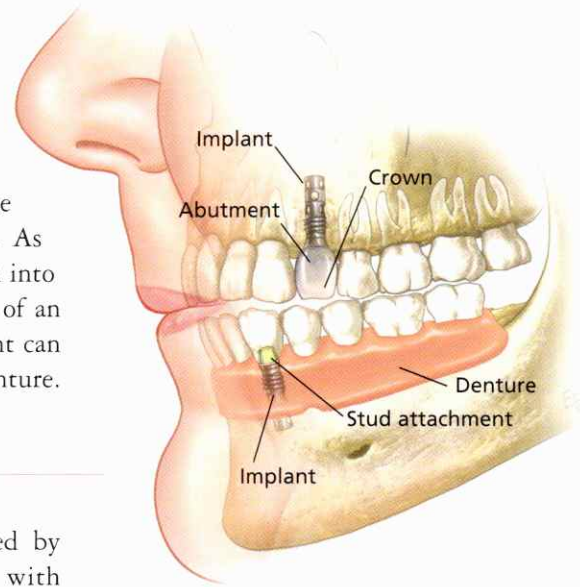


Dental Implants

A guide for patients

Dental implants are artificial tooth roots that are inserted into the jawbone to replace missing natural teeth. Implants and their attached crowns closely mimic the look and function of real teeth. They can make an attractive alternative to dentures and bridges.

Dental implant techniques can replace one or several missing teeth. In some patients, an entire set of artificial teeth can be carried on dental implants. As shown in the illustration, a dental implant is the metal "root" that is inserted into the jawbone. The artificial tooth (crown) is attached to the implant by use of an abutment (see page 3). In some cases, instead of an artificial tooth, an implant can be fitted with special clips or attachments (similar to press-studs) to hold a denture. The studs will minimise movement of the denture.



The implant works like a natural tooth root. It bonds with bone and anchors the artificial tooth into the jaw. Implants can be applied in a variety of ways to resolve problems with missing teeth.

Dental implants:

- help to withstand greater bite pressures with dentures
- prevent bone loss in the jaw (this may reduce the risk of adjacent natural teeth becoming loose)
- prevent the formation of hollowed or collapsed cheeks that can occur after tooth extraction (missing teeth cause bone loss in the jaw)
- are usually surrounded by gum tissue like natural teeth
- may prevent gum recession
- unlike bridges, do not require the cutting and reshaping of neighbouring healthy teeth
- are firmly secured in the jaws
- are usually more comfortable than dentures
- usually do not require separate care routines or special cleaning products, as with dentures or bridges

- like natural teeth, are cleaned by dental floss and brushing with regular toothpaste.

A dental implant is designed to last for many years, but poor oral hygiene can shorten its lifespan. Good oral hygiene is crucial (see page 4).

Like real teeth, artificial teeth that are not regularly brushed and flossed can develop deposits (plaque and calculus) that eventually lead to dental problems such as bleeding gums, loss of bone, infection and pain.

Properly maintained implants that are anchored by sufficient bone can last for many years, although repairs may be needed, like other dental appliances.

In order to achieve a good outcome, a patient's case may need to be managed by several practitioners. While this can affect the length of treatment and costs, it is done in the interests of the patient's well-being and good oral health.

TALK TO YOUR DENTIST

The aim of this pamphlet is to provide general information. It is not a substitute for advice from your dentist and does not contain all the known facts on dental implant surgery, its risks, benefits and limitations. If you have any questions, your dentist or specialist dental practitioner will be pleased to answer them. It may be helpful to make a list of questions. Seek the opinion of another dentist if you are uncertain about the advice you are given. Use this pamphlet only in consultation with your dentist. Some oral procedures may require the skills of dental specialists, for example, an oral and maxillofacial surgeon, a prosthodontist or a periodontist.

Consent form: If you decide to undergo a dental implant procedure, your dentist may ask you to sign a consent form. Read it carefully. If you have any questions about the consent form, the surgery, risks or anything else, ask your dentist.

IMPORTANT: Fill in all details on the sticker below.

Dear Dentist: When you discuss this pamphlet with your patient, remove this sticker and put it on the patient's medical history or card. This will remind you and the patient that this pamphlet has been provided. Some dentists ask their patients to sign the sticker to confirm receipt of the pamphlet.

TREATMENT INFORMATION PAMPHLET

PROCEDURE: _____

PATIENT'S NAME: _____

DOCTOR'S NAME: _____

EDITION NUMBER: _____ DATE: DD / MM / YYYY

YOUR DENTIST

Before implant surgery

You and your dentist will need to discuss whether dental implants are the best treatment for your dental problem. After talking with your dentist and reviewing the information, you may or may not decide to have the treatment. The decision is yours, so do not feel obligated. If you decide to opt for dental implants, the dentist will need to make sure you are a suitable candidate for the procedure. While most people can have dental implants, exceptions include:

AGE – children younger than 17 years are usually not considered suitable because their bones are still growing. Otherwise, age is generally not a restriction.

BONE LOSS – a patient who lacks sufficient jawbone may not be suitable for implants. In many patients, bone replacement techniques can be used to rebuild enough bone for an implant site.

SMOKING – smoking impairs healing and may cause implant failure by preventing the implant from integrating with the bone. Over time, smoking may cause a breakdown in the integration between the implant and the bone.

PREGNANCY – general anaesthesia (if needed) and other medications may risk the unborn baby's health in some cases.

CERTAIN MEDICAL CONDITIONS – illnesses such as uncontrolled diabetes increase the risk of complications, including infection and delayed healing around implants.

ALCOHOL OR DRUG ABUSE – the patient may have dietary problems, be unable to follow the dentist's instructions, or fail to

maintain proper oral hygiene.

PSYCHOLOGICAL ILLNESS – the patient may not be able to follow the dentist's instructions.

Your medical and dental history

Tell the dentist your full medical and dental history. The success of the dental implant and your recovery after the procedure can be influenced by the medications you take and any major illnesses or surgeries you may have had. Tell your dentist if you have had:

- haemophilia or any other kind of blood disorder
- heavy bleeding when injured or following surgery
- rheumatic fever
- heart problems or heart surgery
- facial radiotherapy
- any medicines on a regular or occasional basis, especially aspirin, warfarin or other "blood-thinning" medication
- a reaction to an anaesthetic drug
- an allergy to antibiotics or other medicines.

Give your dentist a list of ALL medicines you are taking or have recently taken, including prescription drugs, bisphosphonates, over-the-counter medicines and herbal remedies.

Diagnostic tests

Your dentist will perform diagnostic tests to confirm that you are suitable for the procedure and to help plan the best treatment approach. These tests may include:

Your dentist cannot guarantee that the implant surgery will be successful or without risk. A dental implant may have to be replaced. About one implant in every 20 fails to integrate with the bone or comes loose over time. The factors that contribute to implant failure include:

- the bone's density and strength
- the location of the implant (the most difficult location is the back of the upper jaw where the bone has less height and density than in other areas)
- the patient's general health, including the ability to heal after surgery
- patient's commitment to oral hygiene
- smoking.

Talk to the dentist about an alternative treatment if your implant should fail.

- dental examination
- photographs
- dental X-ray radiographs (films)
- CT scans of your jawbones
- dental casts of your mouth.

Decisions on the size, shape and appearance of your artificial tooth are based on the teeth that remain in your mouth. At this stage, discuss with your dentist any concerns or suggestions about the look of your artificial tooth.

Other dental health problems

Dental problems usually need to be corrected before implant treatment. People who decide to have a dental implant may have oral health problems such as decay or gum disease that contributed to the loss of their natural teeth. These problems need to be diagnosed and treated to ensure the success of the implant after the procedure. Talk with your dentist about the best treatment plan for your oral health problems and the expected costs.

You may damage your dental implants and crowns if you habitually grind your teeth (bruxism). Evidence of bruxism includes flattened teeth, chipped tooth enamel and broken fillings. To allow for the extra loading on the implants, the dentist may:

- plan to insert extra implants
- make the artificial teeth out of stronger materials
- fit you with a special type of guard or splint to wear at night, as many people who grind their teeth do so in their sleep.

Realistic expectations

Not all dental implant procedures produce "life-like" results. Some restorations are challenging, and the result may be less satisfying than you imagined. Discuss your expectations with your dentist and make sure you have a realistic understanding of the procedure's benefits and limitations.

Do not expect crowns and implants to look and feel exactly like your own teeth. Biting and chewing will feel differently, and it may take time to get used to the new sensations. While well-maintained dental implants are considered to be virtually permanent, you should anticipate regular dental check-ups and maintenance to keep your artificial tooth or teeth in good repair.

ANAESTHESIA

Dental implant procedures can be performed using local anaesthesia or general anaesthesia, depending on the complexity of the case or whether the patient is uncomfortable with being awake during surgery. General anaesthesia may require hospital admission and the services of a specialist anaesthetist.

Modern anaesthetics have minimal risks, but a few people can have a serious reaction. The anaesthetist can explain more about the anaesthetic that is best for you and the associated benefits and risks. You may be required to stop eating and drinking for a period prior to the procedure, depending on the anaesthetic to be used. The dentist and anaesthetist will give you detailed pre-operative instructions. Strictly follow these instructions.

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Dental Implant Procedures

Different types of implants are available. Most implants are made from materials such as titanium that are capable of forming a strong integration with the surrounding bone tissue. The implant chosen for you by the dentist may not resemble the implant pictured in this pamphlet.

In most cases, the procedure involves three separate treatment stages:

- insertion of the implant into the bone
- insertion of the abutment (or connector) on the implant

- attachment of the artificial tooth (crown) to the abutment or connector.

The process can take considerable time, perhaps from three to six months or more from surgical placement of the implant to the fitting of the crown.

This depends on factors such as your general and dental health, the amount of bone, rate of healing, degree of integration between implant and the bone, and the extent of any other dental problems.

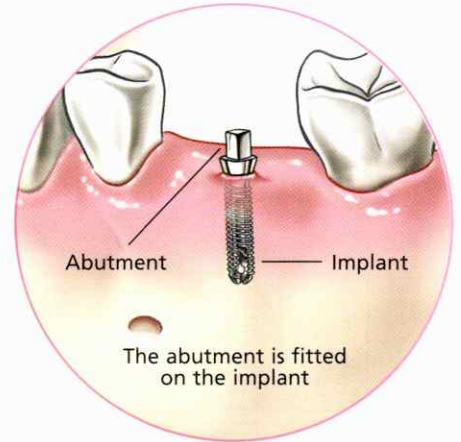
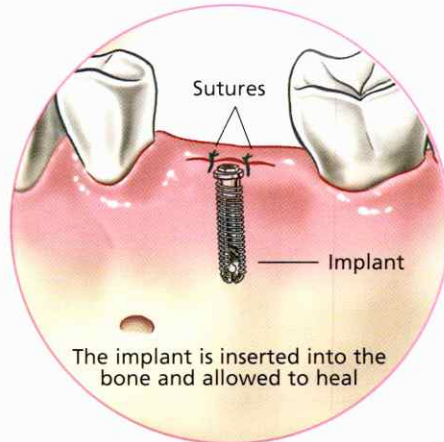
In some cases, the dentist may insert the implant and affix both the abutment

and an artificial tooth during a single operation.

However, not every patient is suitable for, and not all dentists offer, this single-stage procedure.

The insertion of the implant can be performed at the dentist's clinic, at a day-surgery centre, or in hospital. The dentist will advise which setting is the most appropriate for you.

Depending on the complexity of the patient's case, the procedure can take from 30 minutes to several hours.



1 PREPARATION OF IMPLANT HOLE

The dentist prepares a site in the gum to expose the underlying bone. A drill prepares a hole in the jawbone to accept the implant. When several missing teeth are being replaced, the number of implants placed depends on the amount of bone available at each site.

It is not always necessary to insert one implant per missing tooth because a single implant can support a "bridge" of artificial teeth. Your dentist will tell you how many implants are required.

2 INSERTION OF THE IMPLANT

The implant is cylindrical and its surface is either threaded or smooth. A threaded implant is screwed into the drilled hole. A smooth-sided implant is gently tapped into position. The gum is stitched closed, and the stitches are removed seven to 10 days later. Implant stability improves over the weeks and months as bone grows onto the implant surface. This process is called "osseointegration" or "biointegration". The dentist may allow up to six months for your bone to integrate with the implant.

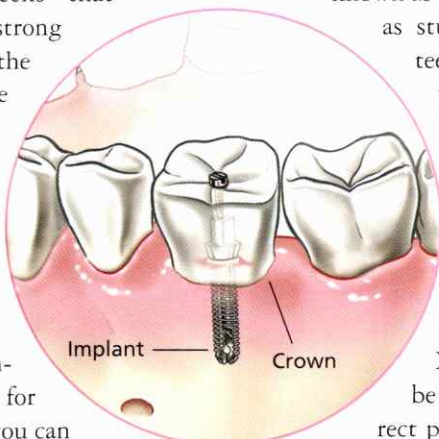
3 INSERTION OF ABUTMENT (CONNECTOR)

The abutment is fitted after bone has healed around the implant. The abutment is the support post or connector between implant and crown. The dentist makes an incision into the gum to access the implant and affixes the abutment to the implant. X-ray films are taken to ensure the abutment is correctly placed. A dental impression of your mouth may be taken to finalise design of the artificial tooth (or teeth). The dentist may allow a few weeks for the gum to heal.

4 ATTACHMENT OF THE ARTIFICIAL TOOTH

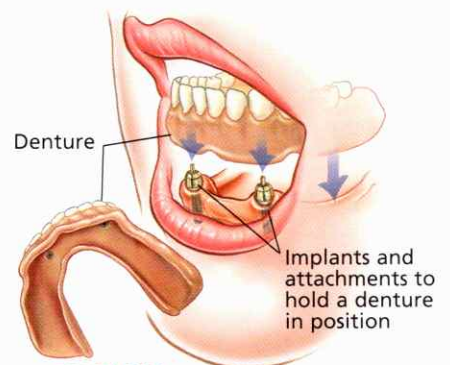
The dentist checks that the implant is strong

enough to support the forces exerted by the artificial tooth. If so, the artificial tooth is attached. It may be cemented onto the abutment or fixed to the abutment with a screw that can only be removed by your dentist, or you may opt for detachable teeth that you can remove yourself. Detachable teeth,



known as "over-dentures", are not as sturdy as non-removable teeth but are easy to clean thoroughly and repair.

In some people, they may feel more comfortable. The dentist can advise which option is best for you. Once the artificial tooth is fitted, a dental X-ray radiograph may be taken to ensure the correct placement of all implant components.



5 DENTURES

Instead of an artificial tooth, an implant can be fitted with special clips or attachments that firmly hold an existing denture in position. The aim is to improve the stability of the denture. Most patients report good results.

Recovery after implant surgery

- Arrange for someone to drive you home.
- Some people take a few days off work.
- Do not drive, operate heavy machinery or exercise vigorously for a few days, unless your dentist advises otherwise.
- Swelling, bruising, pain and headache are normal reactions that may occur and usually resolve within one week. Ice packs used immediately after surgery may reduce swelling and pain. An over-the-counter pain medication should help discomfort. If not, your dentist can prescribe stronger medication.
- Your dentist may prescribe a course of antibiotics. If so, take them as directed.
- Drink plenty of water from two to three hours after surgery (not hot drinks).
- Avoid alcohol, especially if you are taking medications.

- Avoid hard foods during healing. Choose soft foods such as vegetable soups. Your dentist may advise a soft-food diet for up to six weeks.
- The dentist may advise home self-care, such as rinsing your mouth with salty water or antiseptic solutions.
- Follow-up appointments and regular check-ups ensure the success of implant treatment. Visit your dentist regularly.
- See your dentist at once if your pain or swelling worsens, or if you develop a fever.
- Good oral hygiene is important. Follow your dentist's instructions.

Caring for your dental implants

Bacteria in the mouth form a sticky coating called plaque that adheres to both natural and artificial teeth. Your implant-supported teeth may fail if you do not keep them clean because plaque can lead to gum inflammation (gingivi-

tis) and infection. Be guided by your dentist. General suggestions on caring for your dental implants and natural teeth include the following:

- Brush after every meal. Carefully clean every surface of each tooth.
- Use fluoride toothpaste to reduce the risk of decay in your natural teeth.
- Use a toothbrush with a small head and soft bristles. Use interdental brushes.
- A toothbrush cannot reach between teeth or below the gum line. Floss your teeth with dental floss at least once daily.
- Smoking impairs healing and increases the risk of implant failure.
- Sugary foods encourage plaque build-up. Limit your intake of sweet foods and drinks. Brush your teeth afterwards.
- See your dentist at once if you have a toothache, gum inflammation or any other dental problem.

Possible complications of dental implant treatment

Dental implant surgery, like all types of surgical procedures, carries some degree of risk. It is not usual for a dentist to outline every possible, rare complication of treatment. However, it is important that you have enough information about side effects to fully weigh up the risks, benefits and limitations of treatment. If you have concerns about possible complications, discuss them with your dentist. You may find it helpful to prepare a written list of issues and questions.

The following risks are listed to inform you, not to alarm you. There may be other risks that are not listed.

GENERAL SURGICAL RISKS

- Allergic reaction to the anaesthetic.
- Short-term nausea following general anaesthesia.
- Rarely, excessive bleeding from the surgical site may be life-threatening and require a blood transfusion.
- Infection of the wound may require antibiotic treatment.

SPECIFIC RISKS OF IMPLANT SURGERY

- **Affected sinus.** The sinuses are air-filled cavities within the skull. An implant inserted into the upper jaw may contact or perforate the lining of the sinus within the bone (maxillary sinus) and cause infection (sinusitis). Antibiotics are typically used to treat the infection. Excessive bleeding from an affected sinus is rare.

- **Fractured lower jaw.** Rarely, the lower jaw may break during the procedure. Specialist treatment may be needed.

- **Damaged nerve.** The inferior dental nerve runs the length of the lower jaw. An implant can damage this nerve and cause numbness in the gums, lips, or in the skin around the mouth. In most cases, the numbness is temporary and resolves within six to 18 months. In some cases, the numbness is permanent.

- **Inhaling or swallowing equipment or parts.** The patient may inhale or swallow the implant, attachments or a piece of equipment. This can cause complications such as breathing obstruction. Surgery may be needed to remove the object.

SPECIFIC RISKS OF IMPLANT TREATMENT

- **Speech problems.** Some patients have speech problems following the fitting of the artificial tooth or teeth. This usually resolves once the patient gets used to the altered feel of the mouth. If not, speech therapy may be recommended.

- **Gum tissue growth (hyperplasia).** Gum surrounding the implant may enlarge and push above the gum line, causing redness and pain. Gum growth may be reversed with good oral hygiene or can be surgically removed.

- **Local infection.** The area around the implant may become infected. If infection does not respond to antibiotics, the dentist may have to remove the implant.

- **Systemic infection.** In certain people, implants can lead to infection in areas other than the implant site. Infectious endocarditis is a potentially life-threatening infection of the heart. People who have undergone prior heart surgery are most at risk of this rare complication.

- **Bone loss.** In most cases, biting and chewing encourages strong bone tissue to grow around the implant. In rare cases, the implant causes bone loss, and the implant eventually becomes unstable.

- **Loose implant.** The implant may fail to integrate with bone, or it may become unstable with time. The implant must be removed and another inserted into the jawbone nearby. Alternatively, the bone is given time to heal and another implant is inserted into the original site.

- **Loose tooth.** The artificial tooth may come loose from the abutment, or the abutment may come loose from the implant. Either case requires treatment to tighten or replace screws.

- **Tooth problems.** Chipping or breakage can occur. In some cases, a new artificial tooth must be created and fitted.

COSTS OF IMPLANT TREATMENT

Ask for an estimate of fees before agreeing to the procedure. The estimate will include dental fees, medical and hospital fees, and other items. Ask your health fund which costs can be claimed. As the actual treatment may differ from the proposed treatment, the final account may vary from the estimate. Discuss costs with your dentist before treatment rather than afterwards.

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