and the co-operation of the patient.

Features of lingual braces:

- They tend to hurt your tongue and make it difficult to speak at first.
- More expensive than traditional metal, because treatment is specialized.
- Treatment may be longer than traditional braces.
- Not every orthodontist does lingual treatment.
- Lingual treatment may not be applicable for all types of cases.
- Usually, lingual brackets are made of metal.

Orthodontics for Adults

Q. *At what age is a patient too old for orthodontics?*

A. Patients who have teeth and healthy supporting structures are never too old for orthodontic therapy. Age is not a factor.

Q. *Why are adults seeking orthodontics in increasing numbers?*

A. Many adults are receiving orthodontic care that was not available to them as children. They realize that improving the health of their mouths and the attractiveness of their smiles and facial appearances can result in changes for the better in their personal, social, and professional lives. Technical advances have also had an impact on adult therapy.

Q. *What are some of those advances?*

A. Advanced technology has produced small tooth-colored brackets that are barely noticeable. Specially alloyed wires are more comfortable, can speed up treatment, and may decrease the number of necessary appointments. New retainers can be placed where they do not show. Also, advanced surgical techniques now allow treatment of many skeletal problems after growth is completed.

FRENECTOMY:

There are two primary locations in the mouth where frenum is found – under the tongue and underneath the center of the upper lip. The frenum attaches the muscles of the cheeks and lips to the mouth, but in some cases, this tissue may interfere with the development of the mouth. In the event that the tissue, or frenum, is attached too close to the tip of the tongue or too far down the gums between the front teeth, a frenectomy may be performed.

A lingual frenectomy is the removal of the lingual frenum, or the tissue under the tongue. Generally, if the tissue is attached too closely to the tip of the tongue, it can interfere with speech development and proper tooth development. A lingual frenectomy is a fairly common procedure for children who may be “tongue tied” and is sometimes referred to as clipping the tongue. After the procedure, the tongue can usually be fully extended and becomes fully mobile.

A labial frenectomy is the removal of the tissue attached to the center of the upper lip. Frenum attached too far down the gum can cause gum recession and gaps between the front teeth. Further, denture patients often have a labial frenectomy to achieve a proper denture fit.

Guided tissue regeneration

Guided tissue regeneration (GTR) is a surgical procedure utilized by dentists to promote the new growth of bone in areas of the jaw which have been damaged by [gum disease](#). It is also known as guided bone regeneration, and it is classically used to stabilize endangered teeth or to prepare an area of the jaw for [dental implants](#). The surgery is invasive, and it is important to seek out a dental surgeon specially a Periodontist.

Over the course of gum disease, small pockets can develop in the bones of the jaw as the jaw is eaten away by disease. These pockets can promote the spread of infection, and they also destabilize teeth. Once gum disease is under control, a dentist may recommend addressing these pockets with guided tissue regeneration, whether the goal is to save existing teeth or to prepare the jaw for dental implants to replace teeth which are going to be extracted, or have already been extracted.

In the surgery, periodontist exposes the area of concern, carefully cleans it, and installs a membrane between the soft tissue and the pocket in the bone. This membrane keeps fast-growing soft tissue out of the pocket so that slow-growing bone has a chance to grow and fill it in. Some membranes need to be removed at a later juncture, while others will reabsorb if left in place. The progress of the guided tissue regeneration can be monitored with periodic [x-rays](#) to check on the growth of new bone and confirm that the growth is proceeding as expected.

While new bone is growing, the patient may need to follow a rigorous regimen which includes very careful oral care and proper nutrition. The periodontist will make recommendations on the basis of the location of the guided tissue regeneration, the patient's history, and the patient's specific needs. When the guided tissue regeneration procedure is recommended, a periodontist usually asks the patient if he or she is willing to commit to the extra care needed. If the patient will not be able to follow through with the aftercare, the procedure may not be as successful.

SINUS LIFT OPERATION:

Today, there are several variations of sinus lift procedure, these are the most common:

- Lateral Window approach (opening a window in the buccal bone) - Invented by Tatum in 1986 - A crestal incision is made with vertical extensions and the lateral aspect of the maxilla is exposed. Then the [osteotomy](#) aka. antrostomy is completed. The sinus membrane, aka Schneiderian Membrane, is then detached from the bony walls of the the internal aspects of the sinus, utilizing various curettes. Once properly detached, the lateral wall window with the sinus membrane is rotated [medially](#) into the sinus. The sinus membrane can fold on itself when reflected medially. Implant sites can be prepared and implants placed at this stage. The medial part of the sinus is grafted first. The graft material used can be either and autograft, an allograft, a xenograft, an alloplast a growth-factor infused collagen matrix, or combinations thereof. After the implants have been placed, the remaining lateral part of the sinus defect is grafted. The flaps are relieved and closed primarily. The graft is left for 6–9 months. Implant placements should be delayed if they cannot be properly stabilised, to prevent complications.
- The Osteotome approach (cracking the crestal bone) - Invented by Summer in 1994 - A crestal incision is made, and the crestal ridge is exposed. A sharp osteotome is used to "chisel" a rectangle in the crestal ridge of the maxilla, then a sinus-lift osteotome is used like a mallet to fracture the bone, and punch a hole through where the rectangle was created into the sinus floor. The sinus is then raised with bone grafting material and implants are placed.
- [Hydraulic Sinus Condensing](#) (drilling a hole into crestal bone) - Invented by Chen in 2005 - A crestal incision is made, exposing the crestal ridge of the maxilla. An osteotomy is initiated on the crestal ridge, and water pressure is used to gently raise the sinus membrane from the sinus floor. Then the sinus membrane is raised with bone grafting material, and implants are placed

Periodontal Health & Pregnancy:

For a long time we've known that risk factors such as smoking, alcohol use, and drug use contribute to mothers having babies that are born prematurely at a low birth weight.

Now evidence is mounting that suggests a new risk factor – periodontal disease. Pregnant women who have periodontal disease may be seven times more likely to have a baby that is born too early and too small.

More research is needed to confirm how periodontal disease may affect pregnancy outcomes. It appears that periodontal disease triggers increased levels of biological fluids that induce labor. Furthermore, data suggests that women whose periodontal condition worsens during pregnancy have an even higher risk of having a premature baby.

All infections are cause for concern among pregnant women because they pose a risk to the health of the baby. The Academy recommends that women considering pregnancy have a [periodontal evaluation](#) done by a periodontist on a regular basis before and after pregnancy.

- [How pregnancy affects teeth and gums](#)
- [Why periodontal disease is linked to preterm low birthweight babies](#)
- [What to do about periodontal disease during pregnancy](#)
- [How to reduce the risk of premature births](#)
- [Links to more info on oral health and pregnancy](#)

The test came back and it's positive – you're pregnant. Your mind is rattled with excitement, and you have created a "to-do." While your "to-do" list and questions continue to grow, it's important to take the necessary steps to ensure an on-time and safe arrival of your most precious cargo yet. You've probably heard a few old wives' tales about pregnancy, including "A tooth lost for every child." While it seems far-fetched, it actually is based loosely in fact. Your teeth and gums are affected by pregnancy, just as other tissues in your body. You may not be aware that the health of your gums may also affect the health of your baby-to-be.

[How does pregnancy affect your teeth and gums?](#)

About half of women experience pregnancy gingivitis. This condition can be uncomfortable and cause swelling, bleeding, redness or tenderness in the gum tissue. Conversely, a more advanced oral health condition called periodontal disease (a serious gum infection that destroys attachment fibers and supporting bone that hold teeth in the mouth) may affect the health of your baby.

Is periodontal disease linked to preterm low birthweight babies?

Studies have shown a relationship between periodontal disease and preterm, low birthweight babies. In fact, pregnant women with periodontal disease may be seven times more likely to have a baby that's born too early and too small. The likely culprit 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.

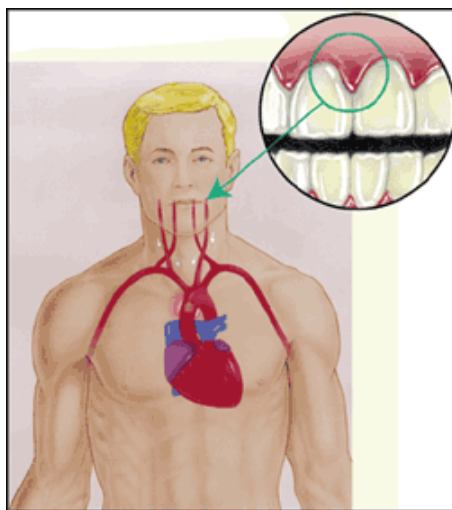
What if I'm diagnosed with periodontal disease during pregnancy?

If you're diagnosed with periodontal disease, your periodontist might recommend a common surgical or a 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 smooth the root to remove bacterial toxins. Research suggests that scaling and root planing may reduce the risk of preterm births in pregnant women with periodontal disease. The added bonus is that the procedure should alleviate many of the uncomfortable symptoms associated with pregnancy gingivitis, such as swelling and tenderness of the gums.

As you make your way through the “to-dos,” remember to check off a visit to the dentist or periodontist. This baby step benefits you and your unborn baby.

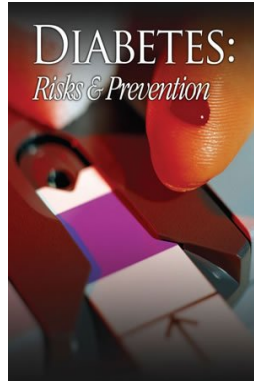
Relationship of periodontal health and Heart diseases:

Several theories exist to explain the link between periodontal disease and heart disease. One theory is that oral bacteria can affect the heart when they enter the blood stream, attaching to fatty plaques in the coronary arteries (heart blood vessels) and contributing to clot formation. Coronary artery disease is characterized by a thickening of the walls of the coronary



due to the buildup of fatty proteins. Blood clots can obstruct normal blood flow, restricting the amount of nutrients and oxygen required for the heart to function properly. This may lead to heart attacks. Another possibility is that the inflammation caused by periodontal disease increases plaque build up, which may contribute to swelling of the arteries. Researchers have found that people with periodontal disease are almost twice as likely to suffer from coronary artery disease as those without periodontal disease. Periodontal disease can also exacerbate existing heart conditions. Patients at risk for infective endocarditis may require antibiotics prior to dental procedures. Your periodontist and cardiologist will be able to determine if your heart condition requires use of antibiotics prior to dental procedures.

Relationship of periodontal health and Diabetes:



People with diabetes are more likely to have periodontal disease than people without diabetes, probably because diabetics are more susceptible to contracting infections. In fact, periodontal disease is often considered the sixth complication of diabetes. Those people who don't have their diabetes under control are especially at risk.

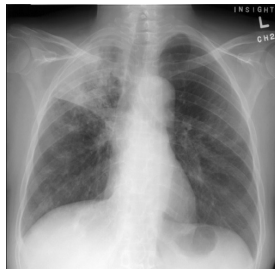
A [study in the November issue of the *Journal of Periodontology* 2007](#) found that poorly controlled type 2 diabetic patients are more likely to develop periodontal disease than well-controlled diabetics are.

Research has emerged that suggests that the relationship between periodontal disease and diabetes goes both ways - periodontal disease may make it more difficult for people who have diabetes to control their blood sugar.

Severe periodontal disease can increase blood sugar, contributing to increased periods of time when the body functions with a high blood sugar. This puts diabetics at increased risk for diabetic complications. Thus, diabetics who have periodontal disease should be treated to eliminate the periodontal infection.

This recommendation is supported by a study reported in the *Journal of Periodontology* in 1997 involving 113 Pima Indians with both diabetes and periodontal disease. The study found that when their periodontal infections were treated, the management of their diabetes markedly improved.

Relationship of periodontal health and Respiratory diseases :



Bacterial respiratory infections are thought to be acquired through aspiration (inhaling) of fine droplets from the mouth and throat into the lungs. These droplets contain germs that can breed and multiply within the lungs to cause damage. Recent research suggests that bacteria found in the throat, as well as bacteria found in the mouth, can be drawn into the lower respiratory tract. This can cause infections or worsen existing lung conditions. People with respiratory diseases, such as chronic obstructive pulmonary disease, typically suffer from reduced protective systems, making it difficult to eliminate bacteria from the lungs.

Scientists have found that bacteria that grow in the oral cavity can be aspirated into the lung to cause respiratory diseases such as pneumonia, especially in people with periodontal disease. This discovery leads researchers to believe that these respiratory bacteria can travel from the oral cavity into the lungs to cause infection. Chronic obstructive pulmonary diseases (COPD) cause persistent obstruction of the airways. The main cause of this disease is thought to be long-term smoking. Chemicals from smoke or air pollution irritate the airways to cause obstruction. Further damage to the tissue and working function of the lungs can be prevented, but already damaged tissue cannot be restored - untreated or undetected COPD can result in irreversible damage. Scientists believe that through the aspiration process, bacteria can cause frequent bouts of infection in patients with COPD. Studies are now in progress to learn to what extent oral hygiene and periodontal disease may be associated with more frequent bouts of respiratory disease in COPD patients.