

socket preservation

dental  
bone & tissue  
regeneration

botiss  
biomaterials

## collacone<sup>®</sup> max

Innovative composite matrix

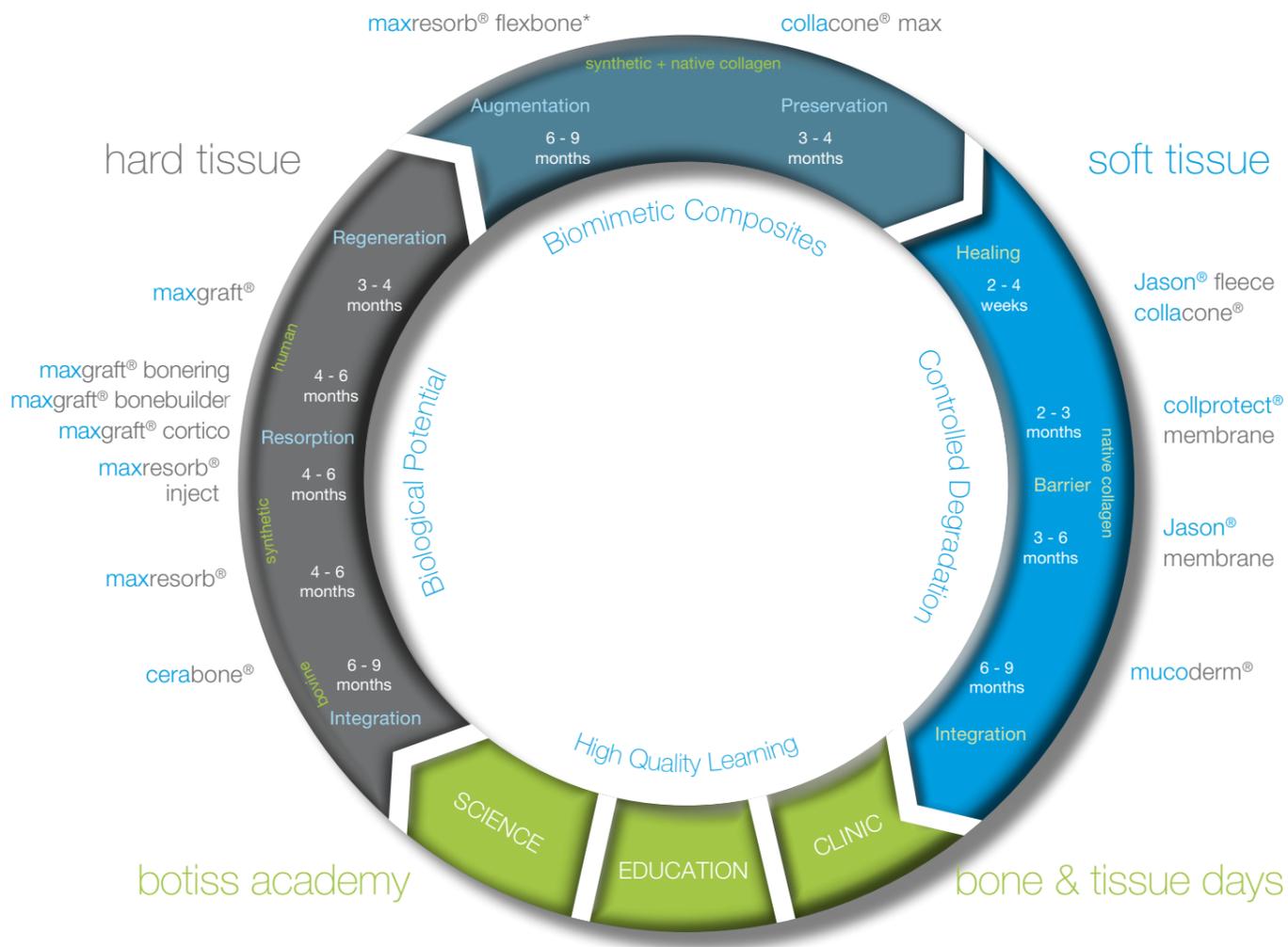


form-fitting

resorbable

composite

# botiss regeneration system



# Socket preservation — safeguarding your sockets

Bone resorption following natural socket healing

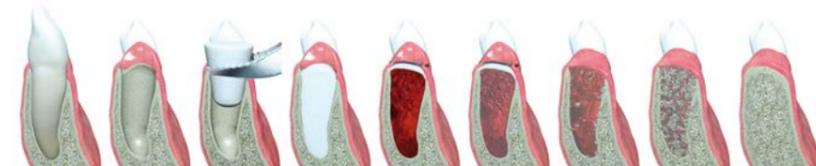
Immediately after tooth extraction, the socket fills with blood and a coagulum is formed. Within a week, invading vascular, immune- and connective tissue cells remodel the clot into granulation tissue that is successively replaced by a provisional matrix. Mineralizing processes, starting from the socket walls, lead to the formation of new, woven bone that gradually fills the socket and is eventually replaced by mature lamellar bone.

When the socket heals naturally, the bundle bone, i.e., the bone that surrounded the tooth, quickly resorbs and the socket loses its shape. Once the newly formed bone remodels into mature bone, the ridge is further reduced. The reduced ridge and collapsed soft tissue may pose aesthetic problems as well as complicate implant placement.

> Natural healing of the extraction socket is associated with bone resorption



## Socket preservation with collacone® max



The principal aim of socket preservation is to reduce the loss of alveolar bone and improve the aesthetic outcome of the final prosthesis. Preserving the bone volume prevents the need for additional augmentative procedures and enables stable implant installations.

In addition, covering of the open wound prevents tooth extraction complications, such as alveolar osteitis, bacteraemia and surgical wound infections. collacone® max is a composite material that maintains the socket space and provides a scaffold for bone ingrowth and new bone tissue formation. The patient's health status and the indication are amongst the most critical factors that, beside the biomaterials applied, decide the time of healing and regeneration.

## collacone® max: formed to fit

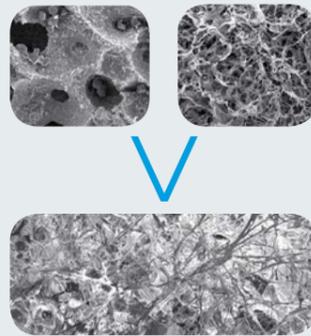


collacone® max is designed to fit perfectly into the void of the extraction socket and does not require hydration before application. The cone is easily placed into the extraction socket using a pair of tweezers.

> collacone® max features excellent handling properties and easily fits into the extraction socket due to its cone shape

# Complete resorption of the biomimetic collacone® max composite

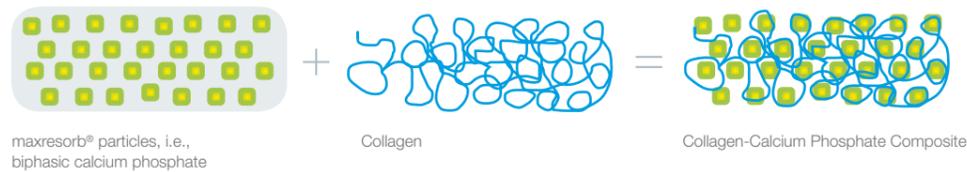
collacone® max is a biomimetic composite material that resembles native bone in its composition of collagen and biphasic calcium phosphate. While the collagenous phase provides biological signals that promote wound healing within the socket, the biphasic calcium phosphate component ensures volume stability and complete resorption at a controlled rate.



## Production process

collacone® max is made of porcine collagen and hydroxyapatite (HA) / beta-tricalcium phosphate (β-TCP), e.g., maxresorb®. The collagen extraction procedure involves multi-stage cleaning processes that effectively remove all non-collagenous proteins and antigenic components.

Scanning electron microscopy (SEM) images showing the microstructure of maxresorb® (top left), collagen fleece (top right), and the composite of maxresorb® particles and collagen; collacone® max.



maxresorb® granules are produced by mixing hydroxyapatite and beta-tricalcium phosphate (60%/40%) in a ceramic slurry; this ensures a completely homogenous distribution of the two calcium phosphate phases. The collagen solution is mixed with maxresorb® granules to form a completely homogenous mixture that is molded into cone shapes.

- > collacone® max maintains the socket space and provides a scaffold for bone ingrowth and new bone tissue formation

## Properties and Advantages

- Volume keeping; maintains space and avoids soft tissue collapse
- Easy handling; may be applied straight into the socket using a pair of tweezers
- Maintains integrity in the presence of blood /saline solution, and during application
- Complete resorption at a controlled rate due to synthetic calcium phosphate granules

# Product specifications collacone® max



## collacone® max

Art.-No	Size	Content
250001	H: ~16 mm Top Ø: ~11 mm Bottom Ø: ~7 mm	1 cone

hard tissue

soft tissue

## Bundle pack

collacone® max + mucoderm® Soft Tissue Punch

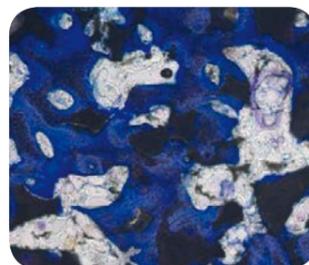
Article	Art.-No	Size	Content
collacone® max	250001	H: ~16 mm Top Ø: ~11 mm Bottom Ø: ~7 mm	1 cone
mucoderm® Soft Tissue Punch	710210	Ø: 10 mm H: ~1,2-1,7 mm	1 punch



# In vivo pre-clinical studies on collacone® max

New bone formation with collacone® max after 8 weeks of healing in a pig model  
 PD Dr. Dr. D. Rothamel, University of Cologne

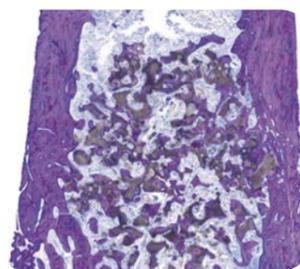
The biocompatibility and resorption behavior of collacone® max was examined following implantation into the pig skull. Toluidine blue staining of histological sections at 8 weeks post-operatively, display the maxresorb® particles well integrated into the newly formed bone (blue). The mineral components and the non-mineralized tissue are here shown in black and white, respectively.



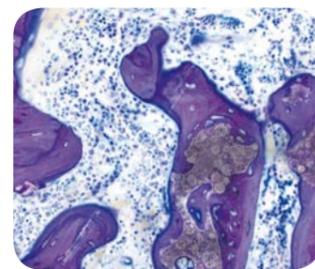
collacone® max at 8 weeks after implantation into the pig skull

Examination of the influence of collacone® max on bone healing in rats at 3 weeks post-operatively  
 Prof. Dr. Dr. Dr. h.c. R. Schnettler, University of Gießen and Marburg

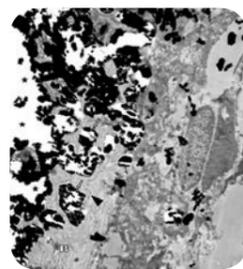
The panoramic view illustrates the defect area in the metaphysis of the rat femur. Already after 3 weeks of healing, newly formed bone is visible around the implant material. Osseous bridges are formed in between the conglomerates of the implant.



Histology showing the integration of collacone® max into the host tissue



Newly formed bone lining the bone substitute material



Ultra-thin section of the implanted material, as visualized by electron microscopy

# Clinical application of collacone® max

Clinical case by  
 Dr. Michael Back, Munich

Socket preservation with collacone® max and mucoderm®



Clinical situation before extraction



Tooth extraction



collacone® max easily applied with a pair of tweezers



Covering collacone® max with mucoderm® and fixation with holding sutures



Soft tissue healing at 14 days post-operatively



Soft tissue situation after suture removal



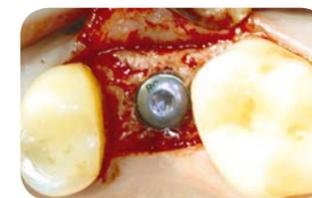
Intact ridge width and satisfactory soft tissue situation at 4 months post-operatively



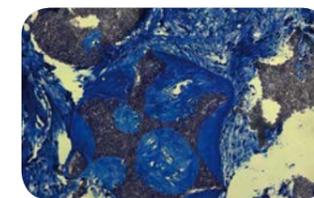
X-ray at the time of re-entry, demonstrating the regenerated bone



Regenerated bone at the time of re-entry, 4 months post-operatively



Stable insertion of the implant at the regenerated site



Histology harvested at the time of re-entry, showing the newly formed bone in close contact with the mineral particles

To ensure integration of the material, it is recommended to wait about 6 months before re-entry.

It is recommended to cover collacone® max to prevent migration of granules.

dental  
bone & tissue  
regeneration

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Innovation.  
Regeneration.  
Aesthetics.

soft tissue

education

hard tissue

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