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# General Information about Dental Implants

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## General Information about Dental Implants

### What are implants?

Missing teeth can often be replaced by implants. Implants act like the roots of teeth. After they have been fitted and have healed in place, dentures or crowns may be attached to them. When dentures are held in place by implants they do not slip around. If crowns are fitted on implants they act like normal teeth.

There are various types of implants, however, the most commonly placed throughout the world are often described as root-form or endosseous implants. These generally have a cylindrical form and may be threaded on the outer surface to assist placement. Other designs such as blades or subperiosteals whilst in use by some practitioners are not the focus of this information. The success and rapid growth in popularity of the root-form implant is largely due to its predictable behaviour when trying to achieve a rigid fixation with the surrounding bone and the maintenance of this state throughout many years of function.

Implants can only be placed if there is enough bone present in the jaw. When teeth are lost, the bone around the teeth gradually disappears. If too much bone has been lost it is sometimes possible to grow bone in its place.

### What are the alternatives?

For people who have **NO** remaining teeth the alternatives are:

- Complete dentures
- Implants which secure the dentures in place
- Implants which support crowns and bridges

For people who have **SOME** of their own teeth the alternatives are:

- Crowns and bridges supported by implants and/or teeth
- Partial dentures secured by implants and/or teeth
- Partial dentures supported by teeth
- Bridges supported by teeth

### The initial evaluation and additional diagnostic material General Dental Health

To plan the most suitable treatment certain information is helpful – for example photographs, x-rays, models of your teeth and jaws. In some circumstances, a more comprehensive three-dimensional x-ray evaluation using a CT scan may be requested to give greater detail of the shape of your jaws.

### What is a CT Scan?

The conventional x-ray views most familiar to patients are only 2-dimensional and subject to varying degrees of distortion and inaccuracy. Where important anatomical structures must be avoided, the information they provide may therefore be inadequate. The CT scan in contrast can provide life-sized 3-dimensional information of all regions of the upper and/or lower jaws from which precise measurements can be taken for pre-operative treatment planning. In some cases the CT scan may also be used to evaluate the results of bone grafting procedures prior to placing implants.

## Having a healthy mouth

Sometimes treatment is needed before you are ready for implants

Implants survive best in a healthy environment. Any tooth decay or gum problems need to be corrected before implants are placed to give them the best chance of success.

**Gum health:** This may involve the use of special brushing methods, flossing, toothpicks and small “bottle” brushes. Some gum treatment may be necessary.

**Removal of unsavable teeth:** Despite advances in modern dentistry some teeth may have reached the stage when no treatment can save them. It is often best to remove them at an early stage, particularly if you are thinking of having implants so as to prevent further bone loss.

## Treatment of existing or potential oral infections

Treat or remove all pre-existing oral infection wherever possible

The success of implant therapy can be seriously affected by infections resulting from failed gum or root canal treatments or untreated gum disease or nerve problems in sites adjacent to the implants. Long-standing infections of the soft-tissues beneath dentures can also adversely affect healing at various surgical stages. Your treatment may be delayed whilst these areas are resolved.

Although gum infections arising in opposite jaws have no clear proven link with problems around implants, there is at least the theoretical risk of bacterial transmission, therefore for the meantime it would be considered prudent to assume that there is a risk. Your mouth should be treated as whole and not simply unrelated regions.

## How many implants?

As a general principal, as many implants as possible should be used. This allows the stresses of biting to be spread over the maximum number of implants, thus diminishing the load on each particular one.

## Upgrading

Some people find it more convenient to proceed in stages

It is sometimes possible to have two or three implants placed, use them for awhile and some time later, and add more implants to improve the treatment plan. This is not an approach which is feasible in all situations and is probably most suited for treatment of the lower jaw where no teeth are present.

An example of this might be the patient with no teeth in the lower jaw who has two or more implants placed in the first instance. By stabilising their denture using the implants, it can be held more firmly in place. Later on, if they have sufficient bone, more implants can be added and eventually fixed-teeth placed on the implants eliminating the denture altogether. A number of the implant systems available today could support this approach, however the feasibility of upgrading should be confirmed by all parties rather than assumed.

## What is it like having implants fitted?

### Before and after implants are placed

Generally speaking, having implants fitted is not at all painful. For apprehensive patients, sedation can be given making the procedure quite comfortable.

## What is it like after having the implants placed?

The after-effects of having implants placed are usually mild and may include slight bruising, dull ache, and swelling, the amount of which will vary dependant upon the number of implants placed and the difficulty of the surgical procedures.

When choosing a date for implant placements avoid significant social engagements and work commitments for at least a week after. This is just to be on the safe side. Taking time off work is not usually necessary.

## Additional procedures before implant placement.

### Creating more bone

It is a natural phenomenon that after teeth have been removed the bone that once supported them slowly resorbs away. This occurs faster when prolonged gum problems have been present or poorly fitting dentures are being worn. The result is that there is sometimes not enough bone to support implants.

When there is not enough bone present, it may be necessary to create new bone to fill in missing areas allowing implants to be fitted. A variety of techniques are available to do this and these are referred to as '**bone grafting**'.

The bone used in these situations may be specially treated donor material from a 'Bone Bank,' a synthetic substitute, or taken from areas in the mouth where there is some spare. In special cases where larger amounts of bone are needed it is possible to move bone from other places such as the hip or shin to the deficient area of the mouth. The area from which the bone is taken will regrow.

### Bone grafting and duration of implant treatment

Where the clinical conditions indicate that bone grafting is required to increase the amount of bone into which the implants are placed it will generally increase the time taken to complete treatment. Under routine circumstances where no bone grafting is required the implants are commonly ready to begin function between 3 and 6 months later. If bone grafting can be undertaken at the same time that the implants are placed, treatment is more likely to take 6 to 12 months. Where implant placement must be delayed until after maturation of the bone graft, overall treatment may take 12 to 18 months.

### Guided tissue regeneration

A technique called '**guided tissue regeneration**' has also shown considerable success where the amount of bone at the intended implant site is less than ideal.

When a tooth is removed a hole in the gum and the bone remains for the first few weeks. Anyone who has lost a tooth or had an extraction knows that this generally heals uneventfully, and eventually you can not tell where the tooth was.

The basic principle behind 'guided tissue regeneration' is that placing a special membrane over the extraction socket creates a layer above which the fast growing soft tissue cells are prevented from entering the bony socket. This allows bone cells present beneath the membrane the extra time they need to fill the socket without competition from soft tissues to occupy the same space.

## **Sinus augmentations**

### **The purpose of sinus augmentation**

It is very common to find that the softer bone in the area above the upper back teeth (molars and sometimes premolars) is very shallow and not suitable for normal implant procedures. To solve this problem a process known as 'sinus augmentation' or 'sinus lift' was developed.

Bone may be successfully grown in the sinus spaces above your upper back teeth allowing implants to be placed. Specially treated donor bone from a 'Bone Bank,' synthetic bone substitutes or bone from other areas of the mouth or body is placed into these empty areas. Over a period of time this is replaced by new bone thus providing a bed into which the implants can be fixed.

### **Implant placement and bone grafting**

If the amount of bone overlying the sinus is inadequate, some surgeons may prefer to place the implants at the same time as the grafting procedures. Whatever type of bone is added to the sinus it must be left to mature before implants are placed or brought into function. If the implants are placed as a secondary procedure, (depending on the amount of bone being grown and the nature of the graft material used), they can be inserted after 4 to 9 months, although occasionally it may be necessary to wait longer.

As with other bone grafting procedures the implants are left to become firmly attached to bone. Commonly a slightly extended healing period is chosen with an average of 6 to 9 months before a denture or crown and bridgework is fitted. However, all bone grafting is unique to each individual and this information is for guidance only.

## **Additional procedures at the time of implant placement**

### **Additional procedures**

Despite the thoroughness of planning, extra procedures are sometimes required during treatment to produce the best results. It is important that in this event you accept that appropriate alternative treatment is performed at the time of treatment although it may be different to that already planned.

### **During treatment fees may vary due to:**

#### **Fee variations**

- Alternative procedures required due to changes in the treatment plan.
- New treatments becoming available in the course of your treatment.
- Treatment extending over a longer period of time than expected.

If for some reason it is not possible to proceed with the planned procedure at the treatment appointment, the time spent will be charged at the normal hourly rate. An alternative treatment may be performed if considered appropriate.

## **After implant placement**

### **Bone loss after implant placement**

Sometime bone may be lost around the implant. There are techniques available to treat these problems if the cause can be identified. In some situations however, progressive bone loss might result in the loss of the implant.

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## **New advances**

### **New techniques and materials**

Implantology is a rapidly advancing science. We may take advantage of some of the new procedures or materials as they become available if they promise to significantly improve the outcome. Alternations to your original plan may therefore be made during your treatment.

### **How long does the treatment take to complete?**

#### **How long does treatment take?**

This depends on the complexity of the treatment. Initially there is a treatment planning stage which may last a month or so. Then there may be some time spent on preparatory procedures as improving the gum health, removing any unsavable teeth and growing bone. This may take anything from a few weeks to many months.

After the implants are placed they are left to settle in place from 2 to 6 months (conventional protocol). The final fitting of crowns or bridges or attaching of dentures to the implants takes between 1 week to 1 month. The time depends on your individual situation. This specialist clinic is also able to offer an immediate protocol in selected cases.

Special medication will be prescribed for you to help the healing and produce minimal discomfort. To gain the most benefit please follow the instructions given.

### **Do not rush your treatment**

#### **Respect nature**

It is important that neither the patient nor the implant provider attempt to rush the treatment or try to advance the various stages faster than the time required for complete healing and maturation of the bone and soft-tissues.

Even treatment that is well planned and executed can fail as a result of moving too quickly from stage to stage. If you do not have the time available, then it may be more sensible to consider conventional forms of dentistry which can be completed more rapidly.

Your implant provider may suggest that procedures to grow bone are undertaken separately from placing the implants, even though under certain conditions it is possible to combine these stages.

### **Precautions for denture wearers**

#### **Wearing dentures immediately after surgery?**

Denture wearers may require their dentures to be modified, or be asked to leave them out for a period of time to prevent them resting on the newly placed implants. During settling-in stages, metal framework dentures may need to be replaced with a plastic set as they are more easily adjustable. The fitting surface can then be altered when the implants are placed.

#### **Reporting problems and queries**

If anything arises that you are concerned about, telephone us immediately. Usually there is nothing to worry about, but no matter how apparently trivial, it is always better to check.

## The finished teeth – Aftercare

Unlike teeth, implants cannot get tooth decay. However, like teeth, they can suffer from gum problems. Teeth with untreated gum problems can become loose and be lost. This is also true of implants.

**Thorough daily cleaning is as important with implants as it is with teeth.**

## Follow-up appointments and regular check-ups

### Routine maintenance

To ensure that any problems are detected early, regular maintenance check-ups are advisable. Problems are more easily treated if detected early. Check-ups may be recommended three, four or six monthly.

In most cases review appointments will be more frequent during the first year that the implants are in function. **Regular check-ups are every bit as important as they are with natural teeth, if not more so!**

## Some examples of problems that can arise

### Problems that can arise

Porcelain crowns attached to implants can break as they can when attached to natural teeth. However, removal of crowns from implants for repair is usually easier than from natural teeth. Implant supported bridges that become loose should be re-tightened immediately to reduce the likelihood of further unnecessary damage.

Should it be discovered during a routine maintenance visit that an implant has failed or is failing; appropriate remedial action will be planned accordingly. Implants that become loose will not re-tighten and should be removed at the earliest opportunity. Should you notice any areas of soreness, discharge or pain on chewing near any implant or tooth you must immediately report this to the dentist responsible for your maintenance.

## Successful treatment

### Implant success and your commitment to long-term maintenance?

Success depends on your body's reactions to the implants and your personal care of them. Implants can fail due to gum disease just as teeth do. Success is constantly improving due to improved techniques. Natural teeth last longer today as awareness of the need for looking after them becomes more accepted. However, there would not be a need for implants if teeth were totally successful.

**“Success rates for implants now compare very favourably with all other forms of dentistry”**

## Smoking and Alcohol consumption

Both smoking and heavy alcohol consumption reduce the survival of implants (and teeth). If you think that either of these two habits could be a problem for you and your implants, it may be advisable to avoid this form of dental treatment or accept the higher risk of implant failure.

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# **General health advice before, during and after implant placement**

The guidelines shown on the following pages are not intended to be prescriptive, but should be borne in mind for the pre and post-operative phases of implant treatment.

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## General health considerations before implant placement

### Introduction

Dental implants are fixed into the bone of the jaw through an opening in the gum. In order for the implants to be usable, they must be locked into the jawbone and surrounded by healthy gum tissue. The complex healing requirements of bone and skin required for this to come about can be critically influenced by our own behaviour.

### Healing

Healing can be enhanced by arriving at the dental office in the best possible state of health prior to the operation, and by following the regime suggested by your surgeon during and after each stage.

### Timing of the treatment

Ensure that the appointment made for placement **does not interfere with your social and professional life**. You may be asked to leave out your denture or adhere to a particular dietary regime for a period of time.

Also, there may be some minor discomfort or swelling after the operation which can last for an average of 2 – 3 days. Sometimes these symptoms may persist for slightly longer depending upon the complexity of the surgical procedures and individual patient variations.

### Sedation

If you are having sedation, please make sure a responsible person is available to **escort** you home.

### Aspirin

If you are taking aspirin, you should check with your physician that it is suitable to **stop the recommended dose 2 weeks before** the implant appointment.

### Antibiotics

Make sure you have taken the prescribed **antibiotics** before arriving at the dental office and that you complete the course of medication in the period afterwards.

### Smoking

Research has shown that regular smokers lack vitamin C. This deficiency interferes with all healing processes.

Smokers are strongly advised to take **1,500mg of Vitamin C** a day for one month prior to the operation and continue for as long as possible afterwards for its general health benefit. However, if at all possible you should give very serious consideration to giving up smoking altogether, or discuss with your surgeon a suitable period of cessation pre and post-operatively for the key surgical stages.

### Vitamins

All patients can help the process of healing by taking 1,200 international units (IU) of **Vitamin E**, and **60 milligrams of Beta Carotin** each day starting three weeks before the operation.

### Calcium

Ensure that your diet contains at least **1,200 of calcium a day**

Dietary supplements should continue for at least **3 months after surgery**.

## Instructions to patients at implant placement (Stage 1)

### Discomfort

Normally we find that implant placement is followed by **only minor discomfort**. Any discomfort can be minimised by following instructions.

### Pain

If you experience pain when the anaesthetic has worn off, **follow the regime of pain control** that you have been given.

### Bleeding or oozing

**Minor oozing may discolour your saliva** for some hours after leaving the surgery. However, if bleeding continues and clots are evident, identify the source and apply gentle pressure to the area with a gauze pad soaked in warm salty water for 15 minutes. This may be repeated 3 – 4 times. If bleeding continues after this, contact the dental office.

### Sleeping

Sleep with an **extra pillow** to lift your head for the first 2 – 3 nights to reduce the amount of swelling that may occur.

### Ice packs

**Ice packs** can be held over the area operated upon for 20 – 30 minute intervals, totalling not more than one to two hours during the first two days after the operation. This will normally reduce the amount of swelling.

### Smoking

**Do not smoke for two weeks** before and after the operation as this can seriously affect the success of the implant placement.

### Drinking

**Avoid alcohol for two weeks** after the operation as this can impair healing.

- For the first 24 hours take no hot liquids, e.g. coffee, tea or soup.
- For the first 24 hours minimize your exertion; rest, books and TV are best.

### Salt Water

The day after surgery (not less than 24 hours), commence **warm salt water rinses** (1/4 to ½ teaspoon of salt in a cup of warm water) 2 or 3 times a day.

Each rinse should be held against the affected area so that the warm salty water **cools** over it and is held there until the heat is gone. Then **repeat** until the cup is finished. This should last about **10 minutes** each time.

### Dentures

**Leave your denture out** if instructed to do so, until it can be relined with a soft lining material.

### Meals

After each meal, **gently rinse** your mouth with warm water.

### Brushing

Do not brush the area where the implants have been placed **for at least a week**

### Tongue

**Try not to explore the area with your tongue** as this may loosen the stitches.

### Diet

In regard to diet, **any food may be eaten provided it is soft**. This applies to the first week. Boiled fish, scrambled eggs, pasta, rice etc. are suitable, though any meal may be mashed or passed through a blender to render it soft.

### Vitamins

Continue the vitamin supplements (if prescribed) and ensure you have a balanced diet, high in calcium.

### Problems – Contact the surgery if:

If numbness persists for more than six hours after the operation

- The stitches become loose or fall out
- There is excessive pain
- There is excessive bleeding
- The implants become visible
- Out of hours I can be contacted on 0785 586 6436

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### Instructions to patients after sinus augmentation

- Avoid blowing your nose for 2 weeks
- Sneeze through your mouth
- Avoid swimming or flying
- Report nose bleeds or sinus pain or swelling IMMEDIATELY

### Nose bleeds or sinus pain

There is a small chance that a nose bleed may occur after the procedure. Should this happen sit upright and apply a cold compress. Above all STAY CALM.

- If you have any concerns, please telephone IMMEDIATELY

### Typical healing patterns

There is a wide range of normal healing responses. Swelling is often worse by the 2<sup>nd</sup> or 3<sup>rd</sup> day and may persist for a few days.

If you are at all unsure or the swelling continues for more than a week you should contact the surgery immediately.

## Instructions to patients at implant exposure (Stage 2)

### Discomfort

Normally we find that implant exposure is followed by only minor discomfort. Any discomfort can be minimized by following instructions.

### Pain

If you experience pain when the anaesthetic has worn off, **follow the regime of pain control** that you have been given.

### Bleeding or oozing

**Minor oozing may discolour your saliva** for some hours after leaving the surgery. However, if bleeding continues and clots are evident, identify the source and apply gentle pressure to the area with a gauze pad soaked in warm salty water for 15 minutes. This may be repeated 3 – 4 times. If bleeding continues after this, contact the dental office.

### Smoking

**Do not smoke for two weeks** after the operation as this can seriously affect the success of the implant placement.

### Alcohol

**Avoid alcohol for two weeks** after the operation as this can impair healing.

### Hot foods and drinks

For the first 24 hours take no hot food or drinks. After this, avoid food which is fibrous or tough as this may damage the gums healing around the posts.

### Salt Water

The day after surgery (not less than 24 hours), commence **warm salt rinses** (1/4 to ½ teaspoon of salt in a cup of warm water) 2 or 3 times a day.

- Each rinse should be held against the affected area so that the warm salty water **cools** over it and is held there until the heat is gone. Then **repeat** until the cup is finished. This should last about **10 minutes** each time.

### Dentures

**Leave out your denture** if instructed to do so until it can be re-lined with a soft lining material.

### Meals

After each meal, **gently rinse** your mouth out with warm water.

### Brushing

**Do not brush the area** where the posts have been placed for five days. Then commence gently with a soft toothbrush dipped in hot water.

### Stitch Care

Try not to explore the area with your tongue as this may loosen the stitches.

### Vitamins

**Continue the vitamin supplements** (if prescribed) and maintain a balanced diet.

### Problems – Contact the surgery if

- The stitches become loose or fall out
- There is excessive pain
- There is excessive bleeding
- If the posts become loose
- Out of hours I can be contacted on 0785 586 6436

### Stitch removal

After the stitches have been removed, the implants have become **your responsibility** and it is your duty to **keep all scheduled appointments** and build a habit of **rigorous cleanliness** around these posts.

### Late problems

You must contact **the surgery if there is any alteration in the way your mouth feels** in regard to pain, bleeding, loosening of implants, bad taste or any change in the way the teeth meet on closing your jaws.

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# Notes on the care of Implant-supported teeth

## General and dental implant hygiene

### Home Care

Implants with the longest history of comfort and function are those that reside in healthy, clean mouths. Your own implants should be maintained in a healthy condition by a combination of excellent oral hygiene practice at home and regular visits to the dental hygienist. During the early years you will commonly be asked back annually to check the implants by means of an x-ray.

### Objective

Tooth cleaning has the primary objective of preventing bacteria from plaque growing down into the crevice between the gum and the implant post. This area must be physically cleaned at least twice a day around every implant.

### Timing

As a minimum teeth and implants should be thoroughly cleaned on waking, to remove the abundant plaque that accumulates at night and last thing at night before retiring.

### Materials

Any soft/medium toothbrush, angulated brushes or bottle brushes as appropriate may be recommended by your dentist/hygienist.

### Tooth-paste

Any anti-plaque tooth paste or gel, preferably not powder.

### Flossing

'Superfloss' type materials are excellent for polishing the necks of implants. Regular dental floss/tape may also be recommended. Floss threaders can be helpful in reaching otherwise difficult to clean areas.

### Electric toothbrush

Electric toothbrushes can be effective and may be recommended by your dentist/hygienist who will advise you on its appropriate use and efficacy.

### Irrigation

Manual or electric irrigation systems can be used with Chlorhexidine or saline solution as advised by your dentist.

### Mouthwashes

Mouthwashes or gels: preferably Chlorhexidine based and used only **as advised**.

### Problems

Contact your practice **PROMPTLY** if any teeth or implant-supported structures become loose or if you notice pain, bleeding, a bad taste or alteration in the way your teeth bite together.