

Ridge Augmentation Grafting (continued)

As in other grafting procedures outlined, there are several types of bone graft materials available. The particular type that is most appropriate for you and your specific anatomic requirements should be reviewed and discussed with your surgeon. There are advantages and disadvantages to all of the various types of materials, but they all act to promote growth of your own bone. Healing of ridge augmentation sites may take up to six months. If you are wearing a removable prosthesis (denture) in the area of the graft, it may be necessary to refrain from wearing this appliance for several weeks following surgery.

Ridge Expansion

A related procedure to ridge augmentation grafting is known as ridge expansion. This may also be performed at the time of implant placement surgery, or as a distinct first surgery to prepare the site to receive implants of appropriate diameter. Sometimes this may be completed with the use of bone graft materials to maintain the space that has been created, or it may be performed without the use of grafting material. In a ridge expansion procedure, the jaw bone in the treatment area is divided from front to back and the inner and outer segments of bone are wedged apart. This creates a space between the divided sections of jaw bone that will fill with new bone. This enables your dentist to increase the width of available bone to an appropriate size to accept implants - thereby replacing your missing teeth.

Gingival Grafts

Over the years, we have learned that implants can be more readily maintained in good health if there is an adequate amount of gingiva (gum tissue) in the area where the implant emerges through the gum. The type of gum tissue that is best suited to maintaining good health, and withstanding the effects of food and toothbrushing, is keratinized gingiva. Keratinized gingiva is the dense, pink, firmly attached tissue that normally wraps around our teeth. However, this tissue is often minimal or absent, especially when the teeth in this area have been lost.

Gingival grafting may also be indicated to help correct cosmetic defects around the implants, particularly when there has been significant loss of tissue in the treatment area before placing implants. This procedure is accomplished by

surgically moving gum tissue from some other area of your mouth, most often from the roof of the mouth (palate), or by mobilizing gum tissue from an adjacent area and sliding it to the area where it is needed. New materials from animal sources have recently come into common usage instead of taking your own gum tissue. As always, you should discuss with your dental team which may be best for your particular situation.

Orthodontics

Tooth movement may be necessary to prepare the treatment area for receiving an implant when the adjacent teeth have drifted into the open space. Orthodontics may also be indicated to provide a more ideal arrangement of your teeth for a better smile and/or bite (occlusion) before or after your implants are placed. Your dentist may even utilize the implant itself to move other teeth - an implant is an ideal pillar to provide support for other teeth to lean against and be "pushed" into desired positions.



Patient Care Adjunctive Procedures

Additional Procedures May Be Necessary

There are many circumstances surrounding implant placement where additional procedures are required before, during or after the treatment to ensure the best chances for long-term success.

Some of these are absolutely necessary in order to place implants, while others are indicated to provide a better functional and/or cosmetic result. As for all of the issues presented here, it is best for you to discuss your particular treatment options and alternatives with your surgical and restorative dental team for a full understanding of your particular needs.

Bone Augmentation

When teeth are lost, the underlying bone (alveolar bone) is likely to resorb (shrink) both vertically and horizontally. The alveolar bone supports the teeth and when it no longer receives stimulation from forces on the teeth, it tends to melt away. Areas with teeth that have been missing for a long time, and/or have been prosthetically replaced with removable dentures, will often have so much bone resorption that there is not enough remaining to be able to place implants of adequate size.

For more information, visit our website at www.osseo.org

2011 Academy of Osseointegration. All rights reserved.

85 W. Algonquin Road, Suite 550

Arlington Heights, IL 60005

Contact us at academy@osseo.org



Bone Augmentation (continued)

Similarly, teeth that have been lost due to advanced periodontal disease (gum disease), will often have experienced so much bone loss that there is not enough bone remaining for implants to be placed. Bone defects from root canal infection, fractured teeth, trauma, or difficult tooth removal may also create a situation where bone needs to be augmented (replaced by means of grafting) for implant placement to be accomplished.

Bone Grafting Materials

There are many types of bone graft material currently available and research promises more to come. Some surgeons may elect to use a patient's own bone, harvesting it from nearby areas, sections of the patient's lower jaw, or harvesting it from the knee or hip (both of which have readily accessible and large amounts of bone available).

Other commonly used types of bone are derived from cow bone that has been processed to remove protein and acts as a stimulus for the body to replace it with new bone. Human cadaver (allograft) bone can also be used, as well as several forms of synthetics. Recently, a product utilizing recombinant gene technology-derived protein (bone morphogenic protein) has been introduced to the dental market and is FDA-approved for use in sinus grafting and certain types of ridge augmentation. Expect more to come!

Socket Preservation

When teeth are extracted, many dentists will place bone grafts at the time of the tooth removal to help maintain the existing bone so that an implant can be placed. If there has been destruction to parts of the bony walls of the tooth socket, a **socket preservation** may be required.

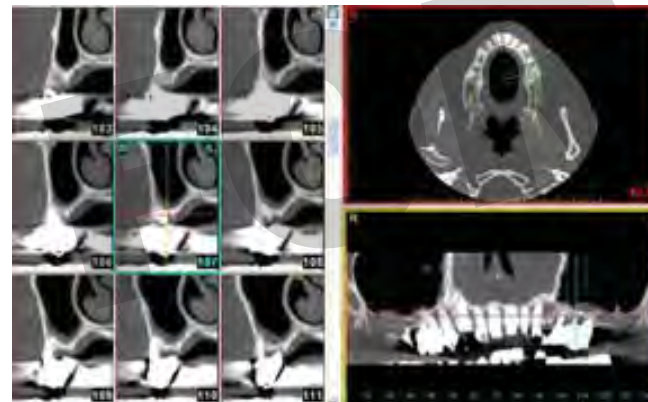
This more extensive approach is taken to isolate the socket and "rebuild" the walls to appropriate height and width using a **barrier membrane**. During this procedure, the gums surrounding the socket are separated from the bone to expose the remaining bone and a sheet of material is placed under the gum. This material comes in many forms but is used to prevent gum cells from making their way into the socket. This enables the slower-moving bone cells to grow and fill out the socket to an adequate dimension to receive an implant.

Sinus Grafting

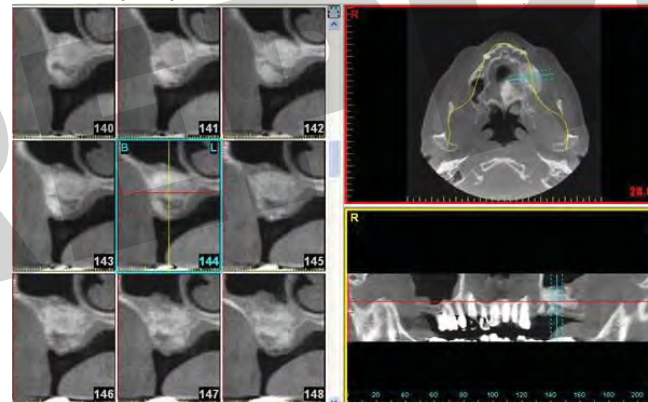
The maxillary sinuses are hollow, air-filled spaces in the bone above our upper back teeth between the teeth and the eye sockets, and are one of the five pairs of sinus cavities throughout our skull bones.

When the upper back teeth (usually molars and premolars) are lost, the sinus cavity located just above tends to expand and drop down into the jaw bone in the area of the missing teeth (pneumatization). Even if the teeth are still present, there is sometimes not enough height of bone between the sinus floor and the gum to allow adequately sized implants to be placed. Sinus grafting allows your dentist to surgically lift up the floor of the sinus cavity and place bone graft materials that will stimulate adequate growth of bone for implants to be placed.

Sinus Graft (before)



Sinus Graft (after)



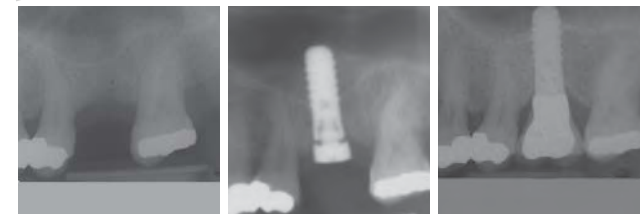
Sinus grafting can be done as a preliminary surgery to prepare the bone for implant placement or can be performed at the same time as the implant placement, if there is enough bone to stabilize the implants while they are healing. As always, you need to be comfortable that your surgeon is adequately trained and knowledgeable about this surgery and any potential complications. It is important to review and discuss with your dentist all options available to you in your particular circumstances prior to making treatment decisions.

Osteotome Sinus Lift

An alternative approach to increase the height of bone under your sinuses is an osteotome sinus lift. In this procedure, a small amount of bone is left under the sinus cavity floor in the site of an implant placement. Blunt instruments (osteotomes) are used to push up the bone that has been retained, along with the lining of the sinus cavity itself. This raises the floor of the sinus in the local area of the implant placement only, thereby enabling your dentist to place a longer implant of more adequate proportions, which in turn provides more stability and strength to receive the forces of chewing.

Ridge Augmentation Grafting

When there has been significant loss of the volume of bone in a desirable area for implant placement, your surgeon may recommend a ridge augmentation procedure. This procedure rebuilds the "lost bone" which is necessary to proceed with implant placement. Ridge augmentation may be performed at the same time as implants are placed, or may be necessary as a preliminary surgery to graft sufficient bone before the implant surgery.



Osteotome Sinus Lift