

# Prosthesis patient information and treatment overview

## History of osseointegration?

A great variety of bone anchored implants are used in the medical and dental field today. Common examples are implanted hip joints and implants to replace teeth. The type of implant used to support a facial prosthesis evolved from the bone-anchored implants used to support teeth. Professor P-I Bränemark, a surgeon in Sweden, spent some 30 years developing this system and it is used throughout the world today. From this newer development it is now possible to offer patients Osseointegrated (bone-anchored) implants to support facial prostheses and hearing aids.

## What are the implants made of?

The implants are made of titanium. This metal was chosen since it has, amongst other things, the combination of high strength and ability to be accepted by the body. The property of biocompatibility is important since the body does not reject it. In fact, the body responds to the titanium implant by laying bone down around the implant and treating it as part of the body. This process is called osseointegration.

## Treatment planning

Before implants are placed there is a good deal of planning that must be carried out. As the needs of each patient requiring the implants are varied and often complex, a team approach may be required. It may be necessary for you to see a number of people who are specialists. In deciding if implants will be the best option for you, several visits for treatment planning may be needed. This may include radiographic imagery (x-rays), surface scans, and photographic imagery. At any point during treatment, if you require any information or assistance please contact: Craniofacial Care Program, 16940-87 Avenue, Edmonton, AB,

## Phase I surgery

The first phase of surgery is to place the implants in the bone. The surgery may be carried out under local or general anesthesia according to the surgeon's decision. After surgery, the area is covered with a dressing. This will be in place for about 10-14 days. The area must not be washed or contaminated for 2-4 weeks. The time spent in hospital will be between 1-3 days depending upon the procedures carried out. Usually, the person will be able to return to normal activity within a few days.

If you have been wearing a prosthesis prior to surgery, the surgeon will decide when you may start wearing the prosthesis again. It is best not to wear the prosthesis at all after Phase I surgery to let the implant site heal well. If the old prosthesis is adhesive retained it cannot be worn for at least a month, after which the surgeon will decide when it can be worn again. Sometimes it may not be possible to wear the prosthesis at all after the first phase of surgery.

Once the implants have been placed in the bone they are left to heal and integrate into the bone for 3-4 months, but this may be extended to 6-12 months or more if necessary. In certain circumstances both stages of surgery may be done at the same time.

The surgeon may use a template to find the best position for the implants. However, the surgeon may have to place the implants in a different location where the bone is stronger. This may make construction of the prosthesis more challenging.

## Phase II surgery

The second phase of surgery is to connect the implants through the skin and in some cases to prepare the skin to be less mobile around the posts (abutments) that pass through the skin. The surgeon will choose to do the procedure under either local or general anesthesia. After surgery, the area will be covered with a dressing that will be changed after 1-2 days and replaced with another dressing. Dressings will stay in place for 10-14 days. The time spent in hospital will be 1-3 days depending on the procedures carried out.

After phase II surgery it will not be possible to wear an existing prosthesis as it will not fit. DO NOT try to make the prosthesis fit as this may damage the tissue healing around the abutments. Following phase II surgery, construction of the prosthesis will begin once the surgeon determines that the area is well healed.

# Prosthetic treatment

Prosthetic treatment will begin when the skin is well healed around the abutments and may take several weeks. The construction of the prosthesis will require a number of visits, and the general stages will be:

- Stage 1 Recording an impression of the abutment positions.
- Stage 2 Trying on and connecting retention mechanism (magnets or bar/clips)
- Stage 3 Surface scans/Digital planning
- Stage 4 Sculpting of the prosthesis and recording an impression of the skin surface.
- Stage 5 Mixing the colorants in the prosthetic material to match skin color.
- Stage 6 Painting and packing of the mold.
- Stage 7 Fitting of the prosthesis and application of surface coloring were required.
- Stage 8 Try on and delivery of the prosthesis

The prosthesis will be constructed of silicone or silicone and acrylic. The life of the average silicone prosthesis is approximately 12-18 months if the prosthesis is held in position with adhesives. If the prosthesis is implant-supported the life of the prosthesis is usually 2-4 years since the use of adhesives and solvents to remove the adhesives is not necessary. It must be remembered that the silicone prosthesis can be easily damaged if handled roughly or abused.

## Aftercare

It is important to realize that having a bone supported prosthesis requires a lifelong commitment to aftercare. The prosthesis will need to be removed at home daily for cleaning of the skin-penetrating abutments. The area must be cleaned daily and checked to see if there is any inflammation around the abutments. The area must be washed daily with soap and water and occasionally medicated ointment may have to be applied, if inflammation or infection occurs.

After connection of the abutments to the implants through the skin (Phase II surgery) you will need to attend follow-up visits at 2 weeks, 1 month, 3 months, 6 months, 12 months and annually thereafter. The implant superstructure (e.g. bar) supporting the prosthesis will be removed by a clinical assistant, anaplastologist, or doctor for cleaning and checking at some appointments.

The long-term success of the implant-supported prosthesis will depend upon how well you care for the implants, the skin and tissue around the implants, and the prosthesis itself. It will also depend upon you attending the follow-up and maintenance visits so that the implants, skin and tissue, and prosthesis can be checked by clinical staff.

## Potential risks and limitations

The successful outcome of treatment depends on the bone attaching to the implant. The success of each individual implant fixture cannot be determined until Phase II surgery.

Failure of an implant will result in immediate removal of the implant. If a replacement implant is required, the final prosthetic treatment may be delayed for 3-12 months, and an additional surgery will be required.

It will not be possible to wear an existing prosthesis for at least one month after Phase I surgery. The surgeon will determine when you may start wearing the prosthesis again. Surgically created changes to the area may prevent the wearing of the old prosthesis. After Phase II surgery, the prosthesis cannot be worn, and no attempt should be made to adjust the prosthesis to make it fit as it may damage the skin healing around the abutments.

During treatment planning, the best position for the implants is established. However, at the time of surgery the surgeon may use another area with stronger bone to position the implants. This may make constructing the prosthesis more challenging. The implants, the attached superstructure (e.g. bar) and prosthesis may break. If you think part of your prosthesis or super structure may be breaking, contact Craniofacial Care Program immediately. Special care must be taken not to injure the implant area or cause trauma of any sort.

Occasionally, the tissue around the abutments may become inflamed, especially if the area is not being thoroughly cleaned. It is important to check the area properly every day and to use proper hygiene measures.

The prosthesis will be made of silicone and acrylic. Prostheses have to be well cared for and will need to be replaced occasionally. Implant-supported prostheses should last about 2-4 years, and adhesive-supported prostheses should last 12-18 months, but this will depend on many factors such as sunlight exposure and care during handling. If the prosthesis uses bar and clip retention, clips may break if too much pressure is used to place the prosthesis on the bar. Broken clips will need to be replaced

## What is the success rate of the implants?

The individual implant success rate varies depending on the site in which they are placed. In the case of implants being placed in the region of the ear, the success rate is very high with very few implants failing. In the case of implants around the eye and nose the success rate of

implants is slightly lower. The exact reason for the success rate being lower in the eye and nose regions is not known, but it is probably due to differing blood supply in these areas. In most situations 2-6 implants are placed. If an implant fails it is removed and replaced with another implant which requires an additional surgery. If one implant fails it does not effect the other implant

## What if the person has had radiotherapy?

After radiotherapy the blood supply to the tissue is affected, particularly in bone. The success rate in the ear region appears to be somewhat affected but in the eye area success is significantly lower when the patient has had radiotherapy. It is very rare that all the implants fail. Radiotherapy alone is not considered a reason not to get an implant-supported prosthesis. In fact, implant-supported prostheses may be chosen so that the patient does not have to use the damaging adhesives and solvents that are used to attach non-implant-retained prostheses. Implants have to be used with great care in irradiated bones since radiation makes implant failure and other problems more likely to occur. If you have had radiotherapy, you may need hyperbaric oxygen (HBO) therapy prior to implant treatment. If this is the case, HBO will be discussed with you.

## Smoking

Research has shown that smoking decreases individual implant success rates. You should stop smoking at least two weeks before implants are placed and not start smoking again for at least 3 months. Preferably, you should quit smoking permanently.

## We care...

We are sensitive to the time and emotional commitment of patients receiving a craniofacial Osseo integrated prosthesis. Should you need to contact us please call:

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