Biogran® Resorbable Synthetic Bone Graft

Bioactive Glass
Unique Innovation

Biogran is a resorbable, synthetic bone graft material for use in the repair of oral bony defects. It is a bioactive glass (Si, Ca, Na, P) of a narrow size range, which has been shown to accelerate the healing of bone tissue in oral defects.

A proprietary manufacturing process creates granules 300–350 μm (50-45 mesh) in diameter—an optimal size range for a bioactive glass graft material. Why 300–350 μm? Because particles smaller than 300–350 μm pack too densely and can cause inflammation; larger granules may not fully resorb, leaving unreacted glass particles in the graft site.

Biogran Resorbable Synthetic Bone Graft Material

BiOMET 3i Biogran Bone Graft helps to promote safe and effective bone regeneration in most oral applications, including periodontal defects, bony defects, bone lesions, small to medium-size alveolar ridge augmentations and ridge preservation following extraction.

- **Stimulates Bone** - Biogran Bone Graft is osteostimulatory by providing a protective environment in which cells differentiate into osteoblasts and by promoting ostegenesis at multiple sites throughout the osseous defect.\(^1\)\(^2\) Biogran Bone Graft allows more rapid bone cell re-population than if left ungrafted.

- **Replaced By Bone** - Biogran Bone Graft is fully resorbable. No need for a second surgery to remove product.

- **Stabilizes Blood Clot** - Biogran Bone Graft can help prevent the occurrence of a dry socket by forming a cohesive mass when mixed with blood or sterile saline solution.

- **Easy To Handle** - Biogran Bone Graft is hydrophilic and when mixed with blood or sterile saline solution, it adheres to dental instruments for easy delivery to the surgical site and will not float out of the defect site, thus minimizing the amount of graft material lost.

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As implant therapy increasingly becomes the treatment of choice for tooth replacement, ridge preservation is becoming a more important treatment adjunct to extractions.

How Biogran Bone Graft Works

Phagocytes enter through cracks in the outer shell and remove the silica core. A calcium phosphate hollow bone growth chamber (protective pouch) is formed, which enables the osteoprogenitor cells to differentiate into osteoblasts and lay down bone in the center of the Biogran granule. Bone tissue then grows from granule to granule. This is a unique phenomenon that occurs with Biogran and no other graft material.

The Biogran granule is fully resorbable by the body and eliminated through the Krebs cycle.

After an extraction procedure, the alveolar ridge undergoes remodeling and resorption resulting in a loss of bone volume and narrowing of the alveolar ridge. Biogran Bone Graft is fast and easy to apply, adding minimum time to extraction procedures. Even if no implant or prosthesis is planned, ridge preservation has important patient benefits:

- Helps to maintain normal facial bone and soft-tissue contours
- Assures adjacent teeth are not compromised by bone and tissue loss
- Reduces the likelihood of future grafting procedures
- Minimizes the possibility of a dry socket by stabilizing the blood clot
Biogran Has Consistent, Safe Results, Proven By Clinical Studies

A clinical study using Biogran Bone Graft in 87 patients with 106 defects, including periodontal defects and extraction sites, indicated that Biogran Bone Graft is an effective treatment for oral bone defects. The bone restored with Biogran Bone Graft was maintained during the full three years of this multi-center study. Biogran Bone Graft has also been the subject of more than six years of implant studies with similar results.²

**Periodontal Defects**

Debrided periodontal defect

Biogran Bone Graft wets easily with blood, contours easily to fill defect and will resist migration

**Extraction Sites**

Debrided periodontal defect

Biogran Bone Graft easily contoured and hemostatic

Complete bone fill at six-month re-entry

Biogran Provides Consistent And Safe Results Proven By Histology Research

Extensive animal studies show that Biogran Bone Graft promotes bone growth safely and consistently and is replaced by new, remodeled bone.\textsuperscript{3,4,5}

**Intra-osseous Alveolar Ridge Defect**

**Biogran Bone Graft Surrounded By New Bone After Two Months**

(G=Biogran, B=bone, original magnification x 50, Paragon stain)

**Biogran Bone Graft Incorporated Into Remodeling Bone After Two Years**

An osteon is present within the excavated remnants of a Biogran Granule.

(G=Biogran, B=bone, O=Osteon, original magnification x 100, Giemsa stain)

**Periodontal Supra-Bony Defect**

New bone growth occurring at multiple ossification sites throughout the defect within Biogran modules after three months.

(Original magnification x 40, Alizarin Red stain)

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**Ordering Information**

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BIOMET 3i offers a family of synergistic system solutions to help you and your patients achieve beautiful, confident and healthy smiles.

For more information regarding Smile Therapy™ System Solutions, please contact your local BIOMET 3i Sales Representative.

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