



IMPLANT DENTISTRY

EAT / TALK / LAUGH / SMILE
WITH CONFIDENCE

INTRODUCTION

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Sinead McEnhill is the director of Belmore Dental Clinic, 2014 winners of the Best Dental Team Ireland Award. She qualified from Queens University, Belfast in 1995 and worked for 8 years in Belfast before opening Belmore Dental Clinic.

Sinead is a highly experienced and respected implant and cosmetic dentist and is well known in the dental community. In 2015 Sinead was acknowledge for her outstanding contribution to dentistry and the dental profession by being invited by her peers to be a member of the International College of Dentists. The ICD is a leading honorary dental organisation dedicated to the recognition of outstanding professional achievement, meritorious service, and the continued progress of the profession of dentistry for the benefit of mankind.

She is a tutor and practice assessor for the Diploma in Implant Dentistry course at the Royal College of Surgeons. Her wide experience in implant dentistry, combined with bone reconstructive and regenerative techniques allows referred patients to receive the most appropriate treatment to fulfil functional and aesthetic desires.

More recently, Sinead's interests have progressed to human biotechnologies utilising PRGF® - Endoret® to increase the healing potential of surgical sites. She is also a license holder for Precious Cells, allowing patients to cryogenically preserve pulp stem cells for future therapeutic application.

Sinead is a member of the ADI, ICOI and the AACD.



What is Implant Dentistry?

When someone has lost a tooth, either through gum disease, trauma or decay, the typical solution is to use dentures. We're all familiar with dentures, and for millions they are part of daily life, slotted into our routines without much thought. But many aren't satisfied with this solution.

Discomfort, inconvenience and poor appearance are common complaints amongst user of dentures, and the more teeth that are missing, the more problems add up, from difficulty eating to impeded speech and damaged confidence.

If you want to bypass the problems endemic to dentures, replacement teeth can be fixed directly to an artificial root, known as a dental implant. Bone in the jaw naturally heals around the implant, securing it and anything attached to it, tightly and permanently. If severe infection or disease has damaged the existing bone, the new bone can be implanted as well, either from the patient or from a synthetic source. The replacement tooth, known as a crown, is then screwed into place, with a single implant capable of housing multiple crowns.



What is a Dental Implant?

A dental implant is an artificial substitute/ replacement for the root portion of your natural tooth and is anchored onto a pre-drilled socket in your jaw bone to support a crown, bridge or secure a denture firmly in place.

Implants are made from titanium, a material that is well tolerated by bone and integrates easily with bone tissue. During the placement of a dental implant, the goal is to achieve a close contact between the outer surface of the implant and the surrounding bone tissue so they can "fuse" together (osseointegration), creating a stable support for the new teeth.



What are the Benefits?

The crowns attached to dental implants shouldn't feel or function any differently to your normal teeth, and will probably look even better and more durable. As there are no nerves inside the crown or the implant, pain and sensitivity in the tooth are entirely eliminated. Unlike traditional false teeth, it isn't necessary to grind down the adjacent teeth or attach clips in order to house a bridge or secure a denture.

Because dental implants are a permanent solution, the long term health of your other teeth or the bone below is improved. Not only are dental implants easier to keep clean, they also stimulate tissue growth, strengthening your jaw and nurturing gum health. Neighbouring teeth rest against a stable replacement tooth instead of a removable denture, so the structure of your bite won't be in danger of collapsing and your facial muscles won't sag from missing teeth.

Most importantly, you'll be back to a normal, healthy life with a perfect smile. All your favourite foods will be available to you and without tooth pain and sensitivity, you may even discover new ones. Dental implants truly transform lives, with the overwhelming majority of patients reporting restored confidence and a huge boost to their general wellbeing and lifestyle. Time is turned back, and stays that way.



Advantages of a Dental Implant

- Looks, feels and works like a natural tooth
- Preserves facial structure
- Allows you to eat what you want, not what you have to
- Long-term solution
- Improves quality of life
- Proven results

Who can receive Dental Implants?

Contrary to advice commonly given to patients, almost anyone is eligible for dental implants. Often people with severe gum disease are told they don't have enough bone to support an implant, or that their gum health is too poor.

The truth is, an experienced implant dentist can replace missing bone and there are plenty of procedures that can be performed to prepare the health of the mouth for dental implants. Very rarely is the health of the mouth so poor that it cannot support implants, so if you've been told otherwise then seek a second opinion.

Dental implants can replace a single tooth, an entire set or anything in between. There is no upper limit in regards to age, but there are additional concerns for young people whose facial structure is still changing.

Is the Procedure Painful?

The youngest recommended age is 19 or 20 depending on the stage of growth, which varies from person to person. If a patient can't yet receive implants then they can receive alternative tooth replacement until they are at the appropriate age.

One of the main areas of trepidation for receiving dental implants is the expectation of pain. Many people, especially those who have already experienced a high degree of dental pain and sensitivity, whether through disease or prior dental work, are incredibly anxious about how painful the procedure will be.

It may seem hard to believe given the nature of the work performed, but there should be hardly any pain or discomfort experienced at any part of the procedure. An experienced implant dentist will make sure the implants are only applied to a healthy mouth and that a course of pain management is supplied for the period following the treatment, and of course anaesthetic will be used during the operation. Healthy gums and bone heal very rapidly, so additional treatments are not usually necessary prior to the dental implant procedure to facilitate a painless recovery.

Recovery should only involve, at most, a very mild amount of discomfort for a few days following the operation which requires no more than over the counter painkillers to manage. If there is significant pain, it usually means something has gone wrong, so you should let your dentist know immediately should you feel any. Even if you have been given an entirely new set of teeth then you should be entirely pain free in just a few days.

And remember, because there are no nerves in your new teeth, there won't be pain or sensitivity going forward either. Dental implants truly are a remarkably pain-free experience, from during the operation, to the recovery and for as long as you live with them. Nearly everyone I speak to who's uninformed about implants dentistry assumes the procedure will be painful, even agonising. Don't let these misconceptions hold you back from what is a truly transformative treatment.



How will my life change?

If you live with missing teeth or dental pain then you're well aware of the difficulties you face every day. Whether it's cosmetic concerns that diminish your confidence, or discomfort so severe that eating has become a constant struggle, poor dental health can have dire effects on your quality of life.

Unfortunately, many people accept significant dental problems as part of being old, whether through not being aware of alternatives or from receiving misinformation from their current dentists. But thanks to dental implants, there's no need to live your golden years without a winning smile or the foods you've always loved.



How should I choose an Implant Dentist?

The first thing to check is that the implant dentist has broad experience and can show evidence of the work they have done. Every patient, every mouth, every tooth is different, so the more experience your dentist has the more likely it is they've worked on a similar situation to your own.

What you don't want is for your specific combination of factors, from number of teeth requiring replacing to the health of the bone beneath, to be an entirely new operation to them.

Don't hold back from asking for evidence of their prior work. They should have a list of prior clients who may be happy to speak with you candidly about their experience with the procedure and the dentist themselves. Try to gauge the personality of the dentist and their staff when you speak to them.

Do they listen attentively to your concerns and explain things to you in clear language? Given the incredibly personal nature of the procedure, it's essential that you feel you

can trust your dentist to be receptive to any anxieties you may have and able to adapt the treatment around you.

You should also enquire how they go about the procedure, which they should of course fully brief you on before any work starts. The important parts are whether they will work on a single tooth or address the health and appearance of the entire mouth and whether they will ensure that at no point are you left with no teeth. If the recovery period is required after the teeth are removed, make sure there's an alternative in place while you're waiting for implants. The transition to dental implants should be as smooth as possible.

Finally, make sure you're informed on their pricing and aftercare. Do they allow you to spread out payments over the course of treatments? Will they cover the cost of any unexpected additional treatments which may be required? Will they provide a plan for your hygiene, maintenance and check-ups after all treatments are complete? By confirming all of this during the consultation you won't be met with any surprises during or after your dental implant procedure.



How many teeth can be supported by Implants?

All common forms of tooth replacement, such as bridges or dentures can be replaced by dental implants.

If you are missing just one natural tooth, then one implant is normally all that will be needed to provide a replacement. Larger spaces created by two, three or more missing teeth do not necessarily need one implant per tooth, however the exact number of implants will depend upon the quality and volume of bone at each potential implant site.



How will the Implant be placed?

First, the implant, which looks like a screw or cylinder, is placed into your jaw. Over the next two to six months, the implant and the bone are allowed to bond together to form an anchor for your artificial tooth. During this time, a temporary tooth replacement option can be worn over the implant site. Often, a second step of the procedure is necessary to uncover the implant and attach an extension.

This temporary healing cap completes the foundation on which your new tooth will be placed. Your gums will be allowed to heal for a couple of weeks following this procedure. There are some implant systems (one-stage) that do not require this second step. These systems use an implant which already has the extension piece attached. Your dentist will advise you on which system is best for you.

Finally, a replacement tooth called a crown will be created for you by your dentist and attached to a small metal post, called an abutment. After a short time, you will experience restored confidence in your smile and your ability to chew and speak. Dental implants are so natural-looking and feeling, you may forget you ever lost a tooth. Every case is different, and some of these steps can be combined when conditions permit. Your dental professional will work with you to determine the best treatment plan.



What happens during the placement of a Dental Implant?

1. We want to involve you in all the decisions about your care and treatment. If you decide to go ahead, you will be asked to sign a consent form.

This confirms that you agree to have the procedure and understand what it involves.

We will inform you about your planned treatment in detail before we start.



However, there are times during treatment when we have to change the planned treatment. If this is necessary we will make sure that you are told and give you the choice whether to proceed with the other treatment. If you are having sedation, we will discuss all possible alternative treatments with you in advance.

2. Although no strict protocol for antibiotic use has been established within the field of implant dentistry, one must understand that placement of a dental implant involves instituting a foreign body within the human body. Titanium metal (which dental implants are made of) is biologically inert and will not be rejected by the human body.

However, bacteria that may be on the implant surface prior to placement in your mouth can elicit a foreign body response, leading to inflammation, encapsulation with scar tissue and ultimately, failure.



How can bacteria get on a dental implant before being placed, you may ask?

During implantation, the dental implant fixture (which is sterile) comes into contact with fluids within the oral cavity (which are not sterile); bacteria in the mouth latch onto the implant surface and are then transferred into the implant site.

Usually, the body can take care of a few microbes without antibiotics, but if left to propagate, the bacteria will colonize the implant surface and prevent a normal healing response which will ultimately allow bone to grow onto your dental implant.

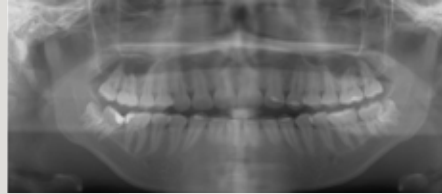
For our patients, we recommend antibiotics before and after implant placement. Antibiotics before surgery are generally in a liquid drink form and after surgery a prescribed tablet form.

3. Implant surgery is completed under local anaesthetic (an injection which makes the area where we are working numb) by lifting the gum away from the underlying bone, then gently and carefully drilling into the jaw bone. The implant is inserted into the bone and the gum replaced and held together with some stitches.

The stitches are removed about a week later. Following insertion, some types of implant will stick out through the gum, whilst other types will be buried underneath the gum. The implants will usually be left for at least 6 weeks before they are used to support replacement teeth. Implants buried under the gum will require a second small surgical procedure to expose them before they can be used.

At Belmore Dental Studio our aim is to make your treatment as comfortable as possible. If you are apprehensive about your treatment or suffer from dental phobias, dental sedation is one of the best options to allow the dentist to carry out treatment. Please contact us prior to your surgical appointment to discuss this further.

4. After your dental implant surgery has been completed an x-ray will be required to check the position of the implants which have been placed. In some cases this will be completed on the day of surgery and in others at your review appointment 7 – 10 days later.



5. If you have had the procedure under local anaesthesia you will be able to leave as soon as the procedure has been completed. You should be able to eat normally after the surgery but a soft diet may be advised by your surgeon. You should avoid alcohol for 24 hours. Implant patients are advised to quit smoking before starting treatment and to remain a non-smoker in the long-term.

6. You should be able to return to work within a day of your treatment. Occasionally you may not be able to wear your dentures for up to two weeks after the surgery (the doctor or nurse treating you will let you know if this is the case). You will be given more personalised advice following your treatment about looking after your implants and medications which may be required.

Can you wear Teeth during the course of Implant Treatment?

If the teeth being replaced by dental implants are in a clearly visible part of the mouth it is most likely that you will want to have some teeth present whilst the treatment is underway. There are a number of ways that this can be done, ranging from simple plastic dentures to removable bridges.



If replacement teeth are used during treatment stages it is important that they do not apply uncontrolled pressure to the underlying implants. You should expect to make a number of visits after the implants are placed and before they are brought into function, for small adjustments to any temporary teeth.

If the implant Surgery is going to take a long time can you have sedation or a general anaesthetic?

Although it is quite straightforward to provide good pain control during surgery, most people will be quite anxious for all but the most simple of implant cases. There is no need to suffer in silence as there are several very effective means by which you can achieve a relaxed state.



Relative Analgesia - Some operators may recommend a procedure called 'relative analgesia' where you inhale a mixture of nitrous oxide (laughing gas) and oxygen through a small mask placed over your nose. This gas mixture is breathed for the duration of the treatment stage.

Oral Sedation - Another simple way to aid relaxation is to be given a dose of a short-acting medication such as Temezapam (normally used to help with sleep difficulties). This will reduce anxiety for most patients and provides a very good effect for uncomplicated surgical stages taking less than an hour.

Conscious Sedation - For treatment of greater complexity it may be suggested that you have a more controlled way of keeping relaxed and comfortable during surgical stages. This is known as a 'conscious sedation' and is distinctly different from a general anaesthetic, because you remain alert enough to respond to simple instructions which may be helpful to the surgeon - however you will remember almost nothing about the treatment stage.

It is particularly beneficial for procedures taking more than an hour where a hospital admission is not required - this is probably true for the majority of treatment related to dental implants. For a routine 'conscious sedation' a carefully controlled amount of sedative is delivered through a vein in your arm or hand for as long as the treatment takes. It is a very safe procedure during which your heart rate and oxygen levels are monitored throughout by an anaesthetist.

What can you do if the Implant does not work?

If an implant does not achieve or cannot maintain a rigid fixation with the surrounding bone it will eventually become loose and no longer be able to support replacement teeth. Commonly the failing implant causes no discomfort and if there are enough remaining, it may not be necessary to replace it at all.



How Long does treatment take?

For routine cases, from the time of implant placement to the time of placing the first teeth, treatment can vary between 6 weeks and 6 months. The availability of better bone can be used to decrease treatment time, whilst more time and care must be taken with poorer bone, which can therefore extend treatment beyond six months.



How Long will Implants last?

If there is no reason to shorten the duration of your treatment then be prepared to wait – nobody loses an implant from being patient and allowing nature to take its course. During the period after the new teeth are fitted, the success of each treatment stage will be the main factor determining how the implants are performing. Once the implants and surrounding soft tissue are seen to be healthy and the new teeth comfortable and correctly adjusted, it is the quality of your home care and willingness to present for regular maintenance reviews that will have most influence on how long they will last.

When poorly cared for, implants will develop a covering of hard and soft deposits which is very similar to that found on neglected natural teeth. Untreated, these deposits can lead to gum infection, bleeding, soreness and general discomfort, just as can occur around natural teeth. It could probably be said that implants much like teeth will last for as long as you can keep them clean.

Well maintained implants placed in adequate bone can be expected to last for many years and probably for your lifetime. However, just as you would expect conventional crowns, bridges and fillings to need occasional repairs or replacements during their lifetime, your implant-supported teeth may also have similar maintenance requirements over theirs.

After-care and Maintenance Requirements for Dental Implants



Implants are not “Fit and Forget” they need the same care and attention as natural teeth. On completion of treatment it will be necessary for you to attend a number of recall appointments to check the condition of the implants and to adjust the bite if required. After this, regular 6 - 12 monthly dental check-ups are required to monitor the condition of the implants and any remaining natural teeth.

Regular hygiene maintenance appointments are also required, as a build of plaque will cause gum problems and possible bone loss from around your implants, resulting in their eventual loss. If you have teeth and implants mixed together it is also very important to maintain the health of the natural teeth. Should the natural teeth become infected or are lost for any reason the remaining implants may be damaged by the extra pressure caused by the additional work load.

Patients will only be accepted for this treatment if they can demonstrate that they can maintain a high level of plaque control and oral hygiene. There should be no medical conditions that would contraindicate the procedure. It is important to inform the dentist of any changes to your general health or medical condition.

Single Implants

If you are missing a single tooth, one implant and a crown can replace it. A dental implant replaces both the lost natural tooth and its root.

What are the advantages of a single-tooth implant over a bridge?

A dental implant provides several advantages over other tooth replacement options. In addition to looking and functioning like a natural tooth, a dental implant replaces a single tooth without sacrificing the health of neighboring teeth.

The other common treatment for the loss of a single tooth, a tooth-supported fixed bridge, requires that adjacent teeth be ground down to support the cemented bridge.

Because a dental implant will replace your tooth root, the bone is better preserved. With a bridge, some of the bone that previously surrounded the tooth begins to resorb (deteriorate). Dental implants integrate with your jawbone, helping to keep the bone healthy and intact.



In the long term, a single implant can be more esthetic and easier to keep clean than a bridge. Gums can recede around a bridge, leaving a visible defect when the metal base or collar of the bridge becomes exposed. Resorbed bone beneath the bridge can lead to an unattractive smile. And, the cement holding the bridge in place can wash out, allowing bacteria to decay the teeth that anchor the bridge.

Problems

Missing or Failing Tooth

- Due to infection, failed root filling, trauma or root fracture
- Crown keeps falling out or not enough tooth left to attach a new crown
- Tooth failed to develop



Solutions

Implant with single tooth

- Ideal long term solution that looks, feels and functions just like natural teeth
- Option for instant implant and instant tooth
- Protects adjacent teeth and underlying bone helping maintain lip and cheek support
- Very high success rate (over 99%) when compared to alternative treatments

Alternatives

Leave a gap or wear a denture

- Unsightly and embarrassing
- May impair eating and speech
- Bone and gum in the gap will shrink
- The position of adjacent and opposing teeth will distort over time



Bridge from other teeth

- Healthy teeth need to be drilled to attach the bridge, shortening their lifespan making future solutions more complex and costly
- Bone supporting the gum beneath a bridge will shrink due to lack of use leaving a gap
- Extra stress on supporting teeth during chewing



Multiple Implants

Traditionally, an implant placed into your bone supports a single crown and this is known as a “single tooth implant”. However, if you have several missing teeth, you do not necessarily need an implant for every missing tooth. One implant can support several teeth via a ridge or denture. The number of implants required depends on the volume and density of bone tissue at each implant site.

What are the advantages of implant-supported bridges over fixed bridges or removable partial dentures?

Dental implants provide several advantages over other teeth replacement options. In addition to looking and functioning like natural teeth, implant-supported bridges replace teeth without support from adjacent natural teeth. Other common treatments for the loss of several teeth, such as fixed bridges or removable partial dentures, are dependent on support from adjacent teeth.



In addition, because implant-supported bridges will replace some of your tooth roots, your bone is better preserved. With a fixed bridge or removable partial denture, the bone that previously surrounded the tooth root may begin to resorb (deteriorate). Dental implants integrate with your jawbone, helping to keep the bone healthy and intact.

In the long term, implants are esthetic, functional and comfortable. Gums and bone can recede around a fixed bridge or removable partial denture, leaving a visible defect. Resorbed bone beneath bridges or removable partial dentures can lead to a collapsed, unattractive smile.

The cement holding bridges in place can wash out, allowing bacteria to decay teeth that anchor the bridge. In addition, removable partial dentures can move around in the mouth and reduce your ability to eat certain foods.

Problems

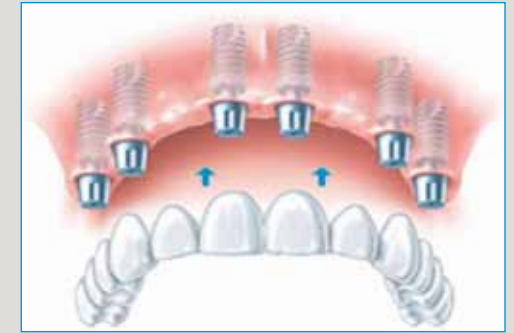
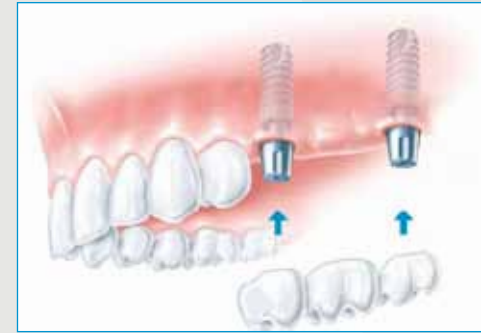
More than one tooth missing or failing

- Dislike wearing a denture or have a failing bridge
- Unable to chew properly and eat what you want with confidence
- Not enough teeth to support a bridge
- Do not want teeth damaged by a bridge

Solutions

Implants supporting teeth

- Ideal long term solution that looks, feels and functions just like natural teeth
- Fixed in place, no need to remove them to clean
- No need to damage adjacent healthy teeth
- Very high success rate (99%)



Alternatives

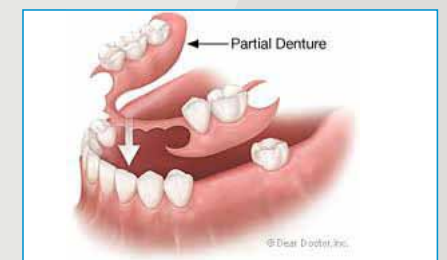
Bridge supported on teeth

- Supporting teeth need to be drilled to attach the bridge thereby shortening their lifespan
- Bone supporting the gum beneath a bridge will shrink due to lack of use leaving a gap



Partial Denture

- Can be loose and uncomfortable, trapping food beneath whilst eating
- Replacement required every few years as dentures become looser



Leave a gap

- Unsightly and embarrassing
- May impair eating and speech
- Positions of surrounding teeth will distort over time

Full Mouth

In the case of full-mouth reconstructions, where an arch of several teeth (10+) need to be supported in either the upper or lower jaw, a minimum of five to six implants in each jaw would be required.

The exact number of implants needed would depend on the individual case and your implant surgeon will be able to advise you on the best solution after a thorough examination and assessment. If you are missing all of your teeth, an implant-supported full bridge or full denture can replace them. Dental implants will replace both your lost natural teeth and some of the roots.



What are the advantages of implant-supported full bridges and implant-supported dentures over conventional dentures?

Dental implants provide several advantages over other teeth replacement options. In addition to looking and functioning like natural teeth, implant-supported full bridges or dentures are designed to be long lasting. Implant-supported full bridges and dentures also are more comfortable and stable than conventional dentures, allowing you to retain a more natural biting and chewing capacity.

In addition, because implant-supported full bridges and dentures will replace some of your tooth roots, your bone is better preserved. With conventional dentures, the bone that previously surrounded the tooth roots begins to resorb (deteriorate). Dental implants integrate with your jawbone, helping to keep the bone healthy and intact.

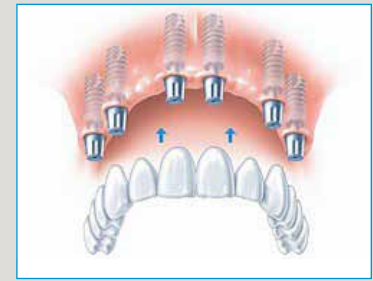


In the long term, implants can be more esthetic and easier to maintain than conventional dentures. The loss of bone that accompanies conventional dentures leads to recession of the jawbone and a collapsed, unattractive smile. Conventional dentures make it difficult to eat certain foods.

Problem

Upper and/or lower teeth missing or failing

- Remaining teeth unable to support a denture or bridge
- Loose, uncomfortable or poorly fitting denture



Solution

Implants supporting a permanently fixed bridge

- Looks and functions like natural teeth that are completely secure and cannot move
- Only removable by a dentist
- The ultimate solution

Implants supporting a removable bridge

- Solid foundation for natural chewing function that look like natural teeth
- Less bulky than a denture
- Easily removed for cleaning



Implants supporting a denture

- Very cost effective
- Can be removed for cleaning
- Very secure but still allows some movement during normal chewing

Alternatives

Complete conventional denture

- Lack of confidence and comfort due to limitation in what can be eaten
- Possible impairment of eating, speech, confidence
- The pressure from an unsupported conventional denture during chewing reduces the blood supply to the gums and contributes to accelerated bone shrinkage
- Denture will need to be regularly relined and replaced every few years



Teeth on Implants in one day

Many patients who are facing the loss of their remaining teeth or patients who are already wearing dentures want fixed teeth without invasive surgical procedures like bone grafting and /or sinus lifts which require lengthy appointments.

The “SKY fast & fixed” method developed by the German company Bredent is an advanced Dental Implant procedure which offers outstanding clinical results and provides an immediate fixed restoration on the day of surgery at a fixed price.

How does it work?

Example: Patient with Gum Disease (Periodontitis). Although Gum Disease Treatment was carried out the remaining teeth became more and more mobile and had to be removed.

4 Implants are placed in the lower jaw and / or 4/6 implants in the upper jaw at the time of the extraction of the teeth. Immediately after the placement of the implants an impression will be taken to fabricate the temporary (fixed) bridge while the Patient waits in special relaxing room for a couple of hours. Once fitted the patient can then return home with fixed teeth in place after only 8 hours.

After a 3 months Osseointegration period during which the implants are “healing” into the jawbone the temporary bridge will be removed and a permanent bridge will be fitted.

4 Implants in the lower and 4/6 implants in the upper jaw are proven to be sufficient for an instant fitting of a fixed restoration (“immediate loading”) provided the Patient is suitable and has got no active gum disease or medical condition which affects the integration of the implants.



CT Scanning

What is dental cone beam CT scan?

A dental cone beam CT scanner uses x-rays and a computer to produce 3D cross sectional images of the jaws and teeth. It is a compact, faster and safer version of the regular CT scanner.

Through the use of a cone shaped x-ray beam, the size of the scanner, radiation dosage and time needed for scanning are all much reduced.

The machine moves around your head in a circular motion in a similar way to the panoramic dental radiography unit which is commonly used in dental surgeries and hospitals, which you may have already experienced.

What happens during dental cone beam CT (CBCT)?

You will be standing up in the CBCT machine. Your head will be carefully positioned and you will be asked to keep absolutely still while the scan is taken. The positioning takes a few minutes, but each scan takes only a minute or so. You may need more than one scan depending on the reason for your examination. The whole procedure should not take more than 30 minutes.

Why should I have a dental CBCT?

The scan will give us detailed information which cannot be obtained from more conventional x-ray equipment. For example, if you are being considered for dental implants or other special procedures it enables us to assess the exact shape of the bone.

What are the risks?

CBCT scans are low dose examinations and give an x-ray dose to the patient that is considerably less than a medical CT scan. A medical CT scan of the upper jaw gives a radiation dose equivalent to approximately 179- 578 days of background radiation (the radiation constantly present in the environment).



A CBCT scan of the whole jaw would be comparable to approximately 12-30 days of normal background radiation. As with any x-ray examination, please inform the radiographer if you might be pregnant.



Are there any alternatives?

No. Without this examination it may not be possible using traditional dental x-ray pictures to assess the bone accurately enough to allow your treatment to be performed safely.

How can I prepare for dental CBCT?

Before your CBCT you will be asked to remove glasses, dentures, hearing aids, earrings, tongue studs, necklaces, hair clips and any other metal accessories that may affect the scan.

This is not an examination that requires any injections or special preparations beforehand. If you are having the scan for dental implant planning, you may be asked by your dentist to bring a localisation stent with you. This is a special 'plate' which you will wear rather like a denture, containing markers to guide our x-ray examination. You will only need to wear this during the scan.

Giving my consent

This information leaflet is designed to help you to understand the examination and any associated benefits, risks and alternatives. If there is anything you don't understand or you need more time to think about it, please tell the staff caring for you.



Remember, it is your decision. If you change your mind at any time, please let staff know immediately. Your wishes will be respected at all times.

Will I feel any pain?

This procedure is not painful, but you will need to remain still for the duration of the scan. If you are claustrophobic please mention this to the radiographer so that they can offer you appropriate support and advice.

What happens after I have had the CBCT scan?

After the examination you will be able to go home straight away. The CBCT will be reported and the report will be sent through to the dentist who has referred you to us for the examination.

What is a Sinus Lift?

A sinus lift is a bone-grafting procedure that's sometimes required in instances where the quantity of bone found in a patient's upper jaw (in the region originally occupied by their bicuspid or molar teeth) is inadequate to accommodate the length of a dental implant. There can be several reasons why the amount of bone found in a patient's upper jawbone might be insufficient to accommodate a dental implant.



One naturally occurring problem simply involves the situation where the size and shape of their maxillary sinus is relatively large in comparison to the size of their upper jawbone. When this combination exists, there may not be enough bone thickness in which to embed a dental implant. Other reasons include:-

a) Naturally occurring deficiencies.

The bone problem can be naturally occurring, such as that bone resorption (bone loss) that takes place in those regions where teeth have been extracted. This type of defect is most common in those cases where multiple teeth were extracted many years previously.

b) Bone damage due to disease.

In other cases, a patient's bone deficiency may be attributed to a dental condition, such as bone loss due to advanced periodontal disease (gum disease). With this condition, significant amounts of bone can be lost from around the person's teeth, to the point where if they need to be extracted, there may no longer be adequate bone into which to place a tooth implants.

c) Bone loss due to other factors.

In some cases, a bone deficiency may be associated with a previous surgical procedure such as a difficult tooth extraction or the removal of a cyst or tumor.

How does having a sinus lift change things?

During the sinus-lift procedure, a portion of the maxillary sinus is filled in with bone (grafting material). The result is a thicker sinus floor into which a tooth implant can then be placed.

How is the Sinus Lift procedure performed?

The sinus lift is a surgical procedure. The specific technique that the dentist utilizes can vary but traditionally the procedure has been performed as follows:

The dentist will make an incision in the patient's gum tissue on the cheek side of their upper jaw in the area where the placement of the dental implant is planned (in the region originally occupied by their bicuspid or molar tooth).



This incision allows the dentist to flap back the patient's gum tissue and expose the jawbone that lies underneath. The exposed bone is cut in a fashion where a "trap door" of bone (hinged at the top) is created. This movable section of bone is then pushed gently inward and upward into the sinus cavity.

This bone movement carries the sinus membrane (attached to it) along with it, thus "lifting" the membrane (and hence the sinus floor) to a new, higher level.

The empty space underneath the lifted sinus membrane is then packed with bone-graft material, thus providing the new bone into which a tooth implant can be placed.

Once the bone-graft material has been positioned the gum tissue is stitched closed. In some instances, it can be possible that the dentist will place the dental implant at the same time that the sinus lift is performed.

In most cases, however, a dentist will allow a healing period of six to nine months before the dental implant is placed. The specific time frame allowed for healing is dependent upon the type of bone-graft material that has been utilized.

What types of bone-graft materials are used with the sinus lift procedure?

Several different types of bone-graft materials can be utilized with sinus lift surgery. In some cases, the patient's own bone will be used, such as that harvested from another location in their mouth.

In other instances, prepared bone (frozen bone, freeze-dried bone, demineralized freeze-dried bone), either human or from another species (i.e. bovine), can be purchased from a tissue bank for use.

Another alternative involves the use of synthetically derived graft material such as hydroxyapatite.



Bone Grafting

Why Worry About Bone?

A dental implant is a metal post placed into the jawbone, and is used as an anchor on top of which a crown is placed. When the implant is placed, the goal is to ensure that it is completely stable (osseointegrated) within the bone, so that it is strong enough to support the tooth on top of it.

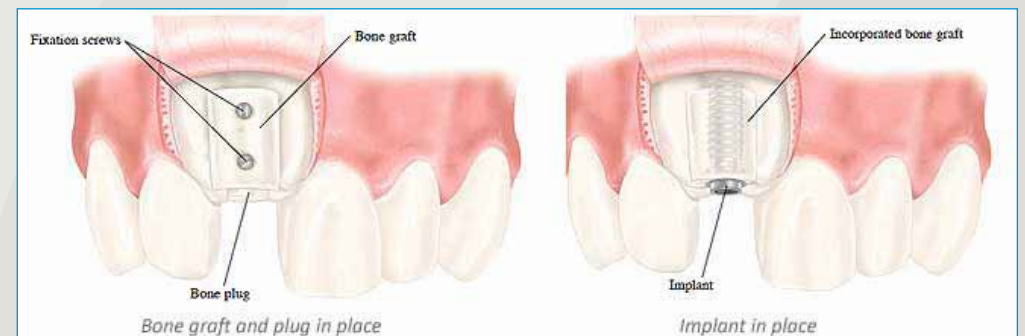
Great care must be taken to ensure there is enough bone around the implant as this provides the dental implant with its strength and stability. Thus, a major concern when placing a dental implant is ensuring sufficient volume of bone around it in height, width, and depth.



How Much Bone Is Needed Around a Dental Implant?

As a general guideline, at least 1 mm of bone is required around a dental implant. More space is required when the implant is next to a tooth or another implant (2 and 3 mm respectively). If there is not enough bone to completely envelope the implant, a bone graft will be required.

When evaluating the height of bone, there should simply be enough bone that the implant will be completely submerged. However, it is important to ensure that the implant does not go so deep as to impinge on other anatomic structures (eg the nerve in the bottom jaw, or the sinus in the upper jaw).



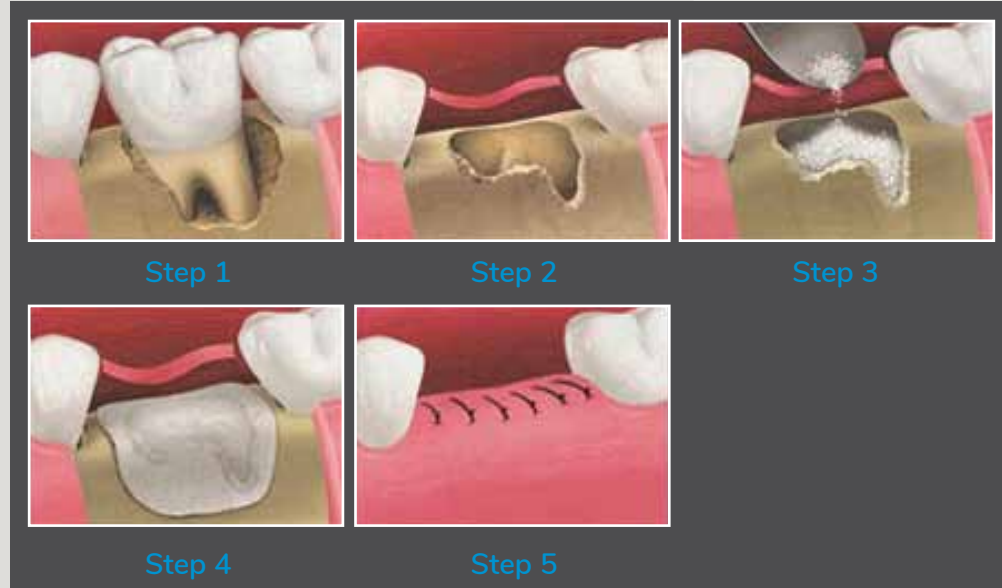
Types of Bone Grafts

A bone graft is the addition of bone, or bone-like material, in an effort to increase the volume of bone in the jaw. Typically, the bone is placed and heals before the implant can be placed. The healing period can vary, depending on the type of bone used.

There are many types of bone grafts, but they all fall into one of several categories:

- Autograft – bone used from the patient’s own body.
- Allograft – bone from a genetically similar organism

The type of bone graft that will be chosen will depend on the situation, and on the amount of bone required.



Timing of Bone Grafts

Depending on the situation, bone grafts may be placed at the same time as an implant, or before the implant. While it is more convenient to place the implant and graft at the same time (thus saving treatment time), sometimes the clinical situation does not allow it.

If the bone graft must be placed before the implant is put in, it is very important to follow the timelines set out for treatment. If the implant is placed too soon after the graft is placed, the graft will not have had enough time to heal and become solid. If the implant is placed too long after the graft is placed, resorption and melting of the graft may occur with loss of bone volume. Thus, implant placement is typically scheduled for the “sweet spot” where sufficient healing, but minimal resorption, has occurred.

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