



INTRODUCING RTR+ AND RTR+ MEMBRANE

CPD



RTR+: abiphasic formulation





Biphasic formulation:

Hydroxyapatite (HA) + β -Tricalcium phosphate (β -TCP)

An ideal bone regeneration material is resorbed at a similar pace to new bone matrix formation

The basic principle of the R.T.R.+ is the appropriate balance between:

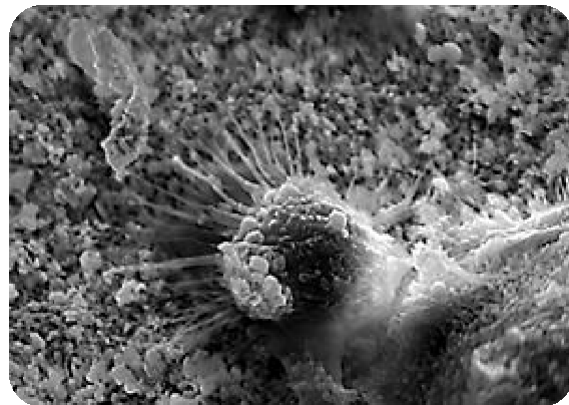
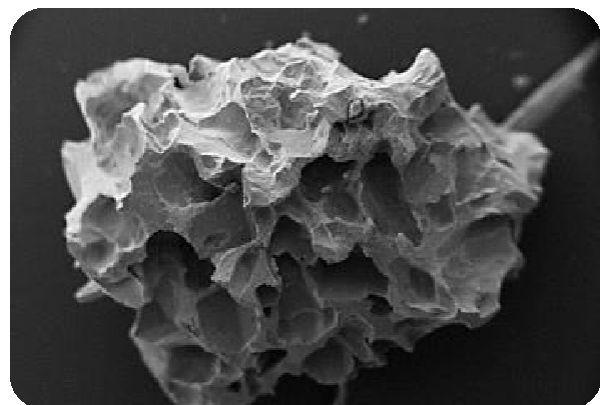
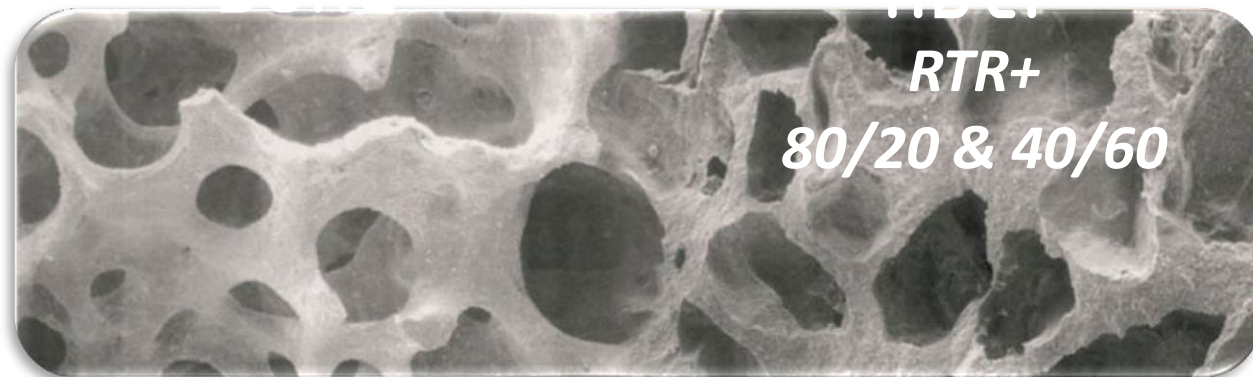
- **the stable hydroxyapatite (HA)** : shows a slowest solubility, therefore providing a highest stability. Acts as a scaffold offering an ideal structure for cellular adhesion.
- **the fast resorbing β -TCP** : the alkaline β -TCP demonstrates a higher solubility and thereby a fast resorption kinetics. It immediately begins to release calcium and phosphate ions into micropores enhancing bioactivity.



MBCP[®] Technology

MBCP® Technology:

Micro - Macroporous Biphasic Calcium Phosphate



MBCP® Micro-Macroporous structure: designed through a special manufacturing process, this macro and microporous structure :

- Mimics human bone
- Is proven to be an ideal osteogenic matrix for bone regeneration



100% synthetic & 100% resorbable

- **100% synthetic** : R.T.R.+ offers a high success rate with no risk associated, thanks to its 100% synthetic composition. Disease transmission is not an issue with synthetic material.
- **100% resorbable** : The Hydroxyapatite and the β -Tricalcium phosphate are both fully resorbable and will support the creation of new natural bone.





Features / Benefits

FEATURES	BENEFITS
Biphasic formulation (HA/BTCP)	New biphasic formulations allowing a resorption at the right pace which leads in the creation of a new stable and qualitative bone.
Two ratio available: 40% BTCP/60%HA 80% BTCP/20% HA	New Biphasic Formulations allowing you to manage the pace of your bone graft procedures
Global Porosity of 70% : interconnected network of macropores and micropores	Enables the colonization of bone cells and biological fluid uniformly within the matrix
Macroporosity 300-600 µm average	Interconnected spaces that promote the biological infiltration and cellular colonization by osteoblasts and osteoclasts
Microporosity < 10µm	micropores are the intercrystalline spaces where dissolution and recrystallisation occurs
Osteoconductive	Provides a matrix for new bone growth
Bioactive	For ionic exchange : TCP dissolution and bone crystal precipitation create newly bioactive interface with bone cells
Synthetic	Safe and assured quality
Sterilisation : irradiation	Safe and adapted to dental practice
Shelf life : 5 years	

The R.T.R.+ Range



R.T.R.+ 80/20
80% BTCP - 20% HA

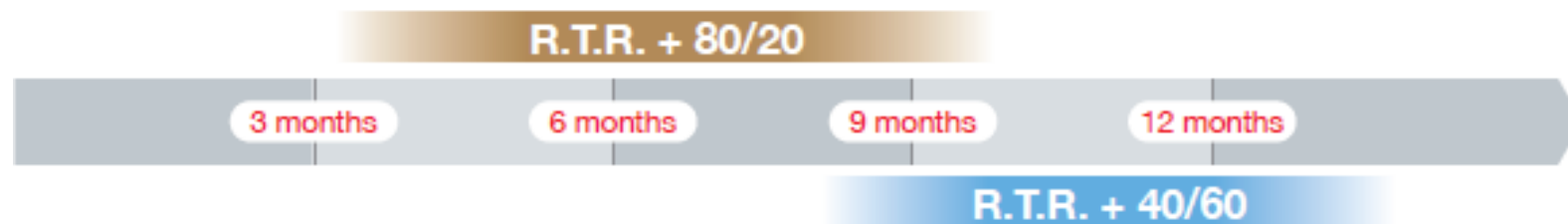
Helping natural bone formation in a short time



R.T.R.+ 40/60
40% BTCP - 60% HA

Fully respects the pace of creation of natural bone

Resorption durations



The R.T.R.+ range



R.T.R.+ 80/20
80% BTCP - 20% HA



R.T.R.+ 40/60
40% BTCP - 60% HA

...one presentation



**0,5 cm³
syringe**



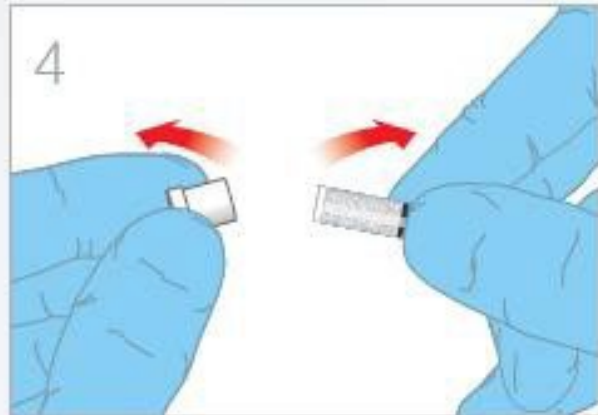
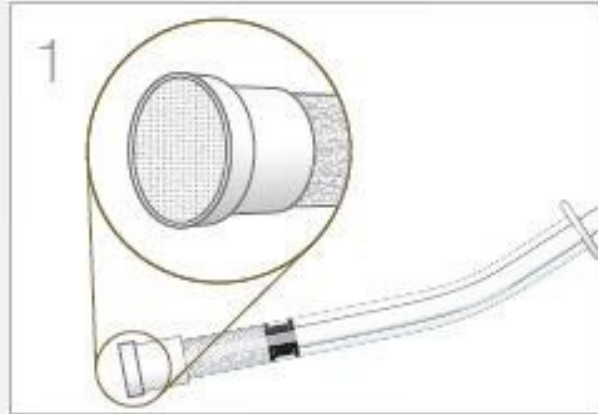
When should I use 80/20 or 40/60

The range allows you to choose the pace of your bone graft procedure

- If you require a socket filling with a fast new bone formation to prevent future bone weakness, RTR+ 80/20 might be your preferred choice.
- If you prefer a longer resorption pace, hence an even more stable new bone formation, then RTR+ 40/60 will certainly be your choice

Obviously, both treatments are of a high quality and allow future implant placement

How to use the R.T.R+





R.T.R.+ Membrane:





R.T.R.+ Membrane

R.T.R.+ Membrane is a resorbable membrane that allows a successful post-extraction procedure.

It is easy to use and safe thanks to Septodont's unique synthetic bilayer technology.

- ✓ Resorbable
- ✓ 100% synthetic: safe and suitable for everyone
- ✓ Bilayer structure for a strong barrier effect
- ✓ Unaffected by exposure
- ✓ Easy to handle and manipulate





Why use a membrane

- Using a membrane increases the success of the bone regeneration
- Membranes are used in about 25-30% of bone grafting procedures and this figure is growing as more dental professionals discover the success rates from their use



Septodont Surgery Range

BLEEDING MANAGEMENT



EXTRACTION SOCKET TREATMENT



**FULLY SYNTHETIC
PROCEDURE**

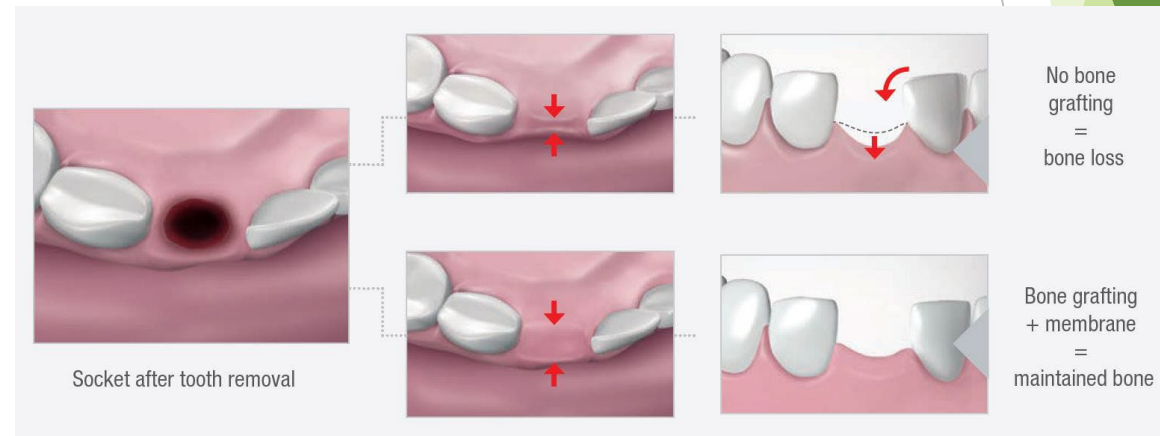
DRY SOCKET MANAGEMENT



Bone grafts and GTR are essential after a tooth extraction

- Bone grafts & Guided Tissue Regeneration (GTR) are needed when a part of your body is missing bone. This missing portion of bone is frequently called a “bony defect”.
- Benefits of bone grafts and guided tissue regeneration

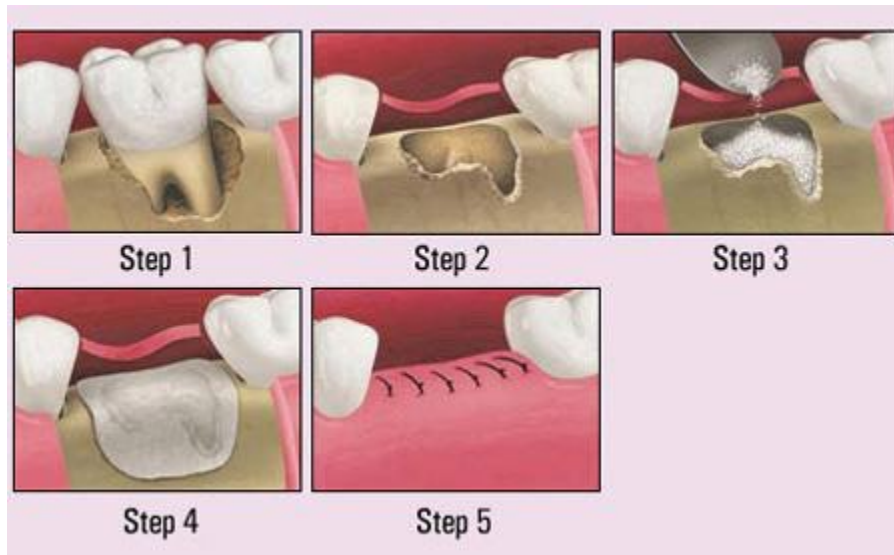
- Promotes bone regeneration
- Helps preserve natural teeth
- Improves natural aesthetics
- Prepares the jaw for dental implants
- Ensures long-term stability of implants



A minimum bone volume of 1.5 to 2.5mm around the implant surface is necessary to ensure its long-term stability

Bone graft and GTR: 5 steps to succeed a post-extraction procedure

Tooth extraction

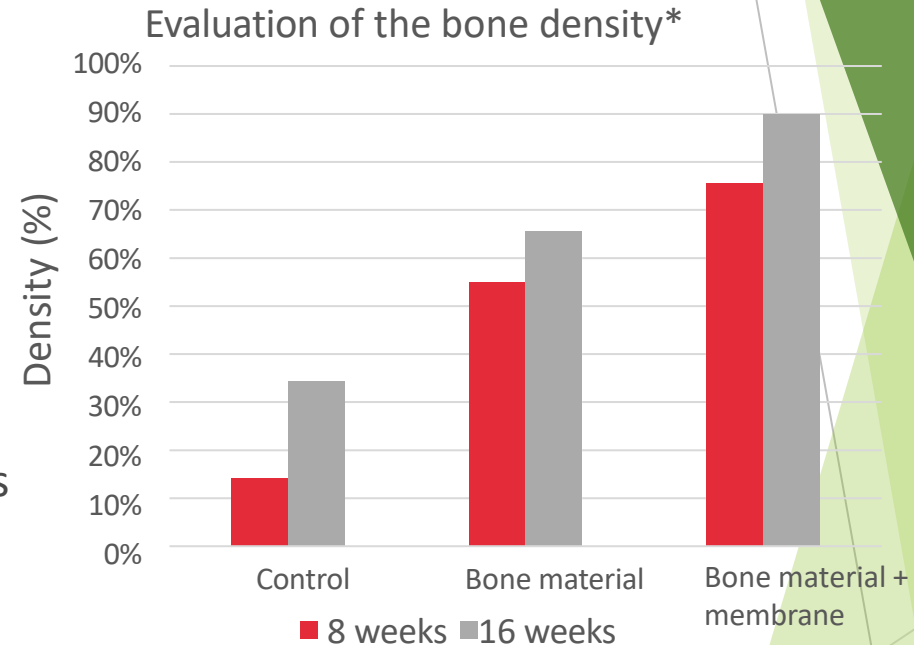


- Step 1: the tooth is removed
- Step 2: the remaining tooth socket is thoroughly cleaned of all inflamed and infected tissue
- Step 3: RTR+ granules are carefully placed into the extraction socket
- Step 4: RTR+ Membrane is placed over the grafted material
- Step 5: sutures placed into the gum tissue allow proper healing of the surrounding soft tissue



Membranes increase bone density

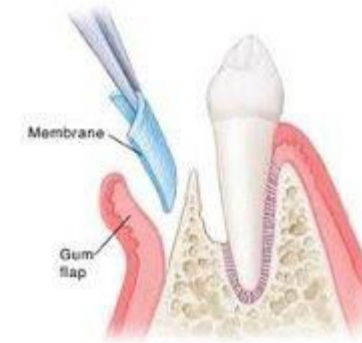
- Without a membrane
 - No barrier between the gingiva and the bone graft
 - The soft tissues grow faster than bone tissues
 - ➔ the gingiva takes the bone space ➔ Up to **30% bone loss** regardless of the bone graft used
- With a membrane
 - The protection provided by a barrier membrane allows
 - ➔ Highly significant increase in bone regeneration
 - ➔ Significantly improve the amount, quality and contour of the desired bone healing



Bone density measured by CT at 8 and 16 weeks portoperatively in each group (%).

The 3 main actions of a dental membrane

1. Prevent migration of epithelial cells and help recruitment of bone cells from the blood clot
→ barrier effect (or exclusion effect)
2. Maintaining the bone graft and the blood clot
3. Prevent resorption of the graft which can **lose up to 30%** of its volume in the absence of a membrane





Using a membrane:

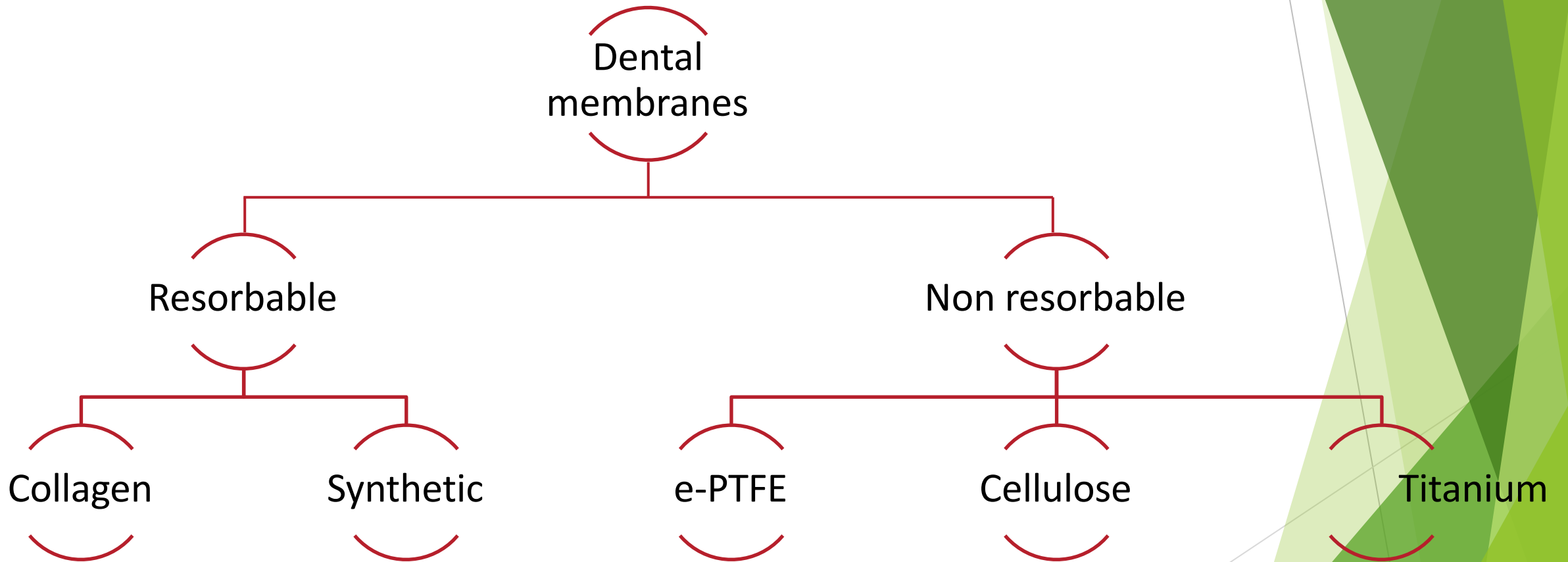
- Limits bone loss
- Facilitates augmentation of alveolar ridge defects
- Improves bone & tissue healing around the dental implants
- Improve bone-grafting results and treat failing implants
- Provide additional wound coverage
- Acts as a scaffold to protect and stabilise the blood clot
- Ensures the mechanical stability of the resolving wound complex
- Helps to prevent inflammation as a result of bacterial invasion

Blood clot forms after tooth extraction which leads to healing and new bone formation.





Types of membrane on the market





Features: 100% synthetic

- No animal origin
- Safer → no risk of cross-contamination
- Suitable for everyone → no ethical and religious limitation
- Easier → lower risks of regulatory threats than animal-based collagen
- 100% PLGA : poly(lactic-co-glycolic acid)
 - 85% polylactic acid (PLA)
 - 15% glycolic acid (PGA) } Copolymer PLGA
resorbable in 4 to 6 months
- PLGA sourced from vegetal starch
 - Imitates the structure of human collagen
 - Is permeable and allows cell colonisation





The advantages of a synthetic membrane

- Safer
 - No risk of transmission of animal pathogens
- Suitable for everyone
 - Especially patients who avoid animal by-products for cultural reasons or lifestyle choices
- Longer maintenance of the functional performances
 - Loss of integrity is a major drawback of collagen
- Not degraded by saliva
 - No need to be removed in case of exposure
 - Robust structure when exposed to the oral environment → ideal for cases at risk of dehiscence or where a tension-free closure is challenging
- Without glutaraldehyde
 - To ensure a suitable the resorption time, collagen membranes contain glutaraldehyde, a toxic ingredient



Features and benefits of R.T.R.+ Membrane

Features	Benefits
100% resorbable	No need for a second surgery
Resorption time 4-6 months	Proper period to allow good bone regeneration for implant placement
100% synthetic	Safer and suitable for everyone
Double-layer structure	Complete impermeability for 4 weeks, lasting barrier effect
In case of suture rupture, leave the membrane in place	No need to restart the entire procedure
Easy to use and to handle (same properties dry and humid)	Easy to manipulate Easy to reposition Easy size adjustment directly in the mouth
Not necessarily sutured or pinned	Easy to use, gain of time
Strong mechanical resistance	Same resistance than collagen membranes



Bilayer structure for a strong barrier effect

- Unique patented technology created to ensure bone cells multiplication

- Upper layer – Barrier function

Prevents gingival growth in place of the bone

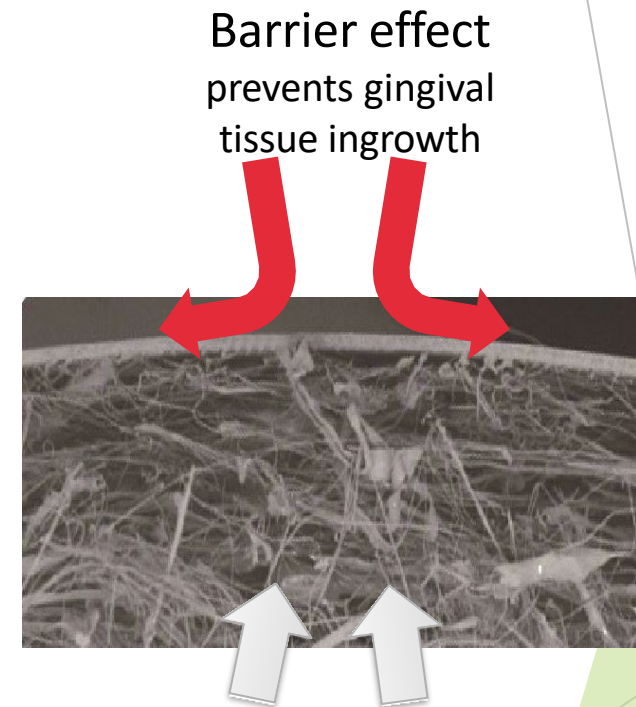
- Gum side
- Dense, smooth layer 25 μm thickness

- Lower layer – Regeneration function

85% porosity → allows bone cells to attach and develop

- Bone side
- Rough layer made of microfibrils 400-500 μm thickness

- Barrier effect maintained > 4 weeks
- Bone and soft tissue regeneration guaranteed up to 4 months in vitro



Barrier effect prevents gingival tissue ingrowth

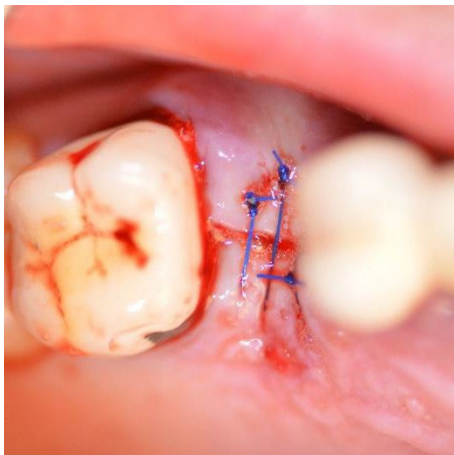
Scaffold effect promotes cell infiltration and guided bone healing

Unaffected by exposure

- Unique behavior upon exposure
 - Not sensitive to saliva enzymes (advantage over collagen) → not degraded when exposed
- In case of suture rupture leave the membrane in place

NB collagen membranes have to be removed asap in cases of suture rupture, because salivary collagenase destroys the membrane

→ There is no need to restart the entire procedure





Easy to handle

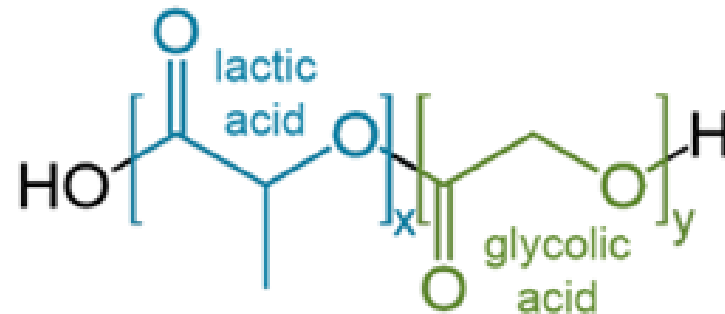
- Same properties wet and dry
 - No need to soak before use
 - Easy manipulation and placement of the membrane
 - Unlike collagen membranes it stays in place once installed and doesn't fold or slip
- Can be placed before or after the graft



R.T.R.+ Membrane has very good biocompatibility

- The membrane is made of
 - 15% PGA: Polyglycolic acid
 - 85% PLA: Polylactic acid
- } PLGA poly(lactic-co-glycolic acid)

→ Biodegradation into lactic and glycolic acids naturally present in the body





R.T.R.+ Membrane is compatible with every type of graft

- R.T.R.+ Membrane is suitable for all types of grafts
 - Autografts: using your own tissue
 - Allografts: using a donor tissue
 - Xenografts: using animal tissue
 - Alloplasts: synthetic graft → **R.T.R.+**



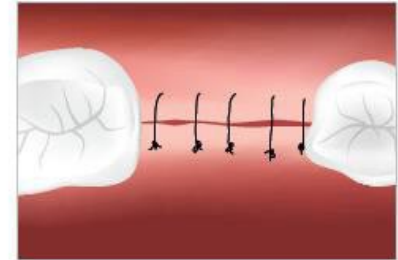
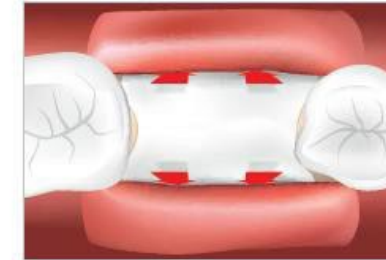
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How to use R.T.R.+ Membrane?

Tooth extraction

1. After the tooth is removed, the remaining tooth socket is cleaned of all inflamed and infected tissue
2. A bone graft is placed into the extraction socket
3. R.T.R.+ Membrane is shaped to fit the socket
4. R.T.R.+ Membrane is placed over the grafted material under the flaps
5. The flaps are sutured to allow proper healing of the surrounding soft tissue
6. In case of implant placement, wait 4-6 months after the bone graft and membrane placement





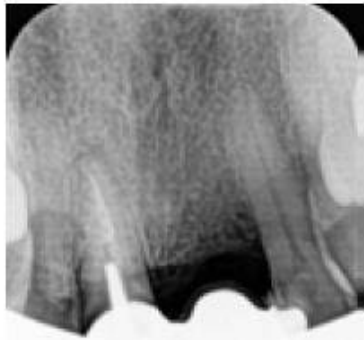
How to use the membrane

- Video



CASE N°1: SOCKET PRESERVATION ON THE DAY OF EXTRACTION (DR HOORNAERT, NANTES).

A 51 year old patient presented with a mobile bridge to replace the upper central incisors on a single support (tooth 11 - upper right 1).



Extraction at T0: upper central incisor is extracted and a temporary prosthesis is placed.



Guided Tissue Regeneration at 6 weeks: placement of the Tisseos® membrane between the flap and alveolar wall covering the bone substitute.



Clinical situation at day 10: no sign of inflammation.



Implant placement at 6 months in positions 11 (upper right 1) and 21 (upper left 1).



Clinical situation at 14 months with final restorations.

CASE N°2: SOCKET PRESERVATION AFTER SOFT TISSUE HEALING AT 6 WEEKS (DR HOORNAERT, NANTES).

A 55 year old patient presented with loss of dental crown (tooth 36 - lower left 6) with root still present.



T0: Root extraction and socket cleaning



T0: Socket preservation using the Tisseos® synthetic membrane



T12: A thin layer of fibrin being epithelialised on the membrane



Implant placement at 6 months



Final restoration at 8 months



End