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”

Comparative Maxillary Bone-Defect Healing by Calcium-Sulphate or Deproteinized Bovine Bone Particles and Extra Cellular Matrix Membranes in a Guided Bone Regeneration Setting: an Experimental Study in Rabbits”\*

Alberto Turri; Christer Dahlin

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# “Comparative Maxillary Bone-Defect Healing by Calcium-Sulphate or Deproteinized Bovine Bone Particles and Extra Cellular Matrix Membranes in a Guided Bone Regeneration Setting: an Experimental Study in Rabbits”

## SUMMARY.

### Objectives

The aim of this study was to histologically compare the dynamics of bone healing response between calcium sulphate (CaS)\* and deproteinized bovine bone mineral (DBBM) particles in guided bone regeneration utilizing an extracellular matrix membrane (ECM) as barrier.

### Material and methods

Eighteen rabbits were used in this study. 5 X 5 mm defects were created in the edentulous space between the incisors and molars in the maxilla. The CaS\* and DBBM particles were placed in the defects, with or without the placement of a membrane by means of random selection. Healing was evaluated at 2, 4 and 8 weeks by histology.

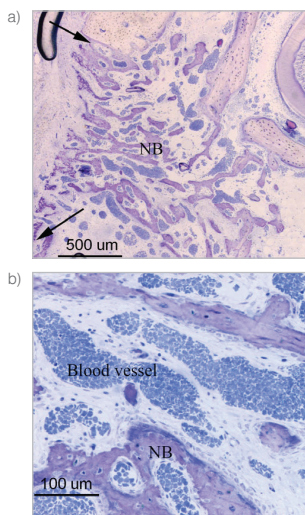
### Results

A total resorption of the CaS\* material was seen already at 2 weeks. Only minor resorption could be seen of the DBBM particles. The CaS\* group showed significantly more bone regeneration at all three healing periods compared to the DBBM group. The addition of an ECM membrane demonstrated significant additional effect on bone regeneration. The CaS group showed significant increased amounts of blood vessels compared to the DBBM group.

### Conclusions

This study showed that CaS\* in combination with an ECM membrane provided synergistic effects on bone regeneration, seemingly due to stimulating angiogenesis in the early healing process.

\*BONDBONE®



(a,b) Histological sections of defects filled with CaS (BONDBONE®) at 2 weeks of healing. Note the random bone formation and the massive amount of blood vessels. Original magnification X4 and X20. Toulidine blue stain.

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