

# Bone Grafting

## **What is Bone Grafting?**

Over a period of time, the jawbone associated with missing teeth atrophies or reabsorbs. This often leaves a condition in which there is poor quality and quantity of bone suitable for placement of dental implants. In these situations, most patients are not candidates for placement of dental implants.

With bone grafting, we now have the opportunity to not only replace bone where it is missing, but also the ability to promote new bone growth in that location. This not only gives us the opportunity to place implants of proper length and width, it also gives us a chance to restore functionality and esthetic appearance.

## **Types of Bone Grafts**

### Autogenous Bone Grafts

Autogenous bone grafts, also known as autografts, are obtained from the patient's own bone, taken from somewhere else in the body. The bone is typically harvested from the jaw but can be obtained from other sites if larger amounts are needed. Autogenous bone grafts are advantageous in that the graft material is living bone, meaning it contains living cellular elements that enhance bone growth.

However, one downside to the autograft is that it requires a second procedure to harvest bone from elsewhere in the body. Depending on your condition, a second procedure may not be in your best interest.

### Allogenic Bone

Allogenic bone, or allograft, is dead bone harvested from a cadaver, then processed using a freeze-dry method to extract the water via a vacuum. Unlike autogenous bone, allogenic bone cannot produce new bone on its own. Rather, it serves as a framework or scaffold over which bone from the surrounding bony walls can grow to fill the defect or void.

### Xenogenic Bone

Xenogenic bone is the most commonly used graft. It is derived from the bone of another species, usually a cow (bovine). The bone is processed at very high temperatures to avoid the potential for immune rejection and contamination. Only the mineral component of the bone is used; therefore, there are no proteins present and no risk of viral or bacterial transmission. Like allogenic grafts, xenogenic grafts serve as a framework for bone from the surrounding area to grow and fill the void.

Both allogenic and xenogenic bone grafting are advantageous in that they do not require a second procedure to harvest your own bone. However, because these options lack autograft's bone-forming properties, bone regeneration may take longer than with autografts. To correct this, Dr. Silva routinely uses the patient's own blood and extracts its growth factors. The addition of the patient's own growth factors adds these bone-forming properties to these grafts and shortens the time period for bone regeneration.

### Bone Morphogenetic Proteins

Bone morphogenetic proteins (BMPs) are proteins naturally produced in the body that promote and regulate bone formation. They are found in Autogenous grafts discussed above. BMP is now available as a bio-genetically engineered option to grow bone. It is placed on a specialized sponge and placed in the area where bone is needed. The advantages of this are that there is no donor site and no risk of disease transmission. The disadvantages are that it can only be used for certain areas of the jaw, and it is very expensive.

**Each bone grafting option has its own risks and benefits. Dr. Silva will discuss with you which types of bone grafts apply to your case so that you can make an informed decision on what is best for you.**