



FAQ

What is the difference between bone autograft and allograft?

Autograft is bone harvested from the same patient the graft will be used on. A typical site for autograft harvesting is the hip. Autograft harvesting increases surgery time, creates a second operative site, and can cause complications and morbidity.

Allograft is bone procured from another individual of the same species. The healing growth factors are all the same as the patient's own bone. Allografts are provided by tissue banks and orthopedic and oral surgeons in human medicine have been confidently using bone allografts for decades. VTS is the world's first tissue bank for animals providing allograft for animals since 1996.

What are osteoconductive and osteoinductive?

Osteo*conductive* refers to a graft's property of providing scaffolding for bone to grow onto. Osteoallograft™ from VTS is osteoconductive, because it contains osteoconductive cancellous bone chips. This scaffolding provides attractive surfaces for new bone cells (osteoblasts) to migrate in on.

Osteo*inductive* refers to a graft's property of having growth factors that attract osteoblasts to the surgical site and therefore actively accelerate the bone growth. Osteoallograft™ from VTS is osteoinductive, because it contains Demineralized Bone Matrix (DBM) that supplies bone morphogenic proteins (BMPs) to attract osteoblasts to the surgical site.

Why should I use bone graft in orthopedics?

Filling voids with bone graft accelerates the healing process in fracture repairs, TTAs and TPLOs, arthrodesis and other cases, because bone graft provides scaffold for host bone to grow onto (osteoconductivity) and supplies bone morphogenic proteins (BMPs) that actively initiate bone growth by attracting osteoblasts (osteoinductivity). Accelerated healing not only allows the patient to return to full function sooner, it also increases the chances of a successful outcome of your case.

Even when there are no voids after realigning a fracture or performing a TPLO, the usage of bone graft accelerates healing because it increases surface area for bone to grow on and more BMPs are on site.

Why is bone allograft used in veterinary dentistry?

Bone allograft is used to reverse bone loss caused by periodontal disease. Applying bone graft can result in reversal of the disease process, reducing the probing depth, clinical attachment gain,

Why is bone allograft used in veterinary dentistry (cont.)?

clinical repair of lost bone, and histologic reconstruction of the attachment apparatus. Teeth that normally need to be extracted can be saved with Osteoallograft™ Periomix™ from VTS.

Bone allograft is also used for filling extraction sites after tooth extractions. Because animal teeth have much longer roots than human teeth, extractions leave much deeper voids behind. Filling extraction sites with bone allograft leads to strong and fast reconstruction of natural, healthy bone tissue in these deep extraction sites. This prevents bacteria from settling in, which improves oral health and overall patient health. Reconstructing bone after tooth extractions also prevents fractures of the mandible - a risk that is considerable as there is often only little bone left after an extraction.

What are the advantages of using bone allograft vs. autograft?

Not having to procure autograft reduces your surgery time and cost. And you avoid the potential morbidity associated with autograft procurement. In humans, the morbidity rate associated with the collection of bone autograft is over 25%.

Studies show that allografts are as effective as autograft in bone healing. While autograft has the advantage of being osteogenic, allograft is demineralized before it is placed into the surgery site allowing for immediate access to growth factors. This offsets the advantage of osteogenicity and helps to make allograft as effective as autograft in long-term studies.

Because allograft is as effective as autograft and makes graft harvest unnecessary, allograft is the grafting option of choice.

What are the advantages of bone allograft vs. bone substitutes?

Real bone allograft is both osteoinductive and osteoconductive. Both properties are needed for optimal bone healing. Bone substitutes that do not contain bone morphogenic proteins (BMPs) are only osteoconductive and therefore do not actively accelerate bone healing.

Shouldn't I worry about "rejection" or some type of immune response when tissue from another animal is transplanted?

No, because the cells with surface markers that stimulate an immune response are removed through our processing. Osteoallograft™ is composed of bone. Tissues which may contain immunogenic cells (periosteum, synovium, *etc.*) are removed during the early part of processing. Any marrow-containing bone is also purged of living cellular materials. As in human medicine, when bone grafts are used for surgeries no matching of tissue type or blood groups is necessary.

What about disease transmission, isn't it possible to introduce disease through allograft?

Our donors are carefully screened. All must be in good systemic health and all canines must have been vaccinated for Rabies, Distemper, Hepatitis, Parainfluenza, and Parvovirus. Additionally blood samples are tested for tick-borne diseases, brucella and heartworm. Tissues are procured aseptically in a clean room that is 1000 times more clean than a typical operating room. Our processing also involves at least three phases of thorough microbiological testing. Our stringent Quality Assurance Program provides confidence and consistency in our products.

What are the different types of Osteoallograft™?

There is Osteoallograft™ Orthomix™ for orthopedic applications and Osteoallograft™ Periomix™ for periodontic applications. Orthomix™ comes in "Standard", "Fine" and "Ultra Fine" particle sizes. All four types consist of the same osteoinductive Demineralized Bone Matrix (DBM) and osteoconductive cancellous chips. The only difference is the size of the cancellous chips. They are as follows:

Orthomix™ – Standard: DBM with cancellous chips <4.0 mm (for large voids)
Orthomix™ – Fine: DBM with cancellous chips <2.3 mm (for small voids)
Orthomix™ – Ultra Fine: DBM with cancellous chips <0.7 mm (for very small voids or when no void)
Periomix™: DBM with cancellous chips <0.7 mm (for dental applications)

What are the applications for Osteoallograft™?

Osteoallograft™ Orthomix™ is used for fracture repair, mal- or non-union cases, arthrodesis procedures, bone loss, TTAs and TPLOs, and any other application where bone graft is required.

Osteoallograft™ Periomix™ is used for tooth extractions, furcation defects, horizontal and vertical bone loss, fracture of the mandible, and any other void filling or bone augmentation procedure that requires grafting.

What is the shelf life of your bone graft?

Freeze-dried grafts can be stored refrigerated or at room temperature for 5 years.

Frozen grafts should be kept frozen (at least -20°C) until ready for use. If stored at -20°C (or in a standard household freezer), the grafts should be used within 6 months of receipt. Frozen grafts are shipped with an Inventory Card that shows the expiration date for the grafts in that packet if stored at -20°C. If stored at -40°C or colder, grafts can be stored for 5 years.

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What do I do with expired bone graft?

Expired graft should be discarded as you would any other expired surgical supply. It is not considered a biohazard. We recommend that you mark on the package to indicate that it is expired or not suitable for transplant.

Where do your donors come from?

Donor animals are provided to us through our Donor Program. Owners do not receive any compensation for their donation. All donor animals were euthanized for unrelated reasons such as irreparable trauma or intractable aggression. The option of donation is provided to pet owners only after their pet had to be euthanized. Just like in human tissue banking, donor animals are donated to us for the noble cause of prolonging and improving the lives of others.

How do I use Osteoallograft™?

Osteoallograft™ is used in much the same manner as autograft. It works best when mixed with patient blood or marrow. Blood and marrow contain the progenitor cells that can respond to the native growth factors (BMPs) in our bone graft matrix. These cells initiate new bone formation.

The product is triple packed. The outermost dust cover contains the foil-packaged graft and the Package Insert & Transplant Record. The foil package can be peeled open by a Technician and contents dropped onto the sterile field. The innermost packet is considered sterile.

Freeze-dried:

Periomix™: Aseptically unscrew the lid of the vial and rehydrate the graft by adding a few drops of saline or you may add patient blood. Used the enclosed spatula for easy mixing and application. The graft is ready immediately for implantation. If not using the entire amount, first decant the amount of dry bone you need into a separate cup, and only rehydrate that; aseptically close the lid on the remaining dry graft. (Use any remaining dry graft within 1-2 weeks.)

Orthomix™: rehydrate by injecting a small volume (0.5 to 1.0 cc) of a sterile physiologic solution such as saline through the blue end cap of the syringe. Rock gently until the Osteoallograft™ changes color slightly. This indicates that the graft has absorbed the solution and is rehydrated. Gently push the Osteoallograft™ out of the truncated syringe and into a sterile basin to mix with patient blood or marrow. When working in a vascular site, grafts can be applied to the surgical site directly out of the syringe.

Frozen:

Osteoallograft™ Orthomix™ should be thawed to room temperature (approximately 10 minutes) before implanting in the patient. There is no need to rehydrate, simply mix with patient blood or marrow and use as you would autograft.

Literature references for the statements in this document are available on request and many are listed on the back of the brochures.