LEADING REGENERATION

Geistlich
Biomaterials

Protecting Success with the Proven Membrane

Geistlich Bio-Gide®
Geistlich Bio-Gide® Compressed
Geistlich Bio-Gide® Shape
Geistlich Bio-Gide® Perio

Elevating patient care is what drives your choice of professional partners and products.

That's why Geistlich Biomaterials brings you a full range of hard and soft tissue treatment options that you can use with absolute confidence.

Our commitment to product reliability and time-tested manufacturing creates a bond like no other, empowering you with treatments that are exactly what patients deserve.

EXACTLY like no other.

Geistlich Bio-Gide®

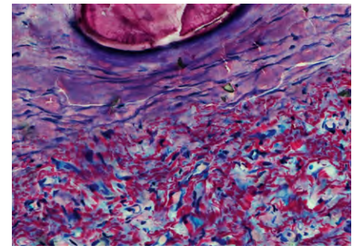
The Collagen Expert

Geistlich Biomaterials has set the standard for the processing of native collagen fibers.

We've accomplished this by specifically focusing on the development of biomaterials for the regeneration of bone, cartilage and tissue. For over 165 years, we have continually refined the processing of collagen by investing in and optimizing our state-of-the art manufacturing techniques.

The result is our proven family of membranes designed with unique properties and a bilayer structure to promote both bone and periodontal regeneration. The proprietary Geistlich process yields natural structures containing native collagen fibers which allow the body to reliably accept and integrate the biomaterial.

Geistlich Bio-Gide® has helped set the standard for guided tissue and bone regeneration since its introduction more than 20 years ago. Today, over 250 publications for Geistlich Bio-Gide® and over 1,000 for our Geistlich biomaterials stand as a testament to their superior clinical results.



Histological section demonstrating the utilization of Geistlich Bio-Gide® following a sinus augmentation procedure in a human. In these types of procedures, the membrane is used as an effective barrier over the lateral window to exclude the connective tissue from the wound.

Image Courtesy of Dr. Dr. H. Hildebrandt, Bremen, Germany.

The Ideal Biomaterials for Regeneration

These proven and reliable products provide a foundation for long-term clinical success in regenerative dentistry.

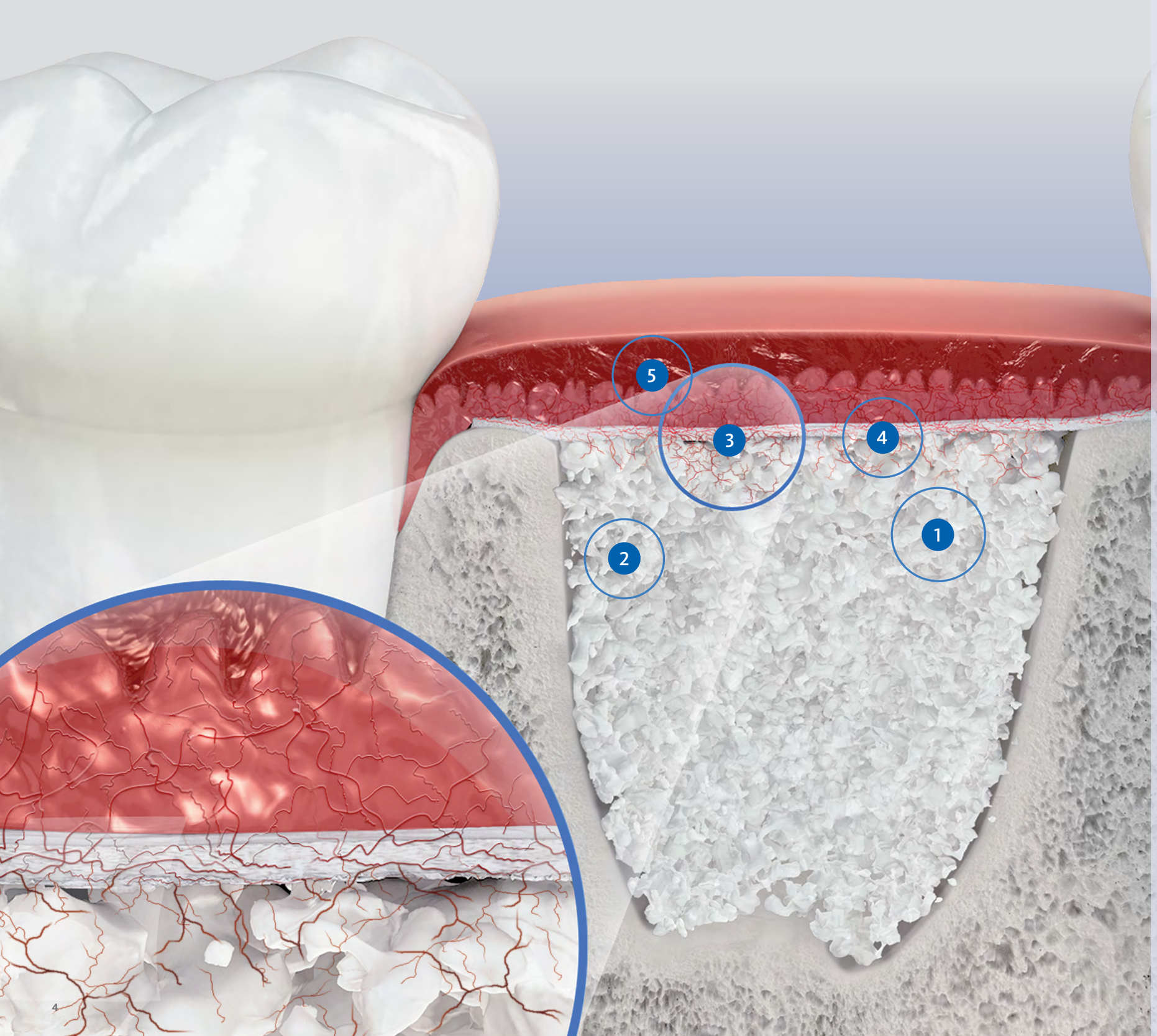
Our product lines include:

Membranes
- Geistlich Bio-Gide®
- Geistlich Bio-Gide® Compressed
- Geistlich Bio-Gide® Shape
- Geistlich Bio-Gide® Perio

Bone Substitutes
- Geistlich Bio-Oss®
- Geistlich Bio-Oss Collagen®
- Geistlich Bio-Oss Pen®

Matrices
- Geistlich Mucograft®
- Geistlich Mucograft® Seal
- Geistlich Fibro-Gide®

Combination Products
- Geistlich Combi-Kit Collagen
- Geistlich Perio-System Combi-Pack



Advantages of Early Vascularization

1. supports bone formation [1, 2]
2. wound stabilization [3, 4]
3. oxygen and nutrient transfer [2, 3]
4. tissue integration [3, 5]
5. uneventful wound healing [4, 6]

1 Schwarz, F. et al. (2008). Clin Oral Implants Res. 19(4): 402-415.
2 Wang, Y. et al. (2007). Ann NY Acad Sci. 1117: 1-11.
3 Schwarz, F. et al. (2006). Clin Oral Implants Res. 17(4): 403-409.
4 Becker, J. et al. (2009). Clin Oral Implants Res. 20(7): 742-749.
5 Rothamel, D. et al. (2005). Clin Oral Implants Res. 16(3): 369-378.
6 Tahl, H. et al. (2008). Clin Oral Implants Res. 19(3): 295-302.

Intelligently Designed Structures

The unique bilayer structure of Geistlich Bio-Gide® is designed with both a cell occlusive and a fibrous surface which protect the site during healing and allow for the deposition of proteins.[1] This intentional design ensures optimal regenerative healing of bone and soft tissue.

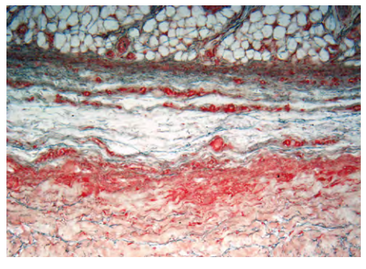
Attachment and proliferation of fibroblasts on the cell occlusive surface of Geistlich Bio-Gide®.

Attachment and proliferation of osseous cells on the fibrous surface of Geistlich Bio-Gide®.

Geistlich Bio-Gide® is ideally suited to guide your daily regenerative needs. Throughout our long history of quality and innovation, Geistlich biomaterials have been intentionally designed for each application. In the patented production of Geistlich Bio-Gide®, the native collagen fibers are preserved in a non-artificially cross-linked porcine derived collagen membrane. This results in early vascularization and subsequent bone formation.[2, 4, 5]

Vascularization Leads to Integration

Immunohistochemical representation of angiogenesis and tissue integration. PD Dr. Schwarz, Düsseldorf, Germany.



The preservation of native fibers ensures that vital building blocks are present to promote the initial biologic processes of cell adhesion and proliferation.[6-8] Geistlich Bio-Gide® integrates with surrounding tissues to protect the initial coagulum and then optimally degrades to allow for the cascade of biologic events leading to regeneration.[2-4] It is the sum of these characteristics that defines the biofunctionality of Geistlich Bio-Gide® and is the basis for its long-term clinical success.

Geistlich Bio-Gide®

Early and Complete Vascularization

Membrane vascularization is a key step in bone and periodontal regeneration with Geistlich Bio-Gide®.

At 2 Weeks:

› Dense network of blood vessels surrounded by newly formed trabeculae of woven bone
› New bone formation occurs adjacent to the bone defect and directly underneath Geistlich Bio-Gide®[2]

At 6 Weeks:

› Wound healing is characterized by ongoing bone formation
› The blood clot has transformed into a primary reinforced scaffold of woven bone[2]

At 12 Weeks:

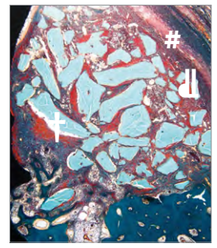
› Healing is primarily characterized by a continual filling of the inter-trabecular spaces where maturation to lamellar bone begins[2, 9]

For clinical indications where both a physical matrix and a barrier are needed, Geistlich Bio-Oss® provides the volume and space preservation necessary to make it a natural companion to Geistlich Bio-Gide®.*

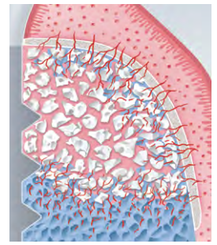
* Additional information regarding indications for Geistlich Membranes can be found on the back panel of this brochure.

1 Bertolo, A. et al. (2012). Eur Spine J. 6: 826–838.
2 Schwarz, F. et al. (2008). Clin Oral Implants Res. 19(4): 402-409.
3 Von Arx, T. et al. (2006). Clin Oral Implants Res. 17(4): 359-356.
4 Schwarz, F. et al. (2006). Clin Oral Implants Res. 17(4): 403-409.
5 Zitzmann, NU. et al. (1997). Int J Oral Maxillofac Implants. 12(6): 844-852.
6 Tran, KT. et al. (2004). Wound Repair Regen. 12(3): 262-268.
7 Pilcher, BK. et al. (1997). J Cell Biol. 137(6):1445-1457.
8 Rothamel, D. et al. (2004). Clin Oral Implants Res. 15(4): 443-449.
9 Jerosch, J. et al. (2002). Georg Thieme Verlag. ISBN 3-13-13292-1.
10 Becker, J. et al. (2009). Clin Oral Implants Res. 20(7): 742-749.
11 Tahl, H. et al. (2008). Clin Oral Implants Res. 19(3): 295-302.
12 Wang, Y. et al. (2007). Ann NY Acad Sci. 1117: 1-11.
13 Rothamel, D. et al. (2005). Clin Oral Implants Res. 16: 369-378.
14 Buser, D. et al. (2011). J Periodontol. 82(3): 342-349.
15 Annen, BM. et al. (2011). Eur J Oral Implantol. 4(2): 87-100.
16 Pjetursson, BE. et al. (2008). J Clin Periodontal. 35: 216-240.

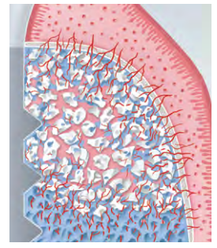
2 Weeks*



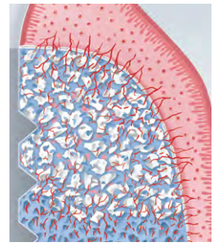
2 Weeks



6 Weeks



12 Weeks



* Key

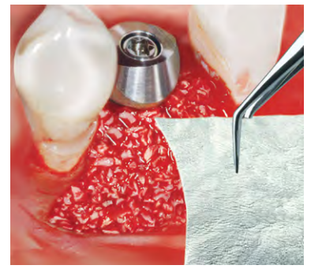
Geistlich Bio-Gide®
† Geistlich Bio-Oss Collagen®
¶ newly formed bone

Biological Interaction

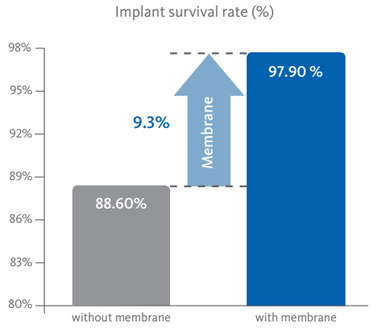
Geistlich Bio-Gide® is designed with a smooth, compact upper layer which is an ideal catalyst for the attachment of fibroblasts that lead to favorable healing of the gingival tissue.

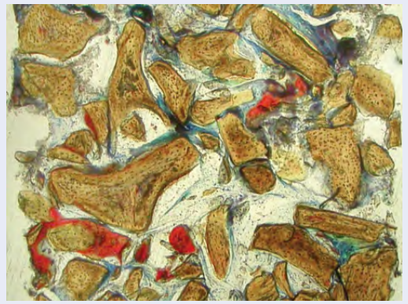
The dense porous lower layer acts as a guide for osteoblasts, which become the foundation for optimal bone formation and healing.

These properties, in combination with an optimally timed barrier function, prevent premature growth of soft tissue into the defect and create an environment for the appropriate cascade of biological events.[2,4,5,9-15]

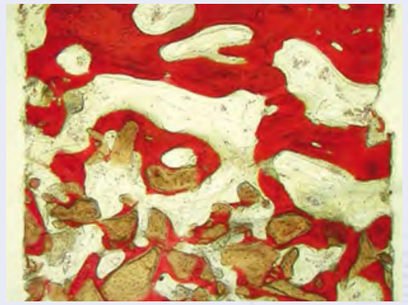


More bone volume and improved bone quality lead to a higher implant survival rate[16]





Average new bone without Geistlich Bio-Gide®, connective tissue encapsulation of Geistlich Bio-Oss®
Red: New bone
Yellow: Geistlich Bio-Oss®
White: Connective tissue/bone marrow



Average new bone with Geistlich Bio-Gide®, complete osseointegration of Geistlich Bio-Oss®
Red: New bone
Yellow: Geistlich Bio-Oss® particles
White: Connective tissue/bone marrow

Improved Bone Quality and Quantity

Geistlich Bio-Gide® provides excellent wound stability and graft containment. The unique bilayer design allows for the necessary barrier function and protects the newly formed bone from potential ingrowth of soft tissue.[1] As demonstrated in the histological images above, the use of Geistlich Bio-Gide® with Geistlich Bio-Oss® results in significantly more bone formation and complete osseo-integration than without a membrane.

Unique Structures

Non-artificially cross-linked native collagen fibers
Geistlich Bio-Gide® is a unique bilayer collagen membrane that provides optimal protection for bone regeneration. It is comprised of a smooth and a rough, open-pored layer. These structures promote reliable bone regeneration[1] and excellent tissue integration due to the optimal duration of the barrier function.

Biological Interaction

Uneventful wound healing[2]
The smooth layer orientated towards the soft tissue favors the growth of fibroblasts, while the barrier function prevents the ingrowth of soft tissue into the newly forming bone beneath.

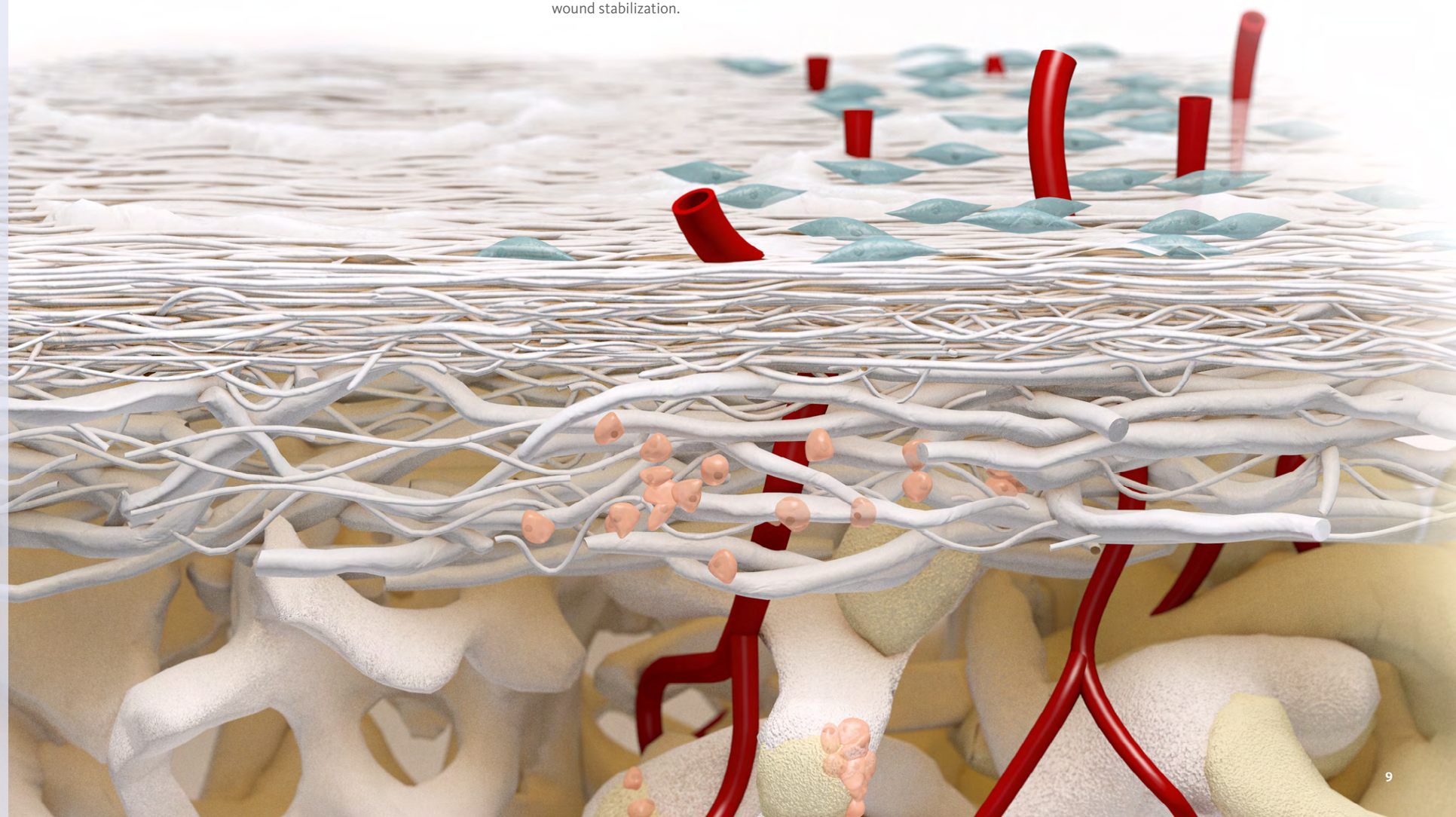
Optimum bone healing[3]
The rough layer orientated towards the bone, functions as a 3D scaffold for osteoblasts.

Prompt and homogeneous vascularization[4]
The natural collagen structure of Geistlich Bio-Gide® permits prompt and homogeneous vascularization resulting in optimum tissue integration and wound stabilization.

Clinical Long-Term Success

Optimal barrier time
Optimum time for duration of the barrier has been carefully engineered. Once the protective function of Geistlich Bio-Gide® has been fulfilled, the membrane resorbs and the natural complex structure of the soft tissue, with all the intrinsic components such as the periosteum, form.

1 Zitzmann, NU. et al. (1997). Int J Oral Maxillofac Implants. 12(6): 844-852.
2 Becker, J. et al. (2009). Clin Oral Implants Res. 20(7): 742-749.
3 Schwarz, F. et al. (2014). Clin Oral Implants Res. 25(9): 1010-1015.
4 Rothamel, D. et al. (2005). Clin Oral Implants Res. 16: 369-378.



Contour Augmentation with L-shape technique

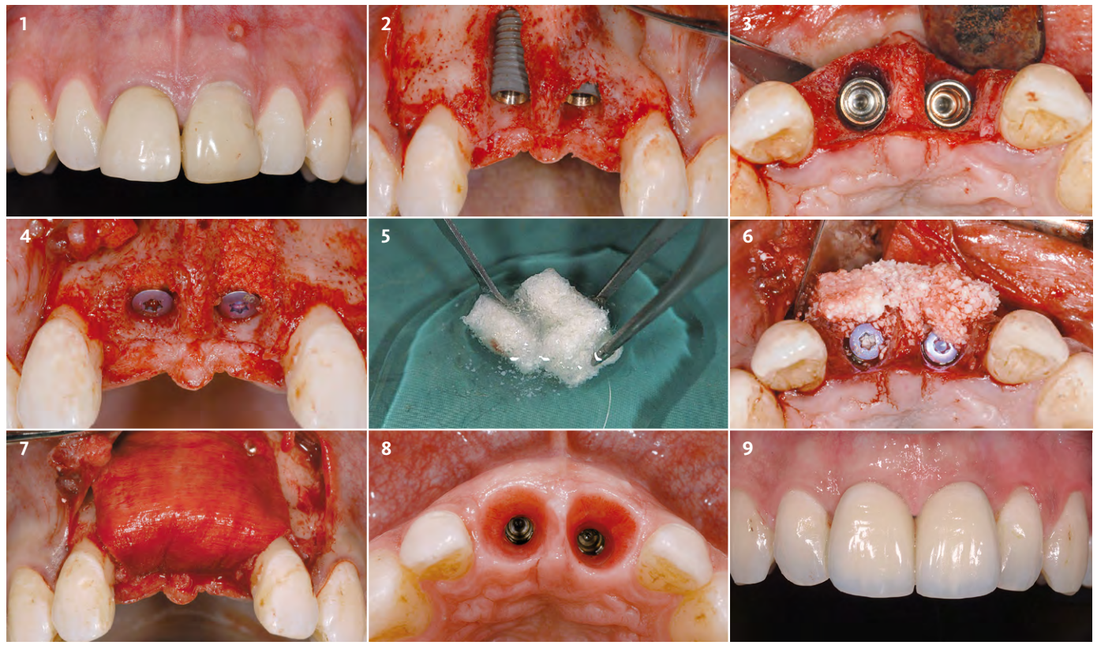
For buccal, peri-implant defects in the esthetic region, Geistlich Bio-Oss® and Geistlich Bio-Gide® offer the possibility of building up volume and of imitating the natural root prominence.

Prof. Ronald Jung, PhD | Switzerland

3.7mm
Clinical attachment level (CAL) gain after 5 years[1] with Geistlich Bio-Gide®

Objective: Geistlich Bio-Oss Collagen® is cut into an L-shape and is adapted to the defect using Geistlich Bio-Gide® and resorbable pins. This supports the peri-implant soft tissue and mimics the natural root contour at the implant site.

Conclusion: The 10% collagen component in Geistlich Bio-Oss Collagen® supports stabilization of the blood coagulum and keeps the Geistlich Bio-Oss® particles together.



1 Initial situation before extraction of teeth 8 and 9. A fistula apically of tooth 9 is visible.

2 After implant placement a small dehiscence defect was visible at the buccal aspect of implant site 8 and a large buccal bone dehiscence was present at the implant in region 9.

3 Occlusal view of #8 and #9 showing the dehiscence defects on the buccal aspect of the implant sites.

4 In order to cover the implant surfaces, a mixture of autologous bone chips from the surrounding area was combined with Geistlich Bio-Oss® particles.

5 Preparation of the Geistlich Bio-Oss Collagen® by cutting into an L-shape. The cutting process is easier when the material is hydrated.

6 Occlusal view displaying how nicely Geistlich Bio-Oss Collagen® L-shape was used for contour augmentation in regions 8 and 9. Geistlich Bio-Oss® particles are used additionally to smooth the contour.

7 The defect is covered with Geistlich Bio-Gide®, which is tacked and stabilized with two resorbable pins made of polylactic acid placed at the apical part of the collagen membrane.

8 After abutment connection with subsequent soft tissue conditioning using screw retained temporary crowns, an excellent emergence profile was achieved 4 months after implant placement.

9 A very natural appearance was achieved with two all-ceramic screw retained crowns 8 and 9. An optimal result for the ridge contour 8 years after crown insertion.

Guided Bone Regeneration with Geistlich Bio-Gide®

Geistlich Bio-Gide®

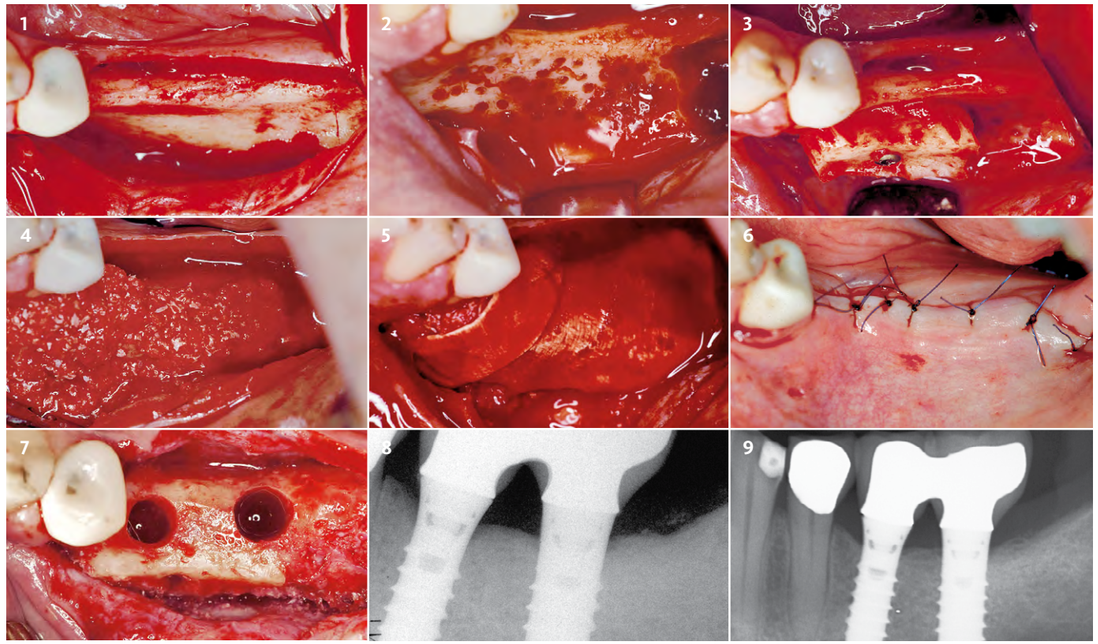
Optimal bone formation is crucial for predictable long-term results, leading to successful hard-tissue contour and soft tissue stability.[3]

Prof. Dr. Daniel Buser| Berne, Switzerland

91.9%
Implant survival rate after 12-14 years[2]

Objective: Increase of alveolar ridge width to enable implant placement.

Conclusion: This technique provides successful ridge augmentation with high predictability. Covering the autologous block graft with Geistlich Bio-Oss® and Geistlich Bio-Gide® significantly reduces autologous bone block resorption.



1 Thin ridge situation in the posterior mandible.

2 The bone cortex is perforated with a small round bur to induce bleeding from the marrow cavity.

3 The autologous bone block from the retromolar area is fixed with a titanium screw.

4 The autologous bone block and the adjacent area is covered with Geistlich Bio-Oss®.

5 A double-layer of Geistlich Bio-Gide® is applied.

6 Primary wound closure is accomplished with single-interrupted sutures.

7 Optimal bony support for implant placement after approximately 6 months.

8 Stable bony situation 18 months post-operatively.

9 Stable peri-implant bone level 11 years post-operatively.

1 Froum, S.J. et al. (2012). Int J Periodontics Restorative Dent. 32(1):11–20.
2 Jung, R. et al. (2013). Clin Oral Implants Res. 24(10):1065–73.
3 Buser, D. et al. (2011). J Periodontol. 82(3): 342-349.

Our Extended Product Range

Geistlich Bio-Gide® Compressed

Geistlich Bio-Gide® Compressed is a resorbable collagen membrane possessing the same biological properties as Geistlich Bio-Gide®.

An Alternative Handling Option:

Designed by our collagen experts to suit your personal handling preference.

- Compressed membrane
- Smoother surface
- Firmer feel
- Easier to trim

Available in 13x25 mm and 20x30 mm sizes to better meet your clinical needs.

Contour Augmentation with Geistlich Bio-Gide® Compressed

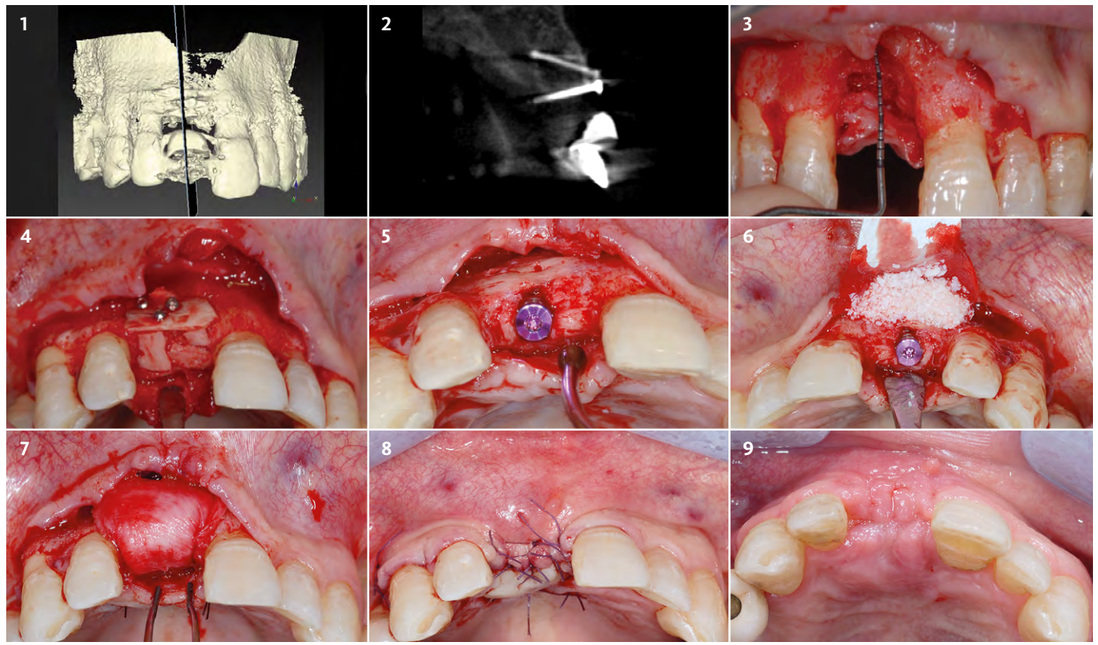
Geistlich Bio-Gide® Compressed combines alternative handling with the proven biofunctionality of Geistlich biomaterials.

Dr. Luca De Stavola | Padua, Italy

100%
100% implant survival rate after 2 years with Urban Sausage Technique.[1]

Objective: Optimal implant placement in newly regenerated bone following a ridge augmentation procedure.

Conclusion: The alveolar crest was successfully augmented, hard-tissue contour completed and an esthetic outcome achieved.



1 Pre-implantation CBCT image showing the regenerated bone volume 4 months after reconstruction.

2 CBCT image showing the sagittal view of the reconstructed region.

3 Intra-operative view of the vertical and horizontal bony defect in region 8.

4 Intra-operative view of the 3D autologous bone graft.[1]

5 Intra-operative view of the implant inserted into the 3D regenerated bone, remodeling of the bony contour to improve esthetic outcome in region 8 is required.

6 Augmentation of the crest with Geistlich Bio-Oss® covered with Geistlich Bio-Gide® Compressed to improve hard-tissue contour and esthetic outcome.[2]

7 Stabilization of Geistlich Bio-Gide® Compressed by pins (vestibular) and resorbable sutures (palatal) immobilizing the graft.

8 Primary wound closure is obtained after flap passivation and internal-external sutures.[3]

9 Eight day follow-up of the augmented site. Good primary wound healing is obtained with no soft tissue dehiscence.

1 Technique according to: Khoury F, et al. (2008). Bone Augmentation in Oral Implantology, Quintessence Publishing.
2 Technique according to: De Stavola, L. et al. (2013). J Int J Oral Maxillofac Implants. 28(4): 1062-7.
3 Technique according to: De Stavola, L. et al. (2014). J Int J Oral Maxillofac Implants. 29(4): 921-6

Our Extended Product Range

Geistlich Bio-Gide® Shape

For Open Healing

Geistlich Bio-Gide® Shape is a pre-trimmed resorbable collagen membrane designed for the treatment of non-intact extraction sockets.

A Predictable Solution[1-6] for Ridge Preservation:

- Convenient: Unique shape specifically designed for non-intact extraction sockets
- Open healing: the wings on the top portion of the membrane are placed inside the gingival sulcus and stabilized with tension-free sutures
- Easy handling application: Modified structure has been made firmer when dry to facilitate easier trimming of the material
- Ready-to-use: Pre-Trimmed for clinical use reduces preparation time

Treatment of an Non-Intact Extraction Socket with Geistlich Bio-Gide® Shape

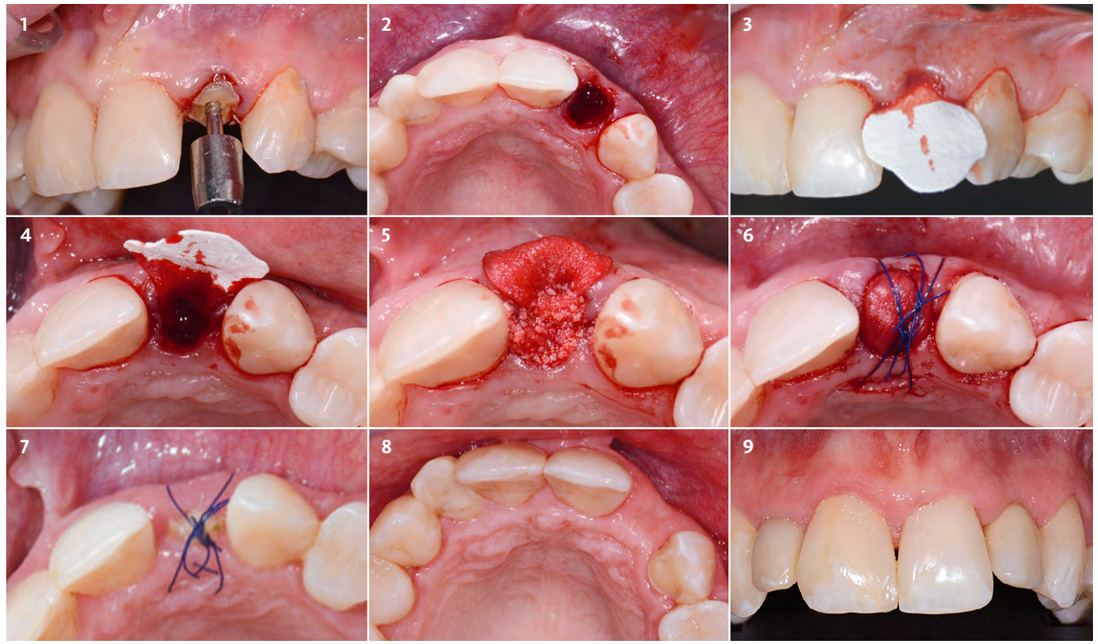
Geistlich Bio-Gide® Shape is a user-friendly product that can easily be implemented in the management of post-extraction sites for ridge preservation.

Dr. Marco Zeltner | Horgen, Switzerland

11%
More new bone with Geistlich Bio-Oss® and Geistlich Bio-Gide® vs. Geisltich Bio-Oss® alone[16]

Objective: Maintain alveolar ridge dimensions following atraumatic tooth extraction.

Conclusion: The alveolar height and width were maintained, resulting in a good esthetic outcome.



1 Atraumatic extraction of tooth #10 with the Benex® Extraction Kit.

2 Inspection of the extraction socket with a periodontal probe shows a buccal bony defect.

3 The pre-trimmed Geistlich Bio-Gide® Shape helps reduce the preparation time for cutting to size.

4 The native bilayer collagen membrane is placed buccally on the inner alveolar wall, slightly protruding the crestal bone.

5 Geistlich Bio-Oss Collagen® fills the socket up to the soft tissue level. It might be advantageous to cut up the Geistlich Bio-Oss Collagen® and to insert it hydrated piece-by-piece.

6 The socket is closed with Geistlich Bio-Gide® Shape. The augmented site is stabilized tension-free by cross suturing.

7 Ten days follow-up with good wound healing by secondary intention.

8 Clinical situation 3 months after tooth extraction.

9 Restoration with a resin-bonded fixed dental prosthesis 3 months after tooth extraction.

1 Avila-Ortiz, G. et al. (2014). J Dent Res. 93(10): 950-8.
2 Morjaria, KR. et al. (2014). Clin Implant Dent Relat Res. 16(1): 1-20.
3 Horvath, A. et al. (2013). Clin Oral Investig. 17(2): 341-63.
4 Vittorini Orgeas, G. et al. (2013). Int J Oral Maxillofac Implants. 28(4): 1049-61.
5 Vignoletti, F. et al. (2012). Clin Oral Implants Res. 23Suppl(5): 22-38.
6 Weng, D. et al. (2011). Eur J Oral Implantol. 4Suppl: 59-66.

Our Extended Product Range

Geistlich Bio-Gide® Perio

Geistlich Bio-Gide® Perio is a resorbable collagen membrane with specific handling characteristics that make it ideal for periodontal indications.

Modified Structure Provides:

- Slower uptake of moisture into the barrier
- Prolonged working time
- Firmer surface facilitates easier cutting of the material

Sterilized Templates for a Wide Range of Defects:

The outer blister pack includes four sterile templates, perforated to easily distinguish them from the membrane. These water repellent templates can be placed repeatedly in the region of the defect to allow customization of the template before cutting the membrane to the precise shape.

Available in a 16x22 mm size to better meet the needs for periodontal defects.

Treatment of an Intrabony defect with Geistlich Bio-Gide® Perio

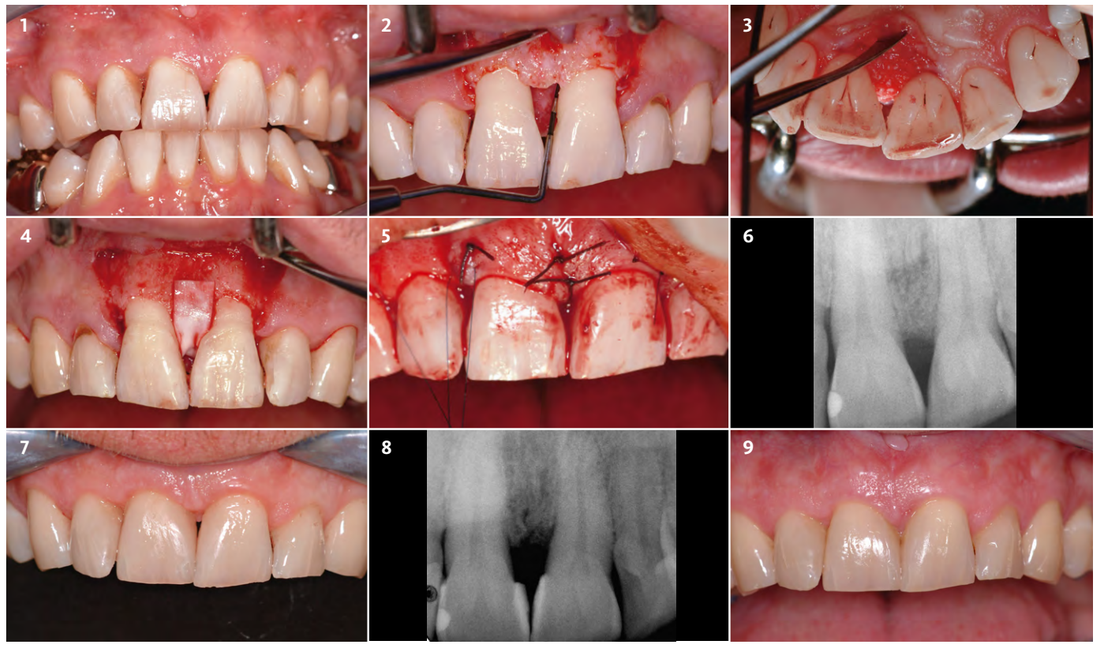
The ideal biomaterial for a wide variety of periodontal defects with sterile multiple form templates and a modified structure that facilitates cutting of the material when dry.

Dr. Frank Bröseler | Aachen, Germany

78%
Linear defect fill after 6 months with Geistlich Bio-Gide®[1]

Objective: Functional and esthetic reconstruction of chronic periodontitis with deep intrabony defects.

Conclusion: After controlling the periodontal disease, this guided tissue regeneration technique leads to a long-term stable bony situation with an esthetic soft tissue appearance.



1 Initial clinical situation after anti-infective therapy.

2 Intra-surgical situation after preparation of the mucoperiosteal full-thickness flap reveals deep osseous defect.

3 Palatal view of the defect after application of Geistlich Bio-Oss Collagen®.

4 The grafted site is covered with Geistlich Bio-Gide® Perio.

5 The flap is repositioned and sutured to relieve flap tension and obtain primary closure of the interdental space.

6 Postoperative x-ray control after regenerative procedure using Geistlich Bio-Oss Collagen®.

7 Clinical situation 3 years post-operatively.

8 4.5 years post-operative radiograph showing sustained defect fill from Geistlich Bio-Oss Collagen®.

9 Clinical situation 7 years post-operatively; note the naturally reformed papilla between the central incisors, and no gingival recession.

1 Annen, BM. et al. (2011). Eur J Oral Implantol. 4(2): 87-100.

Product Range by Therapeutic Area

Our membranes are essential components in the treatment of a broad range of therapeutic areas and are available in a variety of options to meet your handling and delivery needs.

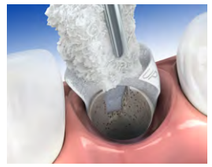
Recommended Membrane Products By Therapeutic Area	Extraction Socket Management	Minor Bone Augmentation	Soft Tissue Regeneration	Major Bone Augmentation	Sinus Floor Elevation	Periodontal Regeneration	Peri-Implantitis
Membranes							
Geistlich Bio-Gide®	●	●		●	●		●
Geistlich Bio-Gide® Compressed	●	●		●	●		●
Geistlich Bio-Gide® Shape	●	●					
Geistlich Bio-Gide® Perio						●	
Geistlich Perio-System Combi-Pack						●	
Geistlich Combi-Kit Collagen	●	●					●

At Geistlich Biomaterials, we are committed to developing treatments that are uniquely matched to the clinical situations you see every day. That's why we do more than bring you a family of products – we provide proven solutions in specific therapeutic areas.

Guided Bone Regeneration's Winning Combination

Geistlich Bio-Gide® ensures undisturbed bone regeneration and prevents soft tissue ingrowth while Geistlich Bio-Oss® provides a stable scaffold for bone formation leading to long-term volume preservation.

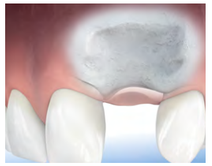
Extraction Socket Management



Minor Bone Augmentation

Soft Tissue Regeneration

Major Bone Augmentation



Sinus Floor Elevation

Periodontal Regeneration

Peri-Implantitis

Geistlich Bio-Gide® Product Range

Geistlich Bio-Gide®

Sizes: 13 x 25 mm, 25 x 25 mm, ***New Size* 30 x 40 mm**, 40 x 50 mm

Native Bilayer Collagen Membrane

Geistlich Bio-Gide® Compressed

Sizes: 13 x 25 mm, 20 x 30 mm

Native Bilayer Collagen Membrane

Geistlich Bio-Gide® Shape

Size: 14 x 24 mm

Native Bilayer Collagen Membrane

Geistlich Bio-Gide® Perio

Size: 16 x 22 mm

Native Bilayer Collagen Membrane with 4 templates for periodontal application

Combination Products

Geistlich Combi-Kit Collagen
Geistlich Bio-Gide® 16 x 22 mm, Geistlich Bio-Oss Collagen® 100 mg

When used together, Geistlich Bio-Gide® and Geistlich Bio-Oss Collagen® provide optimal properties for ridge preservation and minor bone augmentation procedures.

Geistlich Perio-System Combi-Pack
Geistlich Bio-Gide® Perio 16 x 22 mm, Geistlich Bio-Oss Collagen® 100 mg

When used together, Geistlich Bio-Gide® and Geistlich Bio-Oss Collagen® provide optimal properties for regenerative periodontal procedures.

Geistlich
Biomaterials

Geistlich Pharma North America, Inc.
Princeton, NJ 08540
Customer Care Toll-free: 855-799-5500
info@geistlich-na.com
dental.geistlich-na.com

EXACTLY
like no other.

Documented

More than 1,000 publications

Reliable

More than 30 years of clinical experience

Experienced

More than 165 years of Geistlich collagen competence

CAUTION: Federal law restricts these devices to sale by or on the order of a dentist or physician.

Indications:
Geistlich Bio-Gide®, Geistlich Bio-Gide® Compressed, Geistlich Bio-Gide® Shape and Geistlich Bio-Gide® Perio are indicated for the following uses: Augmentation around implants placed in immediate and delayed extraction sockets; Localized ridge augmentation for later implantation; Alveolar ridge reconstruction for prosthetic treatment; Filling of bone defects after root resection, cystectomy, removal of retained teeth; GBR in dehiscence defects; and GTR procedures in periodontal defects.

Warnings:
As these are collagen products, allergic reactions may not be totally excluded. Possible complications which may occur with any surgery include swelling at the surgical site, flap sloughing, bleeding, dehiscence, hematoma, increased sensitivity and pain, bone loss, redness, and local inflammation.

Indications:
Geistlich Bio-Oss®, Geistlich Bio-Oss Collagen® and Geistlich Bio-Oss Pen® are indicated for the following uses: Augmentation or reconstructive treatment of the alveolar ridge; Filling of periodontal defects; Filling of defects after root resection, apicoectomy, and cystectomy; Filling of extraction sockets to enhance preservation of the alveolar ridge; Elevation of the maxillary sinus floor; Filling of periodontal defects in conjunction with products intended for Guided Tissue Regeneration (GTR) and Guided Bone Regeneration (GBR); and Filling of peri-implant defects in conjunction with products intended for GBR.

Warnings:
Possible complications which may occur with any surgery include swelling at the surgical site, flap sloughing, bleeding, local inflammation, bone loss, infection or pain. As Geistlich Bio-Oss Collagen® contains collagen, in very rare circumstances cases of allergic reactions may occur.

For more information on contraindications, precautions, and directions for use, please refer to the Geistlich Biomaterials Instructions for Use at: **www.geistlich-na.com/ifu**