



Backgrounder

Straumann® BoneCeramic – leading the way for new vital bone

Approximately one in five patients needing tooth replacement does not have adequate bone to provide sufficient stability for a dental implant. Such cases are currently treated either before or during dental implant placement, most commonly through the application of a bone graft taken from the same patient (autogenous).

Based on recent market research every second implant procedure requires bone augmentation, either prior to or concurrent with implant placement.¹ The patient's own (autologous) bone, for example from the jaw, is the preferred material for this procedure. However, limited quantities are available and the procedure can result in pain and complications at the donor site. Furthermore, autologous bone is resorbed readily and may not provide the required bone volume in the long term.

An alternative to autografting is to use materials from another human source or from animals. This is associated with a potential risk for disease transfection. The leading commercially available bone augmentation material is sourced from bovine bone, while other commonly used materials human.

Fully synthetic high-performance bone graft substitute

Straumann's BoneCeramic is a fully synthetic, high-performance bone graft substitute: providing maximum space for bone deposition and outstanding handling convenience. Its composition of hydroxyapatite (HA) and tricalcium phosphate (β -TCP) gives it two-phases of activity. Firstly, it enhances the formation of new vital bone, and secondly it provides a scaffold for bone volume restoration and preservation. It thus provides the necessary anchorage for implant function and the tissue support for esthetic outcomes.

BoneCeramic thus is designed to support both patients' own bone regeneration and bone volume restoration.

Being synthetic Straumann BoneCeramic guarantees consistent quality and is not associated with a potential risk of disease transmission.

More vital tissue highly similar to the native bone

In a prospective, multicenter, randomized, controlled clinical trial (RCT) Straumann BoneCeramic was compared head-to-head with the market leader.² Histological examination revealed that Straumann BoneCeramic achieved the same amount of new bone but with less residual graft material. The total amount of vital tissue in Straumann BoneCeramic augmented bone was significantly higher and similar to that of native bone.³ Other studies have confirmed this.

¹ iData. US market for dental bone graft substitutes and other biomaterials, 2007

² Cordaro L. et al. Maxillary sinus grafting with Bio-Oss or Straumann Bone Ceramic: histomorphometric results from a randomized controlled multicenter clinical trial. Accepted for publication on Clinical Oral Implants Research in 2008

³ Cordaro L. Histological results of a sinus augmentation using Straumann BoneCeramic; Presented at the ITI World Symposium, New York, April 2007.



In one article concerning treatment of deep intrabony defects, Straumann BoneCeramic combined with autologous bone proved to be superior to autologous bone alone.⁴ Three new clinical studies have been published more recently in peer-reviewed journals, and further results were presented at International Congresses such as IADR, AO or at the European Association for Osseointegration (EAO) congress in Warsaw. They endorsed the product's efficacy in several indications (sinus floor elevation, ridge dimension preservation, dehiscence-type defects, and periodontal defects).

Long-term clinical data were presented at the German ITI congress in 2008 in Cologne showing an outstanding survival rate of 99.3% for Straumann Implants placed in conjunction with Straumann BoneCeramic, with a follow-up of up to 48 months.

Overwhelming positive responses from clinicians

Straumann BoneCeramic has CE certification in Europe and clearance from the Food and Drug Administration in the USA. Straumann initiated a controlled introduction of Straumann BoneCeramic through selected specialists in Europe and the US towards the end of 2004. Since then it has been rolled out globally. Overall, the response from clinicians has been overwhelmingly positive.

Regulatory clearance in the most important Asian markets

Straumann continued the roll-out of the product in 2008 and received regulatory clearance in South Korea, one of the most important Asian markets for bone substitutes. Another important event was the reintroduction of the product in the US market in 2008.



Straumann BoneCeramic is used for bone augmentation to support implants.

⁴ Zafiropoulos GG et al. Treatment of intrabony defects using guided tissue regeneration and autogenous spongiosa alone or combined with hydroxyapatite/beta-tricalcium phosphate bone substitute or bovine-derived xenograft. J Periodontol 2007; 78: 2216–2225.