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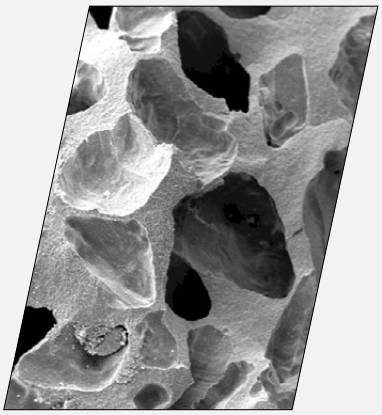
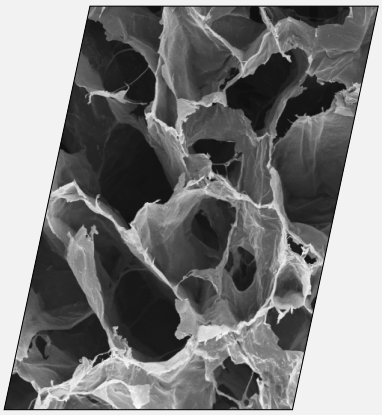
Regeneration

TIXXU

CONTROL GRAFT PROTECT





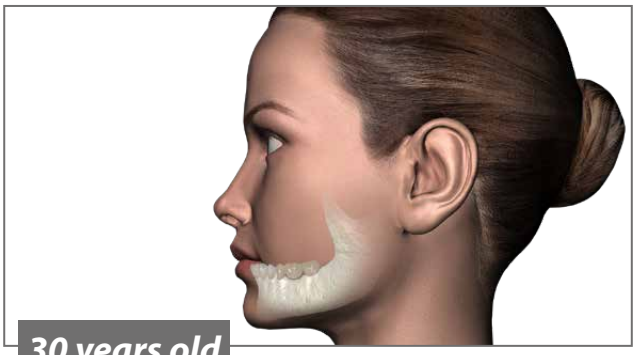
TIXXU CONTROL
Membrane

TIXXU GRAFT
Bone substitute material

TIXXU PROTECT
Collagen fleece

What happens after tooth loss?

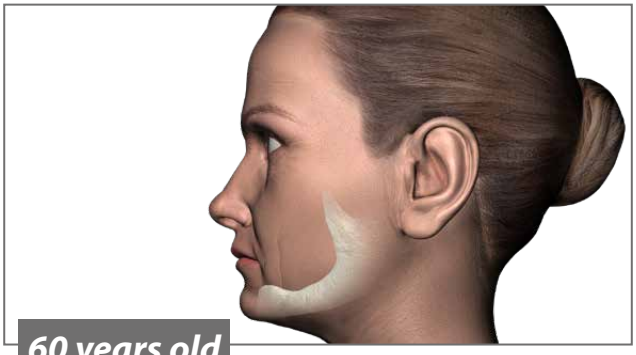
Bone resorption at 30 to 45 years



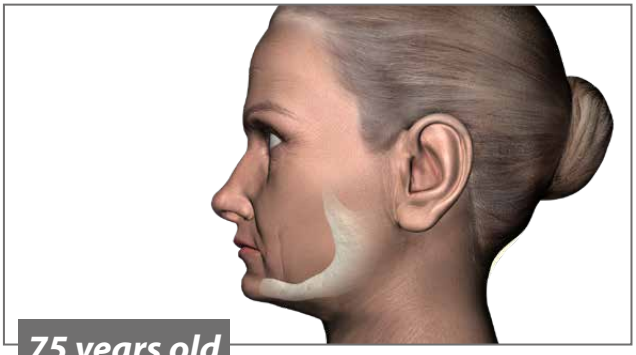
Initial situation: All teeth are present and the bone volume is stable

Loss of first teeth in the molar range: Significant bone resorption occurs after a short time

Bone resorption at 60 to 75 years



The loss of more teeth in the front aggravates this further



If there is still no load on the alveolar ridge, the jawbone continues to resorb

Presentation of problem

From a clinical perspective

Untreated extraction sites and bone defects make it difficult or even impossible at a later stage to provide an affected patient with implant therapy. Instead, expensive surgical procedures are a threat and the risk of additional complications increases.

From an aesthetic perspective

Loss of volume in the cheekbones, decreasing soft tissue and less support of the lips result in aesthetic changes of the facial areas and make the patient age visibly faster.

Problem regarding the success of therapy

It is important to promptly respond after tooth extraction and bone trauma. If the practitioner waits too long, in the worst case, this results in additional, complex treatment steps, in order to be able to carry out an implantological treatment. These measures that are often preventable not only increase the risk of therapy, but also the costs. Many patients fear these risks.

Regeneration with TIXXU

CONTROL GRAFT PROTECT

With the components of the TIXXU therapy, which consists of the TIXXU CONTROL membrane, the TIXXU GRAFT bone substitute material and the TIXXU PROTECT collagen fleece, we provide you with materials to prevent bone loss after extractions. In addition, the carefully matched components help bone regeneration and remodelling of the inserted bone substitute material.

In combination with the HELBO® therapy, you additionally ensure the surgical procedure. The HELBO® process effectively controls bacteria, restores the natural balance in the oral cavity and therefore results in a significant reduction of complications. This has been scientifically proven by numerous studies and specialist articles.

With a combination of these measures, you create optimal conditions for healing the subsequently inserted implants and increase their long-term stability.

Benefits for you and your patients

You preserve the bone

You can start implant therapy in a timely manner and quickly take care of the patient.
This increases patient satisfaction and boosts the success of the practice.

You preserve the soft tissue

Give your patients back their face shape and therefore their beautiful smile – they will recommend you.

You save on treatment time and costs

With TIXXU, you have a reliable solution that can help you to avoid costly and lengthy bone reconstruction procedures in the future. In the time that you gain you can concentrate on restoring the chewing function and on aesthetics.

Collagen fleece

Characteristics

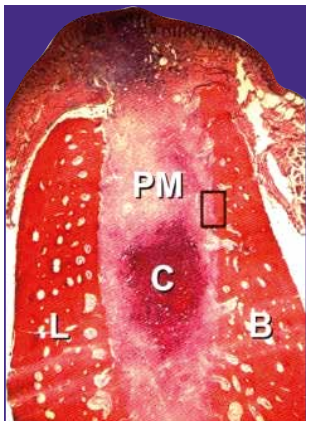
Name	TIXXU PROTECT collagen fleece
Material	Porcine Dermis
Indication	Socket Preservation
Resorption	approx. 4 weeks
Size	20 mm x 20 mm
REF	TIPR2020

Socket Preservation

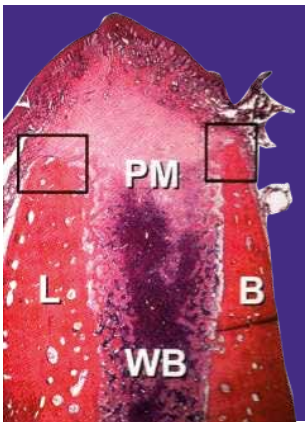
Various scientific studies have revealed that

- bone resorption already begins within a few weeks after extraction of a tooth
- the vestibular bone lamella is particularly affected
- this bone reduction is reducible through the use of various materials for socket preservation
- as a rule, however, the healing process is partially prolonged, since the complete rebuilding of the substitute materials can take time

Bone absorption following dental extraction



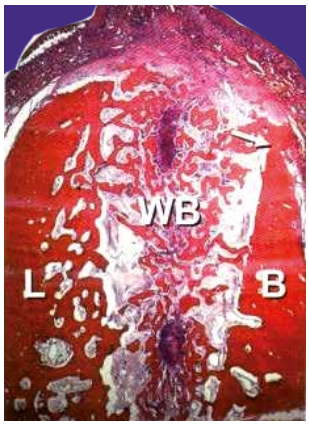
After 1 week



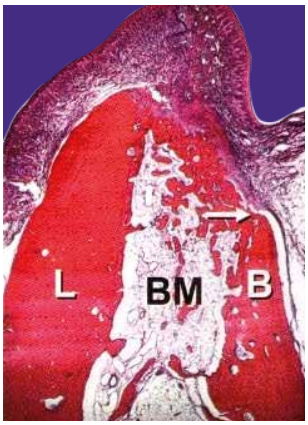
After 2 weeks

The careful extraction with **preservation of the alveolus and the buccal bone lamella** create optimal conditions for the implant restoration. Particularly large-scale osteotomies during extractions or defects mean that complex and expensive augmentations are necessary.

TIXXU PROTECT is a **highly biocompatible, rapidly absorbable collagen made of porcine dermis that stabilises the alveolus and supports the buccal lamella**. In conjunction with the HELBO® therapy, you additionally ensure the procedure and subsequent implant restoration by significantly reducing the complication rate. This means that patients are taken care of, the risk is minimised by additional procedures and therapy costs are reduced.



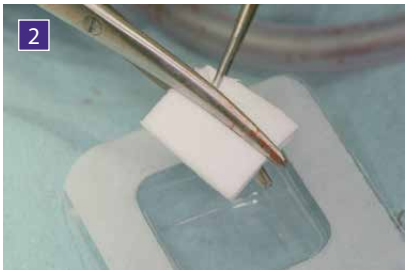
After 4 weeks

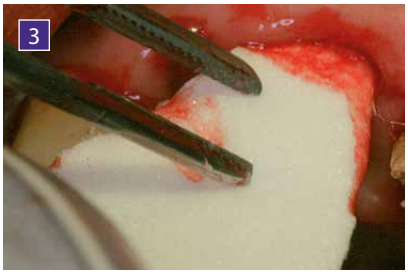


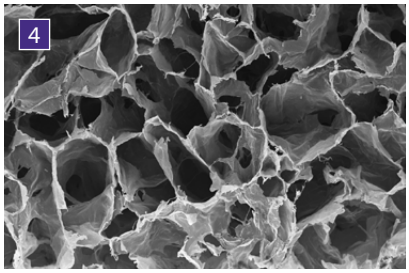
After 8 weeks

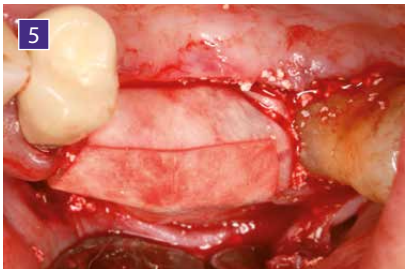
Dimensional ridge alterations following tooth extraction. An experimental study in the dog. Araujo et al., J Clin Periodontol 32: 212-218 (2005)

Collagen fleece for socket preservation

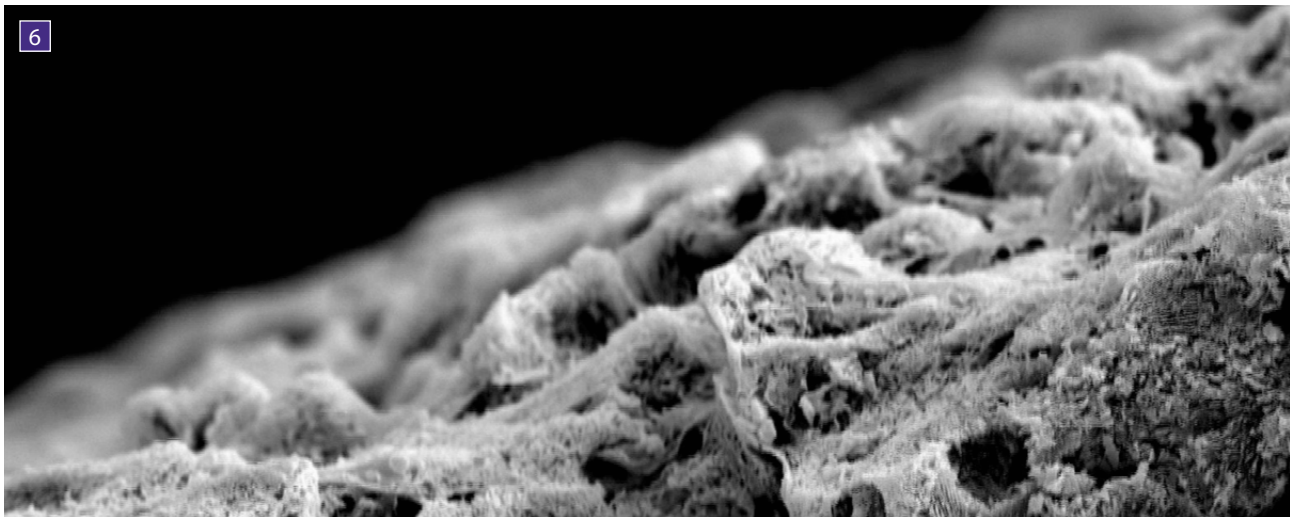








1 *TIXXU PROTECT collagen fleece*
2 *Cutting of TIXXU PROTECT*
3 *Soaks up wound blood like a sponge*
4 *REM image TIXXU PROTECT (magnification 300x)*
5 *Also suitable for covering augmentations*



Prof. Maté Sánchez de Val, Spain

6 *Figure shows an enlarged image of the newly formed bone*

Properties

Hemostatic agent with short-term barrier function, i. e. TIXXU PROTECT

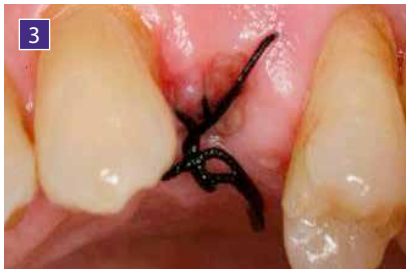
- encourages clot formation of the blood
- stabilises the blood coagulum
- counteracts wound contraction
- protects the wound for approx. 2-4 weeks
- is superficially epithelialised
- encourages new bone formation
- is entirely reabsorbed

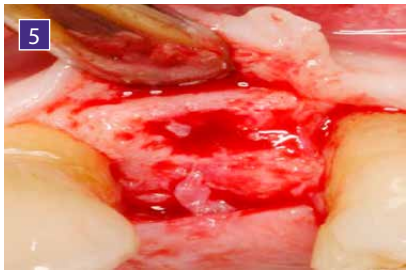
Processing

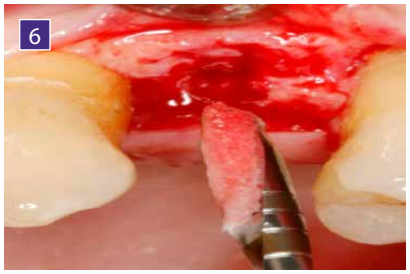
TIXXU PROTECT is easily processed

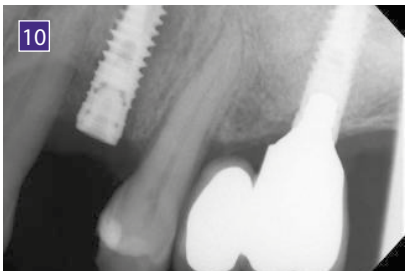
- depending on the indication, the thickness of TIXXU PROTECT is adjustable by moisturising and compression
- is easily cut to the desired size
- absorbs wound blood like a sponge
- is structurally stable, pliable and adapts to its surroundings
- remains location and volume stable after application
- a plastic covering of the alveole is not required

Clinical case









1 *Use of TIXXU PROTECT collagen fleece*

2 *Atraumatic tooth extraction with subsequent disinfection with HELBO®, after which TIXXU PROTECT collagen fleece is inserted directly into the alveolus*

3 *Wound closure*

4 *Suture removal after 1 week*

5 *Reopening after 8 weeks shows stable bone conditions*

6 *Drill protocol*

7 *Implant insertion*

8 + 9 *Wound closure*

10 *X-ray control*

Clinical images: Dr. Neugebauer, Germany

Benefits

- TIXXU PROTECT is an ideal frame for the adsorption of thrombocytes, fibroblasts and osteoblasts
- It encourages coagulum formation, as contact with blood leads to an aggregation of thrombocytes
- Due to its high hydrophilic properties and interconnective porosities, TIXXU PROTECT absorbs blood quickly
- The vestibular bone lamella of the extraction alveole is supported
- TIXXU PROTECT is pH-neutral and exerts a positive effect on soft tissue reactions

Indications at a glance

- haemostyptic wound care of the extraction alveolus
- reduction of bleeding and secondary bleeding
- tissue regeneration of the extraction alveolus (socket preservation)
- avoidance of wound infection after tooth extraction
- protection of Schneider's membrane from perforation
- biopsy sampling points
- oral wounds
- minor bone defects
- soft tissue dehiscences
- promote wound healing and support tissue regeneration

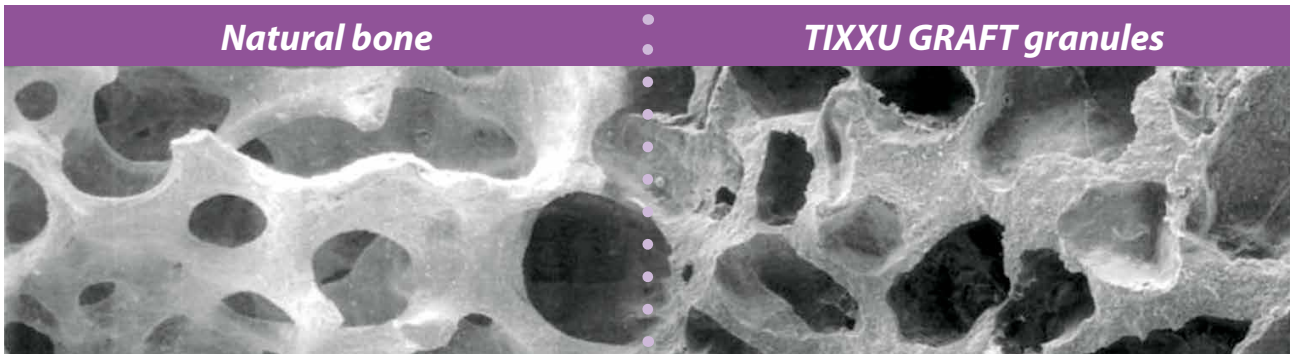
Bone substitute material

Characteristics

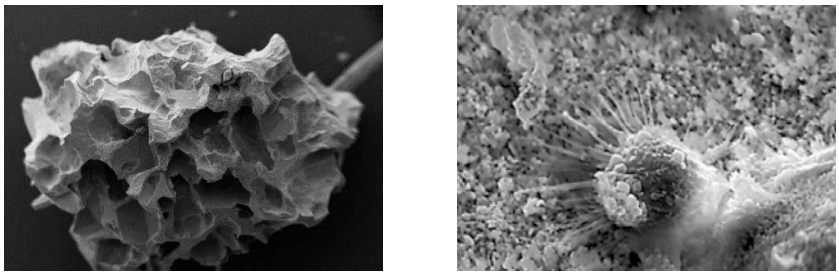
Name	TIXXU GRAFT
Material	Synthetic 60% Hydroxyapatite (HA) 40% β-Tricalcium Phosphate (β-TCP)
Indication	Bone substitute material
Variants	As granules or as putty (hydrogel-based)
REF	TX0401G50, TX9901G01, TX0302G01, TX9902G02, TX1002PU50DE

TIXXU GRAFT Materials from MBCP™ TECHNOLOGY

The micro-macroporous biphasic calcium phosphate mimics the structure of a natural bone.



Biomimetic surface



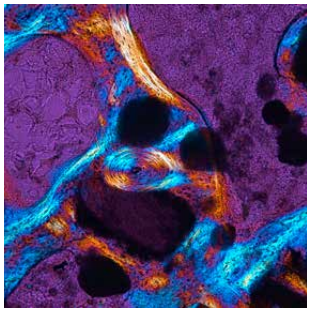
Safe solution – biocompatible – Synthetic

TIXXU GRAFT Granules and Putty

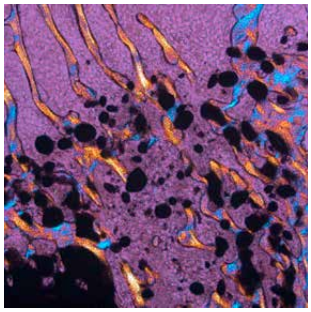
Advantage	Clinical benefit
Osteoconductive, osteogenic	Provides a framework for new bone growth, gives commands for mineralisation and osteogenic cell differentiation
Molecular mixture of: 60% HA and 40% β-TCP	HA alone resorbs too slowly, while β-TCP resorbs too quickly. Biphasic HA and β-TCP provide a resorption rate that is similar to human bone
70% porosity, network of macro-pores and micropores	The porosity is comparable to that of cancellous bone, it allows the uniform colonisation of bone cells and the formation of biological fluid within the matrix. The right compromise for initial mechanical properties and resorption kinetics
Macroporosity (> 100 micro-metres)	Allows deep penetration of bone cells into the matrix
Microporosity (<10 micrometres)	For ion exchange: β-TCP dissolution and bone crystal precipitation New bioactive interface to bone cells
> 30 years of clinical background	Host bone formation in place of the MBCP is systematically detected
Safe	Synthetic with long shelf life: granules, 5 years – putty, 3 years
Easy to use	Available as granules or as putty

Manufacturer: BIOMATLANTE SA
For more information about the MBCP Technology, please visit https://biomatlante.com/en/technology

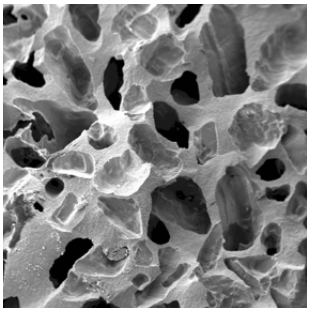
Ideal bone substitute



Harvesian system
Lamelar bone

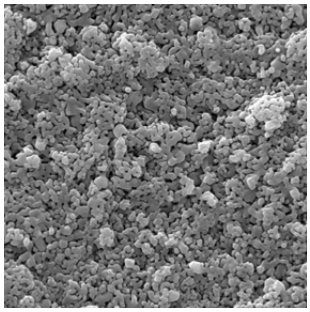


Slow and gradual biodegradation by biodissolution + bioresorption



Macroporous

For cell colonisation and osteoconduction

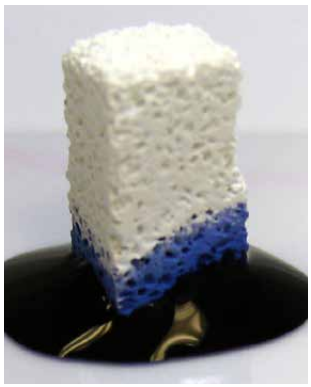


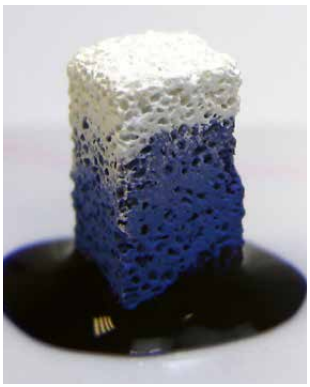
Microporous

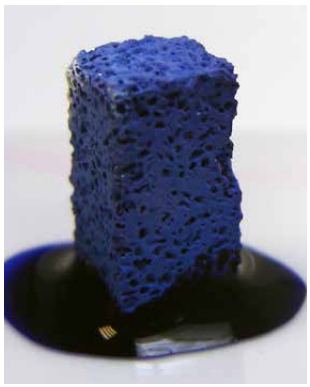
So that biological fluids can spread through the framework

The black colour represents BCP granules – the blue / yellow colours represent newly formed bone

Fully permeable matrix







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Manufacturer: BIOMATLANTE SA

For more information about the MBCP Technology, please visit https://biomatlante.com/en/technology

TIXXU GRAFT bone substitute-putty

Description

TIXXU GRAFT is not only available as granules, but also in a gel variant (putty).

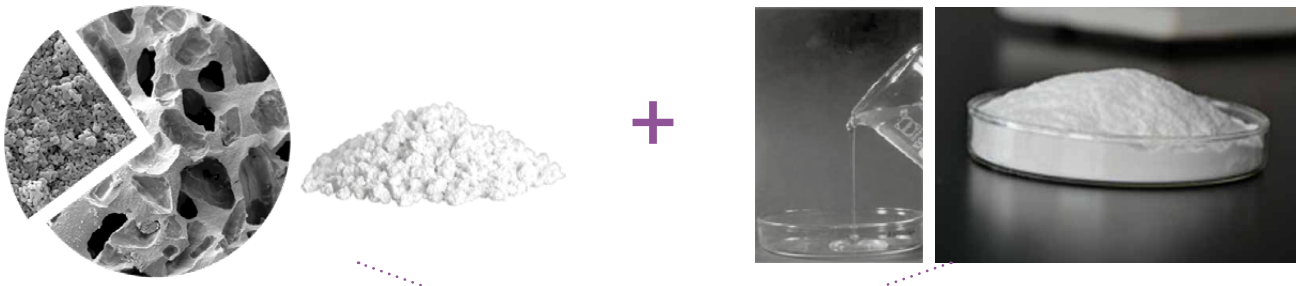
TIXXU GRAFT putty is a malleable and injectable synthetic bone substitute material consisting of biphasic calcium phosphate granules (≥ 50% HA/β-TCP) in combination with a hydrogel.

TIXXU GRAFT granules

60% Hydroxyapatite
40% β-Tricalcium Phosphate (β-TCP)

Hydrogel

Hydroxypropylmethylcellulose (HPMC)



Putty

How to use it

- ***Hydratation of the granules***

  prehydrate with saline solution (to avoid osmotic shock)

- ***TIXXU GRAFT***

  must be brought into contact with living bone

- ***Never compress or press together***

  otherwise the porosity would be damaged

- ***Healing***

  pay attention to the bone growth cycle:
  5 to 8 months is recommended
  The implant is inserted after approximately 6 months

- ***Important***

  only use the right amount of granules.
  Never overfill.

To read the complete precautions, please refer to the Instructions of Use.

- ***No hydratation required***

  ready to use

- ***Vascularization***

  must be brought into contact with living bone

- ***Covering***

  with an resorbable membrane to fix the graft and protect it from soft-tissue colonization (GBR)

- ***Important***

  the material must be introduced with maximum direct bone contact

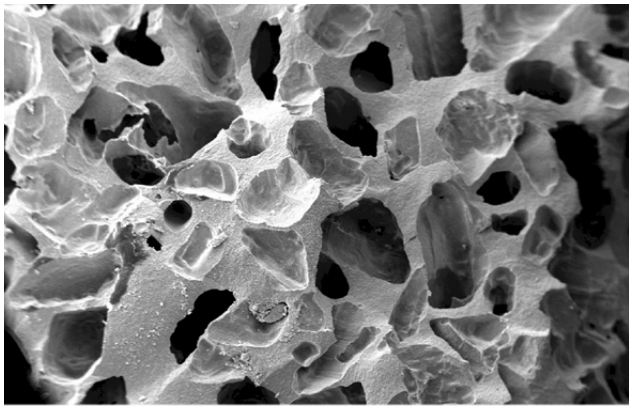
To read the complete precautions, please refer to the Instructions of Use.

The safe, user-friendly bone reconstruction material

TIXXU GRAFT is a fully synthetic, biphasic calcium phosphate ceramic made of

- ***60% Hydroxyapatite (HA) and***
- ***40% β-Tricalcium Phosphate (β-TCP).***

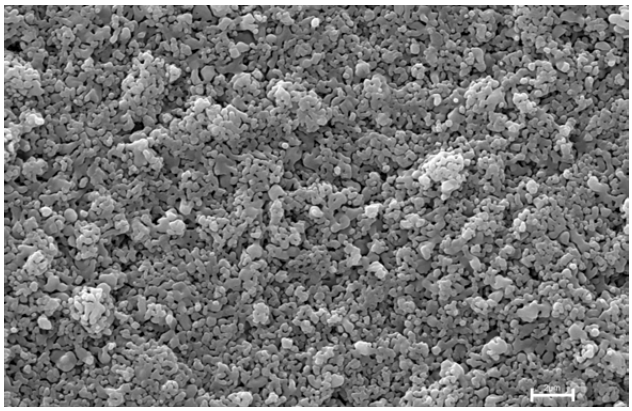
Through this mineralogy, the bone-analogous morphology and the resulting resorption properties, the bone regeneration is consistently supported.
While the β-TCP is rapidly osseously organised and replaced by newly formed bone, the hydroxyapatite content ensures that the volume remains stable.



The high porosity in conjunction with the micro-structured surface stimulates bone regeneration via:

- ***Microporosity***
  For optimal diffusion of biological substances and for fast ion exchange

- ***Macroporosity***
  For fast blood vessel invasion and osseous organisation

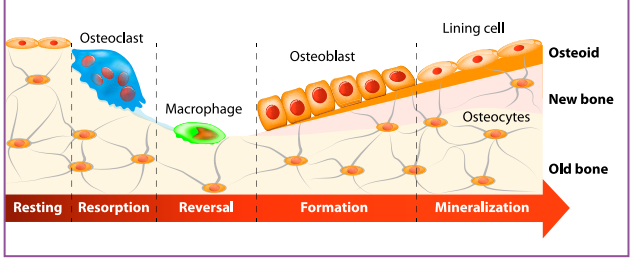


The clearly visible micro-structuring of the surface supports bone formation and creates optimal conditions for the attachment of

- ***Serum proteins***
- ***Collagen fibres***
- ***Osteoblasts***

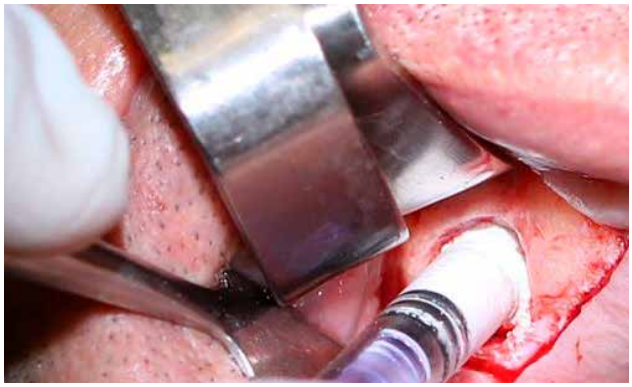
In vitro studies show that after only a few days the TIXXU GRAFT particles are colonised by osteoblasts.

The bone remodelling process



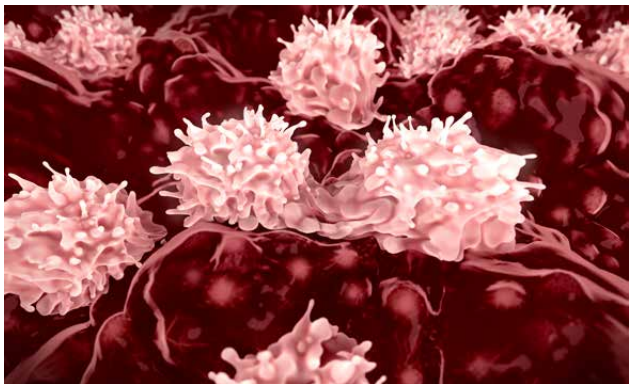
Regeneration process of the bone

The bone substitute material TIXXU Graft is injected directly into the defect. It comes into contact with living tissues: Blood.

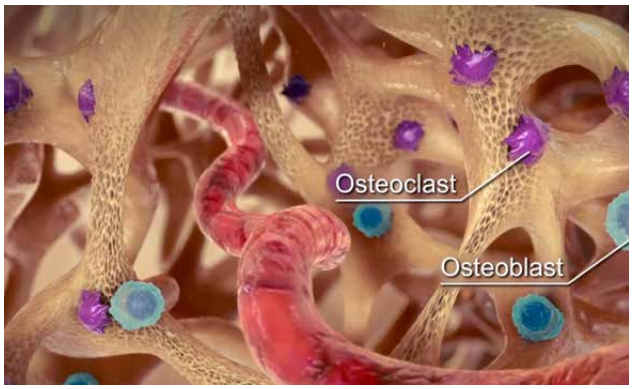


Clinical Picture: Prof. Maté Sánchez de Val, Spain

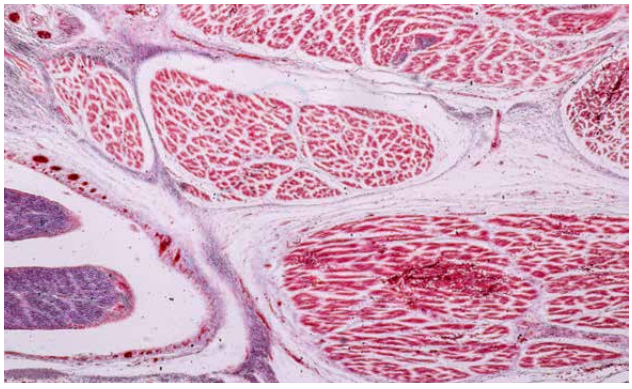
Due to the high bioactivity of the bone substitute material, new bone crystals form after a short time.



Cells that have a significant influence on the bone remodeling process continue to spread.
Here in the image: Osteoclasts and osteoblasts.



The bone augmentation material is gradually replaced by a stable and mineralised bone architecture. Filled with blood vessels and collagen fibres, the bone matures to a solid matrix.



The interaction of bone augmentation material and membranes

The interaction of bone augmentation material and membrane is of crucial importance for the success of bone augmentation measures. With TIXXU GRAFT and TIXXU CONTROL this is implemented in an exemplary manner. The synthetic membrane reliably protects the augmentation from connective tissue ingrowth.
The biphasic highly porous bone augmentation material TIXXU GRAFT has a 3D micro environment enhancing the cells' adhesion, proliferation and differenciation. Therefore, the new bone formation is supported.
Meanwhile, the very slowly absorbing 60% portion of hydroxyapatite (HA) ensures that the augmented volume is maintained.

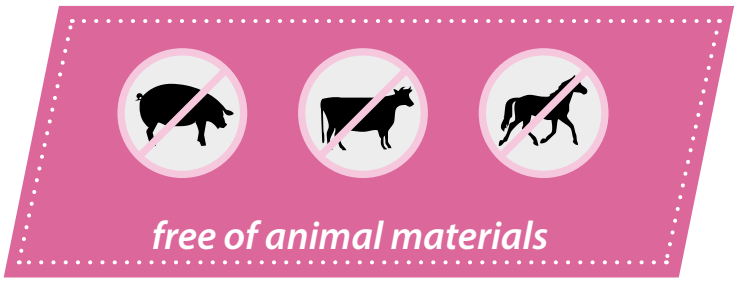
Membranes

Characteristics

Name	TIXXU CONTROL synt
Material	PLGA
Indication	Membrane for controlled hard and soft tissue regeneration
Resorption	approx. 6 months
Sizes	15 mm x 20 mm , 20 mm x 30 mm, 30 mm x 40 mm
REF	TICO1520, TICO2030, TICO3040

A membrane for all patients

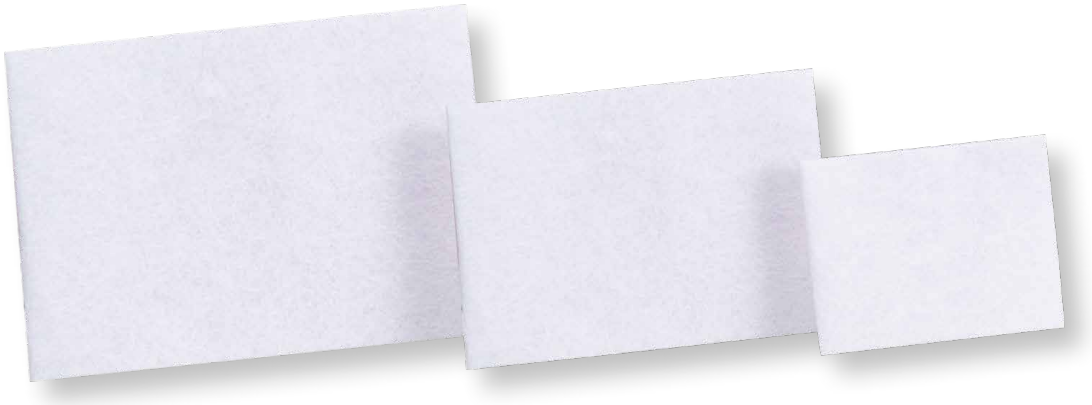
Unlike membranes derived from pig, cow or horse tissues, TIXXU CONTROL synt is free of animal components. Our biocompatible, synthetic membrane prevents the risk of the transmission of animal pathogens.



Extended treatable patient group: The synthetic TIXXU CONTROL synt membranes are suitable for patients who avoid animal by-products for religious, cultural or lifestyle reasons.
Medically classified polylactide-glycolic acid provides excellent biocompatibility. As a 100% biodegradable polymer, PLGA has decades of successful use in a variety of medical applications and devices, including absorbable suture material, needles, screws, etc.

Key Features – their benefits

- Free of animal components: Reduces the risk of disease transmission; avoids religious/cultural issues
- High biocompatibility: The PLGA is 100% bioresorbable
- Safe: The PLGA has been used in medical applications for decades
- Simple application
- Supports secondary healing on exposure and wound dehiscence
- Long resorption time of 6 months gives the bone sufficient time for undisturbed growth



Why use a membrane?

- Prevention of epithelial cell proliferation
- Promote the migration of bone cells in the blood clot
- Prevention of bone loss by up to 25% (Widmark et al., 1997[1])

Easy to apply

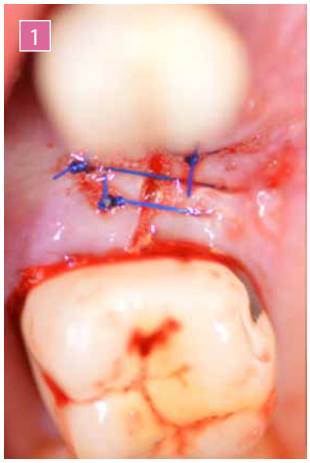
- does not stick to soft tissue or instruments
- no premature moistening, attachment or suture needed
- quickly absorbs biological fluids on the microfibre side
- once TIXXU CONTROL synt has been moistened, it will take the form that you are modelling and hold it
- high tear strength allows use of basting stitches, pins and sutures
- easy to cut
- TIXXU CONTROL synt supports secondary healing in case of bone exposure and epithelialises in two weeks again

Double-layered structure for optimal barrier effect

The specially designed double-layered structure prevents the ingrowth of (gingival) epithelial tissue on one side (smooth fascia of the dense layer), while on the other side (matte fascia with non-woven microfibres) the infiltration of cells and controlled bone healing are promoted.

Clinical case

Dr. Alain Hoornaert, France



Wound closure after augmentation and coverage with TIXXU CONTROL membrane

Shortly after the procedure: Suture dehiscence – membrane becomes visible

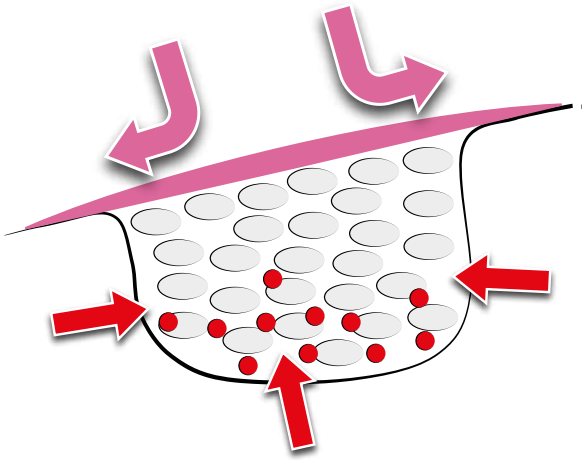
Within 2 weeks, the membrane is covered by newly formed gingiva

No inflammatory reactions detectable – keratinised tissue

Literature

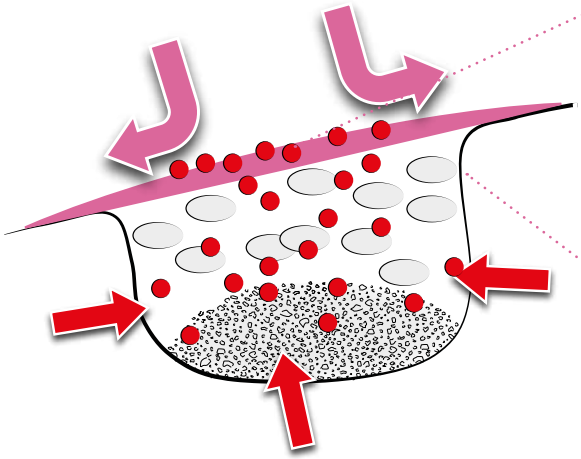
[1] *Widmark G, Andersson B, Ivanoff CJ. Mandibular bone graft in the anterior maxilla for single-tooth implants. Presentation of a surgical method. Int J Oral Maxillofac Surg 1997; 26:106-109*

Functionality of a membrane

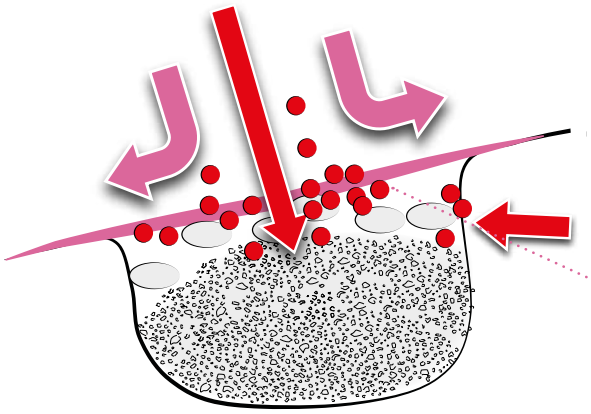


Coverage of bone defects

- Stabilisation of bone augmentation materials or bone chips
- Barrier function against the ingrowth of connective tissue as well as migration of the bone substitute material
- Therefore the bone has time for the reconstruction of the augmentation
- Blood vessels only grow from the bone out into the augmentation



- High cell compatibility and porosity for the attachment of fibroblasts and osteoblasts – important for the regeneration of hard and soft tissue
- Membrane ensures dimensional stability of the augmentation – preventing a collapse

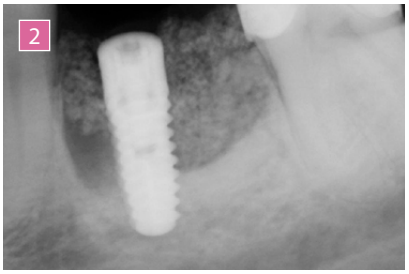


- Transmembrane angiogenesis begins, favoured by high porosity of TIXXU CONTROL

Predictable bone regeneration

Case 1 Dr. Hrvoje Starcevic, Croatia

Atraumatic extraction



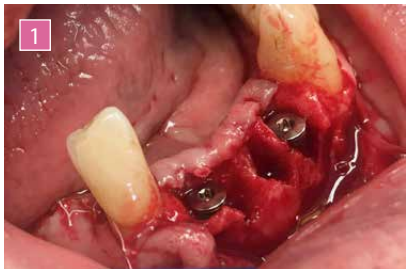
Immediate implantation and augmentation with TIXXU GRAFT

Covering with TIXXU CONTROL

After 7 days: Only a few parts of the membrane still visible, keratinised tissue around the implant

Healing after 3 weeks without any complications

Case 2 Myriam Dieckhoff, Germany



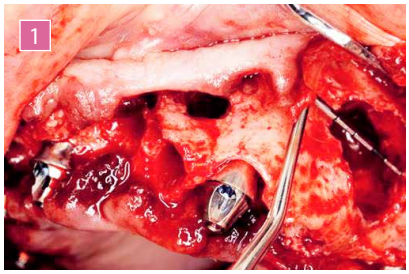
Significant bone defect in the front

Augmentation within the implantation

Defect is covered with TIXXU CONTROL

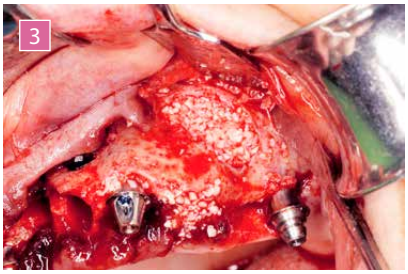
Wound closure

Case 3 Dr. Florian Obadan, Romania

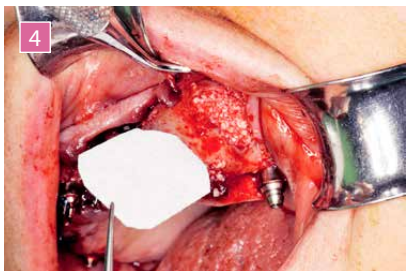


Immediate supply with SKY fast & fixed combined with external sinus lift

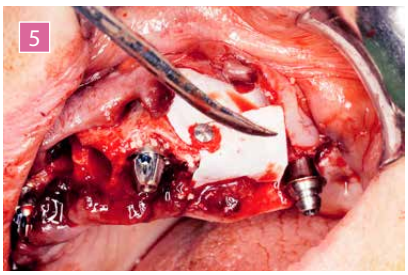
Removal of cyst tissue and histological control



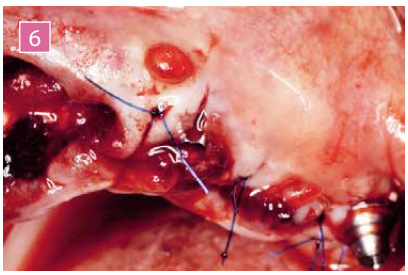
Augmentation with TIXXU GRAFT bone substitute material



Coverage with TIXXU CONTROL



Membrane is fixed with pins

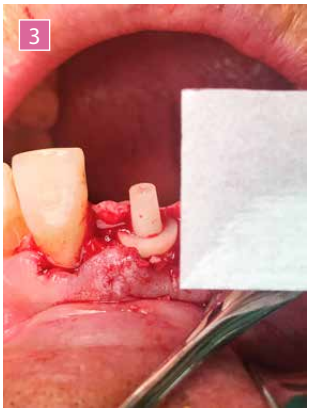


Wound closure

Case 4 Dr. Florian Obadan, Romania

Extraction with immediate implantation and supply with SKYtemp abutment

Bone defect is filled up with TIXXU GRAFT



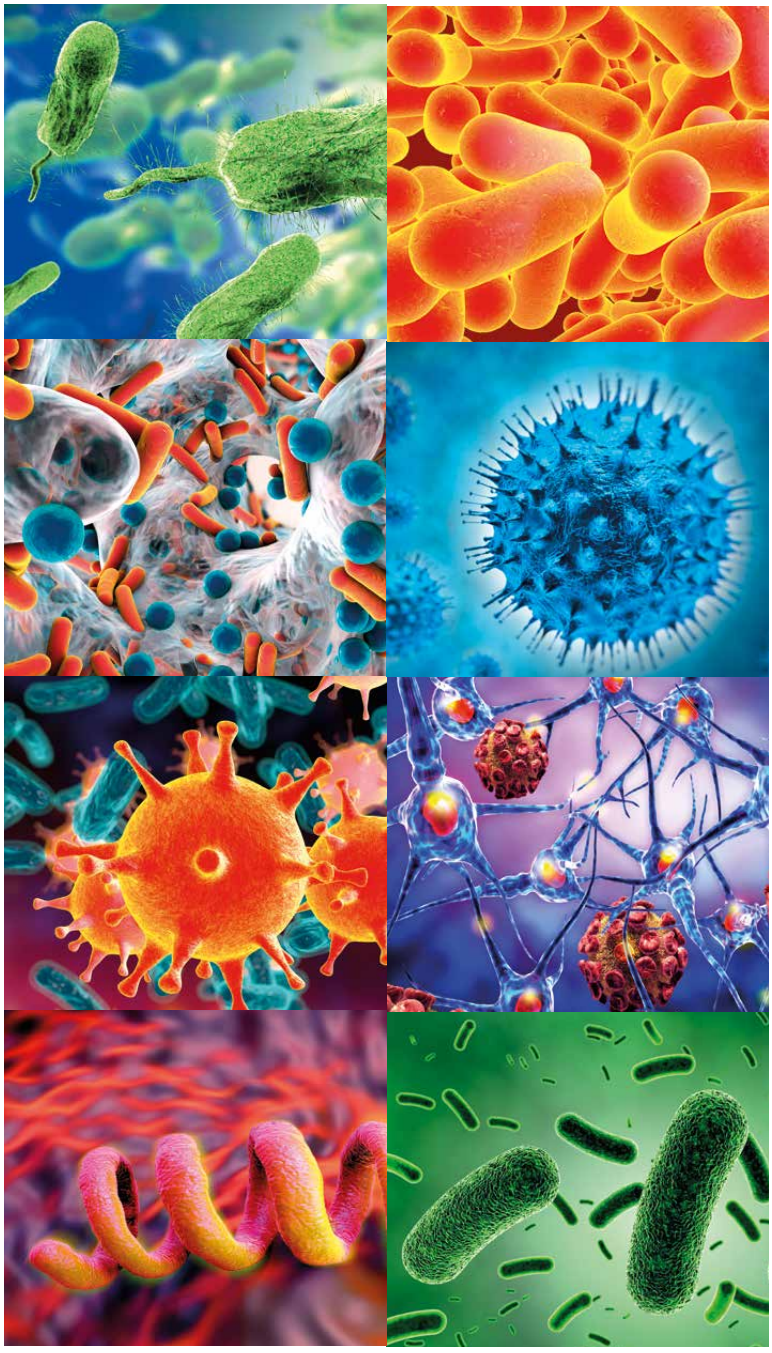
Cover defect with membrane

Wound closure

The HELBO® therapy

Stops the inflammation

- without antibiotics
- without surgery
- without side effects
- scientifically proven



REF 000429GB

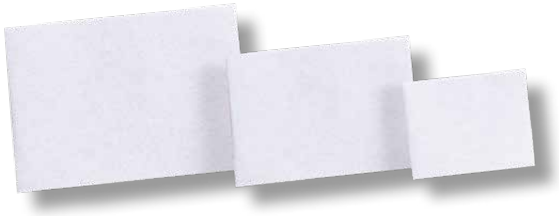
REF 000567GB

REF 000461GB

System overview TIXXU
CONTROL GRAFT PROTECT

TIXXU CONTROL synt

TIXXU CONTROL synt membrane



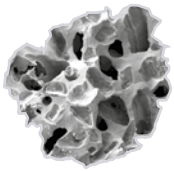
TIXXU CONTROL synt – 15 mm x 20 mm
REF TICO1520

TIXXU CONTROL synt – 20 mm x 30 mm
REF TICO2030

TIXXU CONTROL synt – 30 mm x 40 mm
REF TICO3040

TIXXU GRAFT

TIXXU GRAFT synthetic bone substitute



TIXXU GRAFT 0.5 cc (0.5 mm - 1 mm)
REF TX0401G50

TIXXU GRAFT 1 cc (0.5 mm - 1 mm)
REF TX9901G01

TIXXU GRAFT 1 cc (1 mm - 2 mm)
REF TX0302G01

TIXXU GRAFT 2 cc (1 mm - 2 mm)
REF TX9902G02

TIXXU GRAFT injectable bone substitute putty

TIXXU GRAFT PUTTY (0.5 ml)
REF TX1002PU50DE

TIXXU PROTECT

TIXXU PROTECT collagen fleece

TIXXU PROTECT collagen fleece 20 mm x 20mm, Content
10 pieces per PU
REF TIPR2020

TIXXU

CONTROL GRAFT PROTECT

DENTAL INNOVATIONS
SINCE 1974

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