



Ridge Preservation

A Necessity, not An Option

leading regeneration

Geistlich

Ridge Preservation: A Necessity, Not An Option

This is Why You Should Care

Ridge Preservation is not just about maintaining the esthetics of a patient's smile. It's about setting the stage for successful dental implants. Without Ridge Preservation, the bone starts to resorb, leading to a loss of volume and density. This can complicate future implant procedures, requiring additional bone grafting surgeries, increasing treatment time, and potentially resulting in suboptimal outcomes.¹⁻⁶

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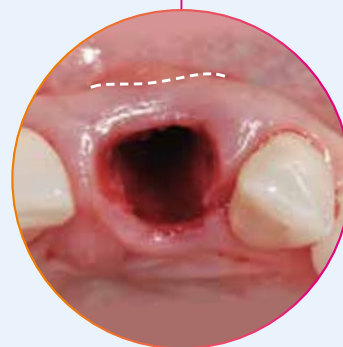
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Without Ridge Preservation

The healing of extraction sockets and the resorption processes following tooth extraction have been thoroughly investigated in recent years. Clinical studies have shown that:

- The alveolar volume loss after tooth extraction is severe⁷⁻¹¹
- Two-thirds of the resorption occurs within the first three months⁷

Spontaneous Healing



v



Volume Loss

after 2 months

Clinical implications of spontaneous healing compared with Ridge Preservation include:

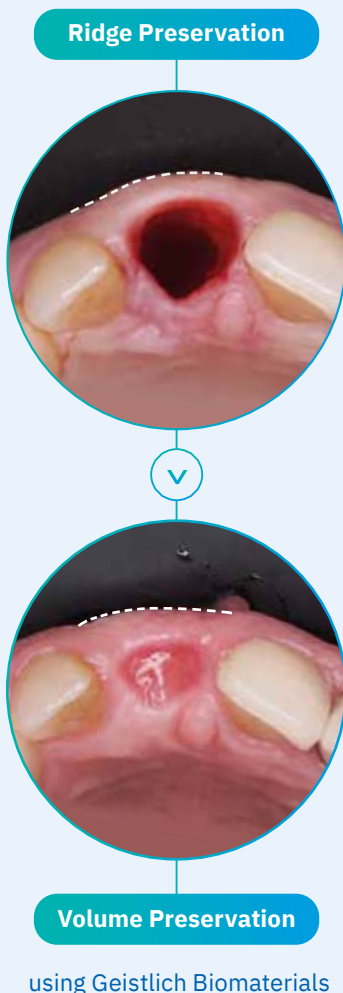
- Reduced ability to maintain healthy peri-implant soft tissues¹²
- Poorer esthetic outcomes¹²
- A tenfold increase in the need for hard tissue augmentation at implant placement without prior Ridge Preservation¹³



Prof. Paulo Fernando M. de Carvalho

With Ridge Preservation

While immediate implant placement does not prevent bone resorption¹⁵, treating extraction sockets with Geistlich Biomaterials can largely compensate for bone loss and help preserve the contour of the alveolar ridge.^{11,16,17}



Clinical evidence confirms that Ridge Preservation is effective in limiting alveolar volume loss:^{12-14,18-20}

- Prevents volume loss and leads to an optimized hard and soft tissue situation, irrespective of the timing of implantation²¹
- Improves the esthetic outcome by preserving the alveolar ridge volume and contour, when the objective of treatment is to place a bridge²²

“We found that alveolar Ridge Preservation is effective in limiting physiologic ridge reduction compared with tooth extraction alone.”⁸

Ridge Preservation: A Predictable Solution

The ridge width is largely preserved at four months after tooth extraction when using Geistlich Biomaterials and remains stable even after ten years⁴³, while spontaneous healing leads to a 50% alveolar volume loss within six months.²³⁻²⁵ Without a long-lasting bone substitute, the buccal and labial soft tissues collapse, and collagen plugs alone cannot preserve the bone.^{26,27}

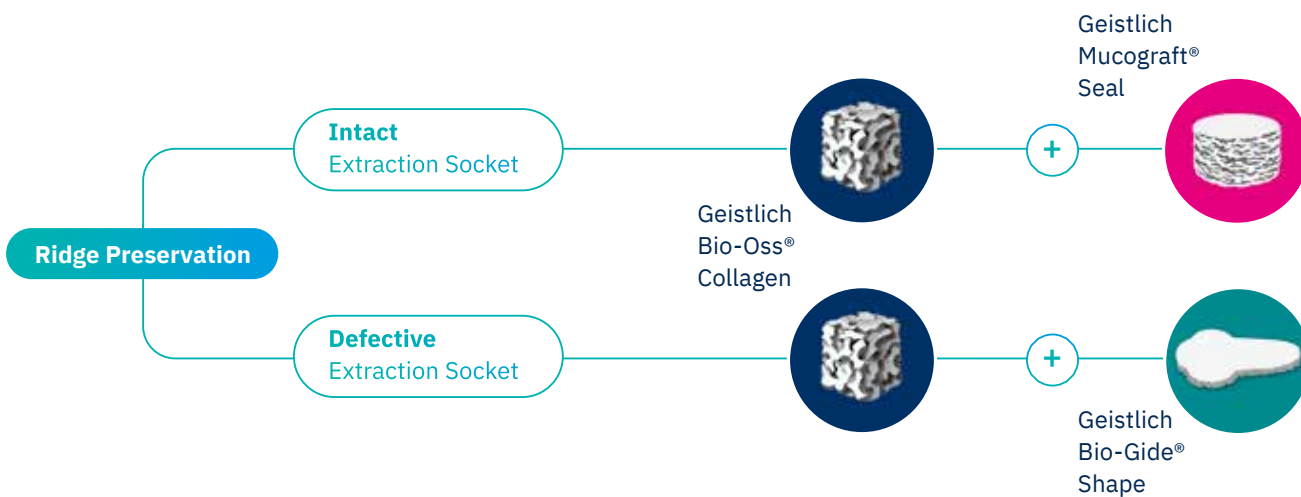
Opting for Ridge Preservation with Geistlich Biomaterials not only saves patients from future discomfort, but also makes your job as a dentist easier in the long term. The reasons why in a nutshell:

- 1. Simplified implant placement**
Preserving the ridge maintains the original contour of the jaw, making prosthetically driven implant placement more straightforward.²⁸⁻³¹
- 2. Reduced treatment time**
Avoiding the need for a more complex bone augmentation and sinus lifts during implant placement reduces the overall treatment time.³²⁻³⁴
- 3. Minimally invasive procedure**
A flapless Ridge Preservation, is less traumatic, results in more keratinized tissue, and avoids the need for a surgical flap.^{35,36}
- 4. Improved esthetic outcomes**
Ridge Preservation improves long-term implant success and helps maintain the patient’s soft tissue, enhancing patient satisfaction.³⁷
- 5. Flexible timing**
Ridge Preservation offers patients the valuable flexibility to choose the follow-up treatment and schedule their dental implant or bridge restoration procedure at a time that suits their individual needs and circumstances.

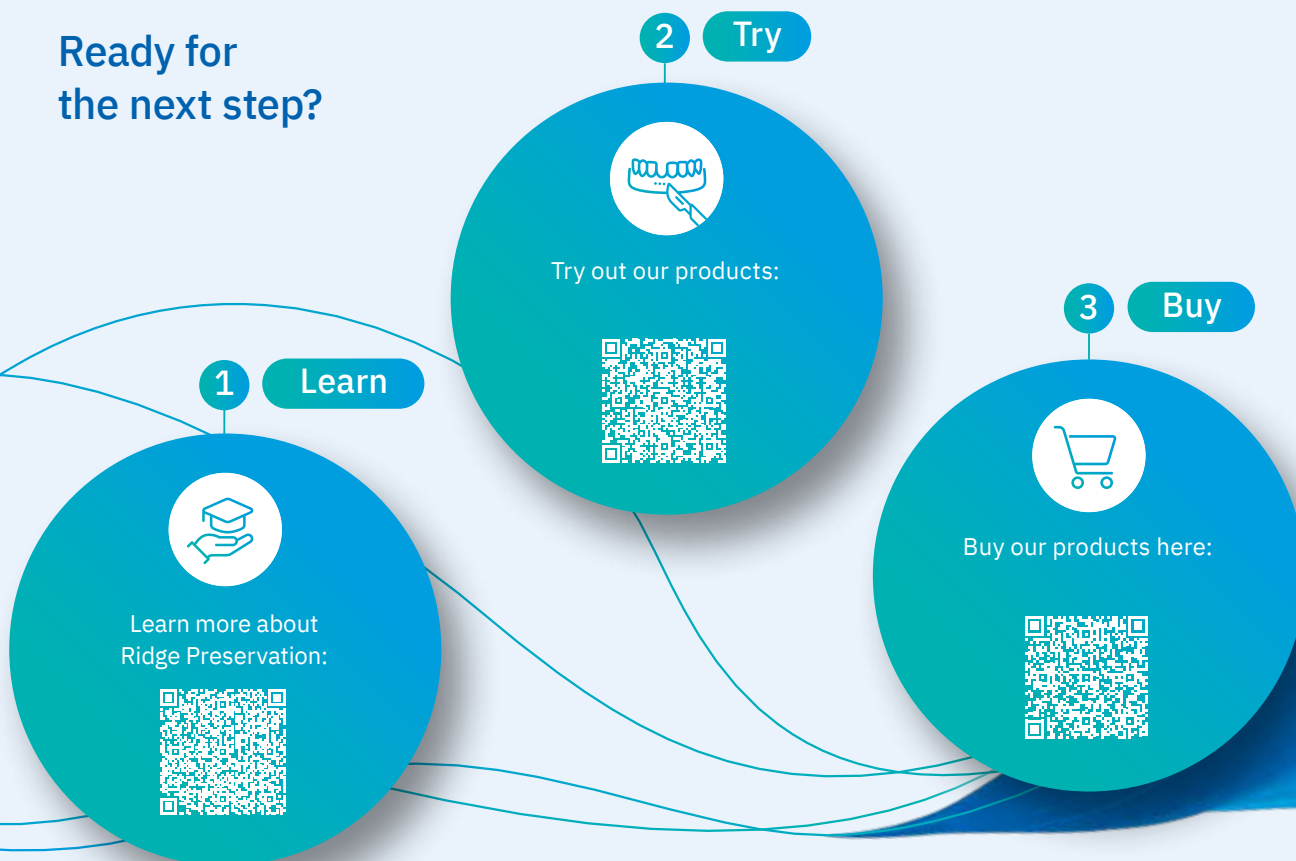
Ridge Preservation with Geistlich Bio-Oss® Collagen and Geistlich Bio-Gide® helps avoid the need for further bone augmentation during implant placement in more than 90% of cases. It creates a ridge contour that allows for the easier insertion of implants and provides a solid foundation for bridge restoration.³⁸

Your Treatment Solutions for Ridge Preservation

Simplify. Save time.
Minimize patient discomfort.



Ready for
the next step?



Your Geistlich Biomaterials



Geistlich Bio-Oss® Collagen

Geistlich Bio-Oss® Collagen consists of 90 % Geistlich Bio-Oss® granules and 10 % porcine collagen to make it formable and easy to handle. Geistlich Bio-Oss® Collagen is used for various indications, including Ridge Preservation, GBR around implants and periodontal treatment.³⁹

- 50 mg (approx. 2.5 × 5.0 × 7.5 mm)**
- 100 mg (approx. 5.0 × 5.0 × 7.0 mm)**
- 250 mg (approx. 7.0 × 7.0 × 7.0 mm)**
- 500 mg (approx. 10.0 × 10.0 × 7.0 mm)**



Geistlich Bio-Gide® Shape

Geistlich Bio-Gide® Shape is a pre-cut collagen membrane specifically designed for Ridge Preservation in defective extraction sockets and allows healing by secondary intention (open healing).⁴⁰ The membrane is based on the Geistlich Bio-Gide® Perio technology: enhanced stiffness extends the time available for precise positioning;⁴⁰ this is a big plus for your application comfort.⁴¹

14 × 24 mm, pre-shaped



Geistlich Mucograft® Seal

Geistlich Mucograft® Seal is a ready-to-use collagen matrix with a convenient circular shape, offering an alternative to soft tissue grafts.³⁵ Geistlich Mucograft® Seal is used to seal intact extraction sockets in combination with Geistlich Bio-Oss® Collagen during Ridge Preservation procedures.⁴²

8 mm diameter, circular shape
12 mm diameter, circular shape



Ridge Augmentation and Delayed Implant Placement on an Upper Lateral Incisor



Dr. Daniele Cardaropoli,
Torino, Italy

“Geistlich Bio-Gide® Shape is a really user-friendly product that can easily be used in the management of post-extraction sites for Ridge Preservation.”

Initial Situation

The patient presented with endodontic/prosthetic failure on the maxillary left lateral incisor.

Therapeutic Approach

The treatment plan included a staged approach with a Ridge Preservation procedure at the time of tooth extraction to recreate the buccal bone plate and reduce the gingival recession. By moving the free gingival margin, keratinized tissue was gained through an open-healing approach.

Final Result

This case demonstrates how it is possible to improve the clinical and esthetic situation that was presented at baseline. Despite missing the buccal bone plate and the recession of the free gingival margin, the ridge augmentation procedure performed with the combination of Geistlich Bio-Gide® Shape and Geistlich BioOss® Collagen was able to create a positive volume of the ridge, allowing for a prosthetically guided implant placement.



My Advice

- > Minimally invasive, flapless extraction with immediately grafting the fresh extraction socket with Geistlich Bio-Oss® Collagen.
- > Protection of the bone graft with Geistlich Bio-Gide® Shape and ability of open-healing.
- > Prosthetically driven implant placement.



Watch the video:



1 Clinical situation following a minimally invasive, flapless extraction approach.



2 Geistlich Bio-Gide® Shape is inserted with the long wing in contact with the buccal surface in order to recreate the cortical bone.



3 The socket is carefully grafted with Geistlich Bio-Oss® Collagen.



4 The three remaining wings are folded over the bone graft and gently secured inside the gingival sulcus.



5 4 weeks post-operative view with an open-healing approach, showing a positive soft tissue response.



6 Implant placement can be planned 4 months after the ridge augmentation procedure: flap elevation shows the new buccal bone plate together with a completely filled alveolus.

Geistlich Bio-Oss® Collagen
(100 mg)



Geistlich Bio-Gide® Shape
(14 mm × 24 mm)



Used Products

Ridge Preservation in an Extraction Socket with intact Buccal Bone



Dr. Stefan Fickl,
Würzburg, Germany

“Geistlich Bio-Oss® Collagen and Geistlich Mucograft® Seal enable me to preserve the architecture of an intact extraction socket, simplifying implant treatment.”

Initial Situation

A 65-year old male patient needed tooth removal of tooth 15 due to endodontic failure.

Therapeutic Approach

Minimally invasive regenerative treatment of the socket with a planned delayed implant placement 3 months after extraction.

Final Result

The final result of the Ridge Preservation procedure shows an adequate amount of hard and soft tissue for delayed implant placement.



My Advice

- > Depithelialization of the sulcular epithelium
- > Geistlich Bio-Oss® Collagen for optimal socket healing and Ridge Preservation
- > Microsurgical suturing of Geistlich Mucograft® Seal





1 Occlusal situation following tooth extraction and de-epithelialization of the sulcular epithelium.



2 Placement of Geistlich Bio-Oss® Collagen.



3 Placement of Geistlich Mucograft® Seal.



4 Suturing of Geistlich Mucograft® Seal using 6-0 monofilament sutures.



5 Uneventful healing 3 days post-surgery.



6 Sufficient ridge contour 3 months after Ridge Preservation with good-quality soft tissue available.

Geistlich Bio-Oss® Collagen
(100 mg)



Geistlich Mucograft® Seal
(8 mm diameter)



Used Products

Ridge Preservation in the Anterior Region for Late Implantation



Prof. Ronald E. Jung,
Zurich, Switzerland

“I use Geistlich Bio-Oss® Collagen and Geistlich Mucograft® Seal in combination as the standard treatment in all cases where I cannot place an implant immediately or can only place it after a delay of 6-8 weeks.”

Initial Situation

Extraction of tooth 21 due to a trauma with concomitant external resorptions. Care was taken in preserving the alveolar bone.

Therapeutic Approach

The goal was to preserve the hard and soft tissue volume after extraction in the anterior region for late implant placement. Thus, a minimally invasive Guided Bone Regeneration (GBR) was performed to contour the ridge at implant placement.

Final Result

The volume of hard and soft tissue can be better preserved with Geistlich Bio-Oss® Collagen and Geistlich Mucograft® Seal compared to spontaneous healing.



My Advice

- > With this technique, the stress of each patient and also my stress as a surgeon is reduced.
- > The patient has the psychological advantage of never leaving the dental office with an empty hole (extraction socket) in the alveolar ridge.



Watch the video:



1 No flaps are raised around the affected area. The socket is gently curetted for removal of granulation tissue and the wound margins were de-epithelialized.



2 Filling of the extraction socket with Geistlich Bio-Oss® Collagen to the level of the palatal bone.



3 Geistlich Mucograft® Seal is applied dry and adapts perfectly to the wound margins.



4 Suturing of Geistlich Mucograft® Seal with 6-0 single interrupted sutures. The tissues were left to heal beneath a provisional, taking care not to apply pressure to the biomaterials.



5 Nice soft tissue outcome with a slight dip at the buccal aspect 7.5 months after extraction.



6 Flap elevation shows the healed bony situation 7.5 months after Ridge Preservation, with the implant placed in fully mature bone. A small GBR was performed for contouring.

Geistlich Bio-Oss® Collagen
(100 mg)



Geistlich Mucograft® Seal
(8 mm diameter)



Used Products

Ridge Preservation to Maintain Red-White Esthetics for Late Implant Placement



Dr. Marco Zeltner,
Horgen, Switzerland

“For optimal clinical outcomes, a minimally invasive tooth extraction combined with the precise removal of granulation tissue is recommended.”

Initial Situation

The patient presented with an internal root resorption at tooth 22, requiring tooth removal.

Therapeutic Approach

The goal was to attain an appealing esthetic result for the mid-term temporary reconstruction. For this, bone tissue augmentation and soft tissue preservation were performed to prepare for implantation at a later stage.

Final Result

In this case, Ridge Preservation with Geistlich Bio-Oss® Collagen and Geistlich Bio-Gide® Shape led to minimal horizontal bone loss and widening of the keratinized gingiva. Three months after extraction, the regenerated site showed red-white esthetics comparable to the natural tooth site.



My Advice

- > Utilizing magnification, adequate lighting, and microsurgical instruments is advisable for success.
- > It is recommended to use a slightly oversized Geistlich Bio-Gide® Shape to ensure full coverage of both the socket and the Geistlich Bio-Oss® Collagen.
- > A slight (mini) elevation of the palatal/lingual flap is recommended to enhance the stabilization of Geistlich Bio-Gide® Shape. However, flap elevation on the labial/buccal side should be strictly avoided.





1 Atraumatic extraction of tooth 22 with the Benex® Extraction Kit. Inspection of the extraction socket with periodontal probe shows a buccal bony defect.



2 Geistlich Bio-Gide® Shape is placed buccally on the inner socket wall.



3 Geistlich Bio-Gide® Shape protrudes slightly above the crestal bone.



4 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.



5 The socket is closed with Geistlich Bio-Gide® Shape, which is positioned under the soft tissue edges and allowed to heal by secondary intention. The augmented site is stabilized tension-free using cross suturing.



6 Minimal horizontal bone loss and good pink esthetics 3 months after tooth extraction followed by a restoration with a mid-term temporary adhesive bridge.

Geistlich Bio-Oss® Collagen
(100 mg)



Geistlich Bio-Gide® Shape
(14 mm × 24 mm)



Used Products

Using the Golden Standard in Open-Healing Technique: Geistlich Bio-Gide®



Dr. Alecsandru Ionescu, DDS, PhD,
Bucharest, Romania

“Open-healing combined with Geistlich Bio-Oss® and Geistlich Bio-Gide® using tension-free sutures without a flap is a predictable and minimally invasive regenerative procedure.”

Initial Situation

The patient complained about “tooth mobility” after a sports accident. Clinical and CBCT evaluation revealed a root fracture at tooth 11 and buccal bone resorption (type 2 class).



My Advice

- > No flap and no incision in the periosteum.
- > Membrane insertion inside the extraction socket.
- > Bone granules to fix the membrane inside the extraction socket and tension-free suturing using continuous PTFE sutures.

Therapeutic Approach

An atraumatic extraction of tooth 11 was performed, followed by socket preservation in accordance with the open-healing protocol. A minimally invasive approach was used, with no flap raised and no periosteal incision. The membrane was intentionally left exposed and stabilized with a continuous PTFE suture at the free gingival margins.

Final Result

Clinical control and CBCT scan showed long-term stability of soft and hard tissues. The final result was stable both functionally and esthetically, reinforcing the biological advantages of the open-healing technique followed by flapless tissue-level implants in the esthetic zone.



Watch the video:



1
Atraumatic tooth extraction of tooth 11. The extraction socket showed a type 2 class trauma, where the soft tissue remained nearly at the level of the adjacent teeth, while the bone loss extended almost to the basilar bone.



2
Geistlich Bio-Gide® was deeply inserted into the extraction socket, reaching the basal bone. No flap and no periosteal incision was made.



3
The extraction socket was grafted with small Geistlich Bio-Oss® granules, which were highly condensed. Finally, Geistlich Bio-Gide® was folded over to protect the bone graft.



4
The collagen membrane was intentionally left exposed and stabilized with continuous PTFE sutures at the free gingival margins (Coreflon).



5
The old crown was used as a temporary restoration and attached to the neighboring teeth, using a rubber dam to protect the Geistlich Bio-Gide® during adhesion.



6
In a second stage, flapless insertion of a tissue level implant was possible after 6 months.

Geistlich Bio-Oss®
small granules (0.25–1 mm)



Geistlich Bio-Gide®
(cut to custom size)



Used Products

Ridge Preservation in Defect Extraction Sockets



Dr. Celia Coutinho Alves,
Porto, Portugal

“Whenever possible, we prefer to preserve the bone rather than rebuild it later, especially in the front teeth.”

Initial Situation

The patient presented with both horizontal and vertical bone defects, which required tooth removal.

Therapeutic Approach

The goal was to maintain the hard and soft tissue contour in the esthetically demanding region by using late implant placement.

Final Result

Severe ridge resorption was prevented by performing Ridge Preservation with Geistlich Biomaterials, resulting in a long-term favorable outcome, which was further enhanced by contouring using GBR and a connective tissue graft at implant placement.



My Advice

- > Geistlich Bio-Oss® Collagen is perfect for manipulation and its low-resorbable hydroxyapatite composition makes it well-suited for Ridge Preservation techniques.
- > Cutting Geistlich Bio-Oss® Collagen into small portions after hydration may facilitate its placement into the most apical part of the post-extraction alveolus.
- > To preserve is to take advantage of the unique bone healing potential at the time of tooth extraction.





1 Initial situation after removal of tooth 21 and inspection of the extraction socket with the periodontal probe shows a buccal bony defect.



2 Geistlich Bio-Gide® is placed buccally on the inner alveolar wall, and Geistlich Bio-Oss® Collagen fills the socket up to the crestal bone level. Small Geistlich Bio-Oss® granules are then packed on top of the Bio-Oss® Collagen, reaching the soft tissue level.



3 Geistlich Bio-Gide® is folded over the filled socket, adapted under the palatal sulcus, fixed with vertical mattress sutures, and allowed to heal by secondary intention.



4 Clinical situation after site-conditioning of the soft tissues, 4 months post-extraction, with an uneventful healing period.



5 Flap elevation and implant placement reveal a fenestration 4 months after tooth extraction. The ridge is then contoured with a GBR and a connective tissue graft on the buccal-crestal area.

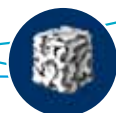


6 The flap is closed over the graft, and the implant is loaded with the final implant 7 months after implant placement.

Geistlich Bio-Oss®
small granules
(0.25–1 mm)



Geistlich Bio-Oss®
Collagen
(100 mg)



Geistlich Bio-Gide®
(cut to custom size)



Used Products

Geistlich – Committed to Regenerative Medicine

Pioneering Products

Good for patients, good for professionals: Geistlich's Ridge Preservation biomaterials are easy to use, cost-effective, save you time, and ensure exceptional patient outcomes – aiming to minimize secondary morbidity. Our portfolio includes Geistlich Bio-Oss® Collagen, Geistlich Bio-Gide® Shape, and Geistlich Mucograft® Seal, all of which have been rigorously tested for safety and efficacy in more than 1,500 scientific studies worldwide.

Swiss Quality Under One Roof

As a family-owned company with more than 170 years in the market, it is important to Geistlich that all research and development is done in-house and meets the high Swiss quality standards. From biochemistry to cell biology, materials research to analytical testing, a wide range of research is conducted in-house. The result of this commitment is the regeneration of natural tissue through the interaction between our products and your patient's body.

Explore the Regeneration Academy

Your Go-To Portal for Dental Regeneration Insights

The **Regeneration Academy** offers a wealth of information on topics around dental regeneration. From **Ridge Preservation** to innovative treatments, our knowledge hub is your ultimate resource for staying informed and empowered in your dental care journey.

Geistlich **Regeneration Academy**

Curious?
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Grow with Geistlich

Geistlich has set up a comprehensive range of services to support you in providing top-quality biomaterials for your treatments. These services include Checklists and Templates, Patient Education Materials, as well as Scientific Education Programs and Scientific Opportunities with Geistlich.



Checklists and Templates

Reduce the complexity of oral surgery and ensure consistent processes and results with checklists and templates from Geistlich.



Patient Education Materials

Educate your patients with Geistlich patient education materials, for instance, by showing them different treatment options, and increase your case acceptance rate.



Scientific Education Programs

Whether you are just starting or are already an expert, our educational programs cover a wide range of topics, including biology, surgical techniques, and patient communication. Geistlich offers a comprehensive array of training and courses tailored to your professional needs (e.g., Geistlich myGuide®).



Scientific Opportunities

Participate in one of Geistlich's various opportunities for the scientific community to contribute to the advancement of bone and soft tissue regeneration. Apply for research grants and attend Young KOL programs to advance the field of bone and soft tissue regeneration.

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