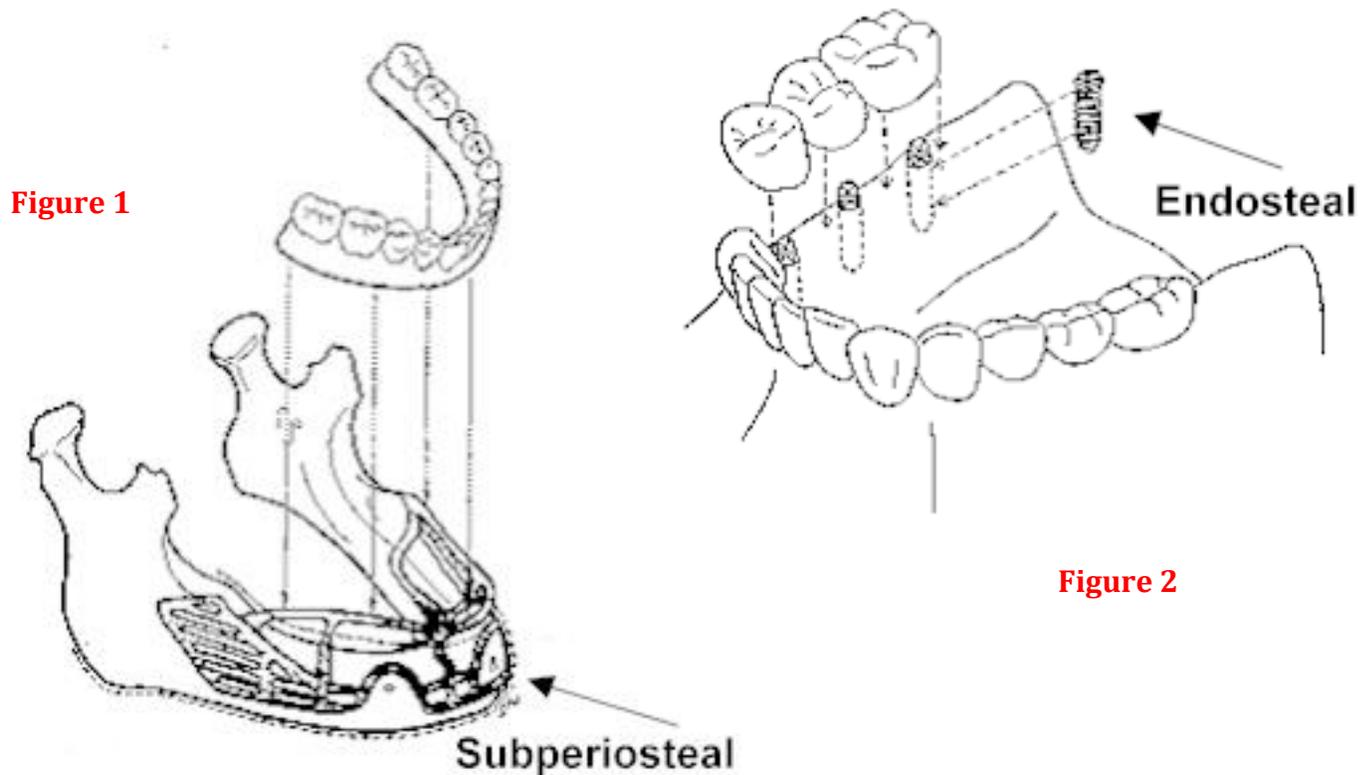


ALLRED DENTAL CENTER FOR IMPLANT DENTISTRY

DENTAL IMPLANTS

Dental implants are artificial substitutes for missing natural tooth roots. They may be used to support a single crown, a fixed or removable partial denture, or a fixed or removable complete denture. Other oral implant procedures can be used to build up the jaw structures, which have lost bone from trauma or other causes.

There are many kinds of oral implants; each problem must be corrected by using the implant best suited for that problem. Implants are usually made from metals and may take the form of screws, cones, cylinders, pins, straps, or plates. They may be placed inside the bone (endosteal implants) as shown in [Figure 2](#) or be placed on top of the bone (subperiosteal implants) as shown in [Figure 1](#).



WHEN SHOULD IMPLANTS BE USED?

There are at least four specific situations in which oral implants can provide the treatment of choice. They are:

- Certain situations in which a single tooth must be replaced.
- The replacement of several teeth where there are insufficient remaining teeth to make a traditional type of prosthesis that attaches to your remaining teeth.
- The replacement of all of the teeth of a jawbone.
- The replacement of portions of the jawbone for functional or cosmetic reasons.

Single tooth replacements: The conventional method of replacing a single missing tooth is with a fixed partial denture, which is cemented to the teeth on either side of the missing tooth. The simplest and most conservative form of a fixed partial denture is a composite resin bonded bridge. This involves a minimum reduction of tooth structure, but can only be used under certain ideal circumstances. A conventional fixed partial denture requires that the teeth on either side of the space be reduced in size to make room for metal or metal-and-ceramic crowns, which will be cemented onto the prepared teeth. The artificial replacement tooth is attached to these crowns prior to cementation. When properly made and cared for, these restorations can last for many years.

When the teeth on either side of a missing tooth have already been structurally weakened from decay or other causes, then crowns are indicated, and the fixed partial denture is the treatment of choice. However, when the teeth involved are completely sound and there is adequate bone remaining in the space formerly occupied by the missing tooth, then an implant that can stand by itself without placing crowns on the adjacent teeth should be considered. In this instance, the implant may be the most conservative restoration.

Numerous single-tooth replacement devices are available at the present time. Some of these devices seem to be very reliable and others have shown an early failure rate. Only those designs, which appear reliable, are used in the Allred Dental Center for Implant Dentistry.

The replacement of several teeth in the same general area: When two or three adjacent teeth are missing, a fixed partial denture may still be the treatment of choice depending on the amount of bony support of the teeth adjacent to the missing ones. The more missing teeth there are, the greater the load that is placed on the remaining teeth. When the load becomes excessive, a fixed partial denture will be less likely to succeed. In such situations, a removable partial denture will have to be considered to replace the missing teeth. A removable partial denture can be partially supported by the soft tissue (gums) and underlying bone and thus take some of the load off the remaining natural teeth. A removable partial denture has the advantage of being less costly, but also has several

disadvantages. It is considerably bulkier than a fixed partial denture, requires daily removal for cleaning and maybe less stable. For these reasons it is usually more difficult to learn to wear.

This situation provides one of the most frequent indications for an implant. Dental implants placed in the space formerly occupied by the missing teeth can provide the necessary additional support to allow for the use of a fixed partial denture where otherwise a removable partial denture would be required.

The replacement of all the teeth in a jaw: The conventional method of replacing all the teeth in a dental arch is with a complete denture, but if the jawbone provides insufficient support, implants may be needed, and the jawbone may have to be built up.

A complete denture rests on the soft tissue (gums) and underlying bone and when used in the upper arch it can spread the chewing loads over the entire roof of the mouth. Forces that might tend to dislodge the denture are offset by a seal and surface tension, which forms between it and the roof of the mouth. This seal helps to keep the denture in place. Most people are able to adapt reasonably well to an upper complete denture. However, a lower complete denture is considerably more difficult to learn to wear. The loads are concentrated over a smaller area and a seal usually cannot be developed to stabilize the denture. Also, the movement of the tongue and other muscles tends to place more dislodging forces on a lower complete denture than on an upper.

Pressure on the soft tissue (gums) and bone under the dentures can cause slow changes in the underlying bone which result in the dentures losing their fit. For this reason, complete dentures should be professionally examined at regular intervals, and when the tissues show sufficient change, the dentures should be relined, rebased, or remade, depending on the specific condition. When improperly fitting dentures continue to be worn, the pressure is concentrated in small areas and the bone is lost more rapidly. Eventually, so much bone can be destroyed that a complete denture can no longer be made to fit. When this occurs, an implant may have to be considered.

When treatment is rendered early enough, an implant can be made to fit the remaining bone. If the condition is allowed to continue too long, the jawbone may become so thin that it can fracture from a very minor blow or sometimes just from biting something hard. When the bone becomes this thin, in addition to placing an implant, it becomes necessary to build the bone back up again. Sometimes this can be done with bone from bone bank or bone substitutes, but often the best results can only be achieved by grafting bone to the jaw from the hip. This must be done in a hospital.

Depending on the amount of remaining bone, there are basically two implant methods of replacing teeth. These are endosteal implants and subperiosteal implants. Subperiosteal implants are placed on top of the bone. [Figure 2](#) Endosteal implants are implanted into the bone and they are the most commonly used types of implant.

There are numerous types of endosteal implants. [Figure 1](#) The type chosen for an individual is determined largely by the condition and configuration of the remaining bone. There is no one type of dental implant best suited for all situations. Rather, each situation must be evaluated in light of specific requirements.

The replacement of portions of the jawbone: Portions of the jawbones that have been lost due to trauma or other causes can be replaced with various bone substitutes, bank bone, obtained from cadavers and then freeze dried and/or decalcified, or surgically-obtained autogenous bone transplanted from another part of the body such as the hip, rib, or another part of the jawbone. Jawbone replacement is sometimes done to build up a ridge for better support of a conventional complete denture or a removable partial denture. It may also be employed in certain conditions to fill out facial contours, or it may be used in conjunction with another implant to enhance the overall result.

RISK

All surgical procedures have certain risks. Whenever surgery is done on the lower jawbone, especially toward the back of the mouth, there is a very small **risk of damaging the nerve, which carries sensation from the lower lip to the brain. If this nerve is damaged there can be a loss of feeling or a change of feeling in the lower lip and chin, which can vary from tingling, itching, burning, feeling cold, feeling hot, or feeling partially or completely numb.** Of course, such damage is not likely to occur. When it does occur, the feeling will usually return gradually to its normal state within a few weeks to a few months. However, if the nerve is severely damaged, the resulting numbness could last for many years or be a permanent change. Similar damage can occur to the nerve from the tongue, but this is rare.

Surgery on the upper jaw toward the front of the mouth can result in similar nerve damage to the corner of the nose. The placement of implants on or in the upper jaw can result in perforations into, infections of, or problems with the nasal passages or the sinuses. Again, such damage is very unlikely, and if it does occur, it will usually heal uneventfully. It may require antibiotic therapy or, in unusual cases, surgical correction. If lesions are allowed to develop around an implant and are ignored, they may progress into the sinus and result in a condition, which may require future surgical correction(s).

Whenever an endosteal implant is placed near an existing tooth it is possible that the tooth root may be damaged during the preparation of the bone to receive the implant. While such damage is extremely unlikely, if it were to occur it would in all probability heal uneventfully, though it is conceivable that a condition might develop which could result in the loss of the tooth. If a lesion develops around an implant and is neglected, it could spread to an adjacent tooth and cause a loss of support of the tooth. In a like manner, neglect of a lesion around an adjacent tooth can result in loss of bone support for an implant. Other surgical risks are bleeding, bruising, infections, and swelling.

Most implant procedures can be carried out under local anesthesia. This is the safest form of anesthesia, but it does have certain inherent risks, which range from minor local reactions to severe allergic reactions, which can result in death. Such reactions are very rare. When general anesthesia or sedation are required, risks can range from minor infections of the veins to death and essentially everything in between. Again, such occurrences are rare.

HOW LONG WILL AN IMPLANT LAST?

Dental implants are made from exceptionally strong materials and are engineered to withstand biting forces with a considerable margin of safety. While fracture of an implant seldom occurs, it is possible. Aside from such mechanical failures, all problems associated with dental implants relate to breakdown of the tissues surrounding the implants.

Three conditions can result in the loss of tissue around an implant. These are local conditions, systemic conditions, and overloading of the implant.

Local conditions: Bacteria can accumulate around a dental implant just as they can around a tooth. When bacteria are allowed to remain around a tooth, the gums become inflamed and there is eventual destruction of the bone supporting the tooth. We call this process periodontal disease because it takes place around teeth (peri -means around and -dental refers to a tooth). The same process can occur around an implant if bacterial plaque is allowed to accumulate on it, and when this happens, we call it peri-implant disease. Therefore, the implant is usually easier to clean than the tooth it replaced, but if neglected, damage to the supporting tissues can be expected. Other local damage can result from improper use of cleaning instruments, or any number of other mechanical, chemical, or thermal irritants.

Systemic conditions: Any systemic condition which prevents the body from repairing bone or other supporting tissues can result in the eventual loss of support for the implant. Such conditions as osteoporosis, collagen diseases, uncontrolled diabetes, frequent use of tobacco, excessive alcohol or drug consumption, or any debilitating disease can prevent the body from repairing itself. When these conditions exist, the implant cannot be expected to survive as long as it otherwise would.

Overloading: Whenever any structure is overloaded, something will have to give. There are some loads which are within the physiologic tolerance of tissues supporting a tooth or an implant; the tissues not only manage these loads well but the loads actually stimulate the supporting bone to develop and be maintained around the tooth or implant. The teeth come together with varying degrees of force during such activities as eating, swallowing, and speech. These forces are usually physiologic and unless some abnormality exists, they will stimulate bone formation.

During periods of extreme muscular activity (such as lifting a heavy object) most people will clench their teeth together with considerable force. This force may exceed by several

times the total accumulated force placed on the teeth during a meal. While these forces can be extremely heavy, they are usually exerted over a very short time period and therefore are not likely to cause damage. These forces can exceed physiologic loads in magnitude, but usually not in duration.

Emotional stress can cause severe damage not only to the tissues supporting the teeth, but also to the tissues supporting the implant. Emotional stress can result in clenching, grinding, or rubbing the teeth together with considerable force for long periods of time. Gum chewing can change what would otherwise be physiologic loads into damaging pathologic loads simply by increasing the amount of time during which these forces are being exerted from perhaps 40 minutes a day (the average time spent chewing food) to 12 to 14 hours per day. Emotional stress can also change body chemistry, causing a systemic condition, which leaves the supporting tissues more susceptible to breakdown.

What all of this means is that if the implant is kept clean, the body is kept healthy, and stress is controlled, then the implant should provide service for many years.

Obviously, all of these conditions are not met by all people all of the time. Nevertheless, our overall success rate for the devices we use is 95% at 5 years. This means that 95% of the implants that have been placed here in the past have lasted for 5 years or longer and that 5% of the implants have had to be removed in less than 5 years. The overall 15-year success rate for the implants used at the Loma Linda University Implant Dentistry Center is over 85%. The average life of the dental implants currently used appears to be in excess of 20 years.

It is impossible to know ahead of time how long any particular implant will last, and the above numbers cannot in any way be construed as a guarantee.

HOW LONG DOES TREATMENT TAKE?

From the time of the initial consultation, until the time of implantation will usually require 2 to 8 weeks. During this time, your oral condition will be diagnosed, and a treatment plan will be developed, the implant(s) selected, and any pre-implant treatment performed. After the implant is surgically placed it is usually allowed to heal for 4 to 6 months prior to starting the final prosthetic reconstruction. This healing period allows the bone to fill in around the implant and will enhance overall results.

Not all implants "take," or integrate to the bone, and it is sometimes necessary to remove them or repair their surrounding tissues within 1 to 3 years of placement. When early loss occurs, the implant can usually be successfully replaced. Some types of implants are designed to be initially placed completely within the tissues and uncovered several months later in a second surgical stage. For these reasons, it must be recognized that the surgical phase of therapy may extend over several months and involve multiple stages.

Except when delayed by early loss, as mentioned above, total treatment generally takes place over a period of 6 to 24 months.

After treatment is completed, we will want to see you at regular intervals one or more times per year in order to examine your implant and its surrounding tissues.

FINANCIAL ARRANGEMENTS

Treatment takes place in two phases: the placing of the implant (artificial root), and the placing of the artificial teeth (prosthetic reconstruction).

If you have been referred to the Allred Dental Center for Implant Dentistry from another dental office, you will be expected to return there for your prosthetic reconstruction and future general dental care. We can provide these services only when requested to do so by your referring doctor.

The Allred Dental Center for Implant Dentistry operates on a cash basis. When a patient begins treatment, a pre-surgical fee is charged and is due immediately. This pre-surgical fee is usually half of the estimated fee for the implant therapy to be provided. This fee covers the cost of planning your treatment, the implants and associated devices used in your treatment and therefore is refundable only to the extent that work has not been completed and the implants/ devices can be returned by us for full credit. In other words, if treatment were to be canceled before the implants have been ordered or any other work performed all of the paid pre-surgical fee would be refunded. However, if the treatment were canceled after the pre-surgical planning and work has been completed and all implants/devices are on hand, most or all of the pre-surgical fee would have been used up and no refund would be due. Work on an implant cannot be started nor can an appointment for surgery be made until the pre-surgical fee has been paid.

The remaining balance of the fee must be paid in full at the scheduled time of surgery. If this payment has not been received, the surgery will be canceled, and the time made available for other patients. Every effort will be made to notify you prior to cancellation, however, it is always in your best interest to confirm your surgical appointments a few days in advance. The total fee will in most cases be the same as the estimated fee. Increases above the estimated fee will only be made when they are justified by the necessity of materials or procedures, which could not be anticipated at the time of the fee, estimated.

The fee for the tooth replacement is paid similarly; half when the prosthetic reconstruction is started and half when the final prosthesis is inserted.