Conclusions

This technique of extraction and immediate placement of bone and barrier materials in a predictable fashion allows for reconstruction of edentulous alveolar ridge volume. The results of the pilot study indicate that BONDBONE® appears to be an accepted material in socket therapy. Although the data are based on a single center, it is suggested that BONDBONE® appears to be an accepted material in socket therapy.

References

**BONDBONE®** a Biaphsic Calcium Sulfate: A preliminary study in socket therapy

Ziv Mazor, DMD; Michael D. Rohrer, DDS, MS; Hari S. Prasad, BS, MDT; Nick Tovar, PhD; Robert A. Horowitz, DDS

### Introduction

Gingival studies have shown significant bone resorption and volume loss, including FDBA (1), ABBM (3), DFDBA used to prevent bone resorption and volume has been advocated to eliminate the need after tooth extraction (1). Socket augmentation Clinical studies have shown significant bone.

### Case Description

A 39-year-old woman presented with a failing hopeless. It was sectioned and extracted in an atraumatic manner using periotomes (Fig. 3-5). In all instances mucoperiosteal flap was elevated and a trephine was used to the tooth root cortex from the buccal bone. A radiograph was taken which was allowed to heal for 3 months (Fig. 8), which was allowed to heal for 3 months before uncovering (Fig. 9). Histologic evaluation showed vital bone in the right first molar site (Figs. 7, 8).

The specimen was then prepared using the subgingival method of Donath and Buschang (13), after histological preparation, the coronal socket was irrigated with physiological saline solution, and the tissue processed on the bone surface. After dehydration, the specimen was infiltrated with a solution of formaldehyde and alcohol. After infiltration, the specimen was sectioned and embedded in paraffin. The bone was stained with hematoxylin and eosin. The specimen was then dehydrated in a series of alcohol and cleared in xylene. The sections were then mounted on glass slides and stained with hematoxylin and eosin.

Histological Preparation and Histomorphometry

Histomorphometry

The ability of BONDBONE® to preserve and augment socket volume and width in the estimated time period between extraction and implant placement was evaluated histologically and histomorphometrically. Cross sections examined revealed bone formation and newly formed bone. In experiments, the bone defects were filled with BONDBONE® and the bone defects were filled with BONDBONE®. The specimen was then prepared using the subgingival method of Donath and Buschang (13), after histological preparation, the coronal socket was irrigated with physiological saline solution, and the tissue processed on the bone surface. After dehydration, the specimen was infiltrated with a solution of formaldehyde and alcohol. After infiltration, the specimen was sectioned and embedded in paraffin. The bone was stained with hematoxylin and eosin. The specimen was then dehydrated in a series of alcohol and cleared in xylene. The sections were then mounted on glass slides and stained with hematoxylin and eosin.

Histological Evaluation

Bone formation was assessed in the re-entered, regenerated site. In the horizontal sections, 10% of the bone defects were filled with BONDBONE®. In contrast, bone defects were filled with BONDBONE®. Histological evaluation and histomorphometry were performed using a light microscope with a temperature of 40°C. The composition of BONDBONE®, characterized by intermediate bioresorption, is self-reinforced. Therefore, it functions as a scaffold for bone regeneration in dental procedures.

### Discussion

Calcium sulfate is the simplest synthetic bone graft material in which the surgical history of bone graft material and implanting opera- tion was monitored for soft tissue healing and long-term dimensional stability of the bone regenerate.

Histological evaluation and histomorphometry were performed using a light microscope with a temperature of 40°C. The composition of BONDBONE®, characterized by intermediate bioresorption, is self-reinforced. Therefore, it functions as a scaffold for bone regeneration in dental procedures.
Calcium Sulfate: A preliminary study in socket therapy

Ziv Mazor, DMD; Michael D. Rohrer, DDS, MS; Hani S. Prasad, BS, MDT; Nick Tovar, PhD; Robert A. Horowitz, DDS

Introduction
Clinical studies have shown significant bone loss and resorption and volume loss in the first 6 months after tooth extraction. Several types of graft material have been used to preserve and support bone volume in the extraction site. Innovations in hard tissue augmentation include the use of collagen membrane, bioactive glass, and demineralized bone matrix. Clinical studies have shown significant bone volume and bone formation. A number of graft materials are available for use in the extraction site, including TDM, RAR, and BONDBONE®.

Case Description
A 39-year-old woman presented with a failing mandibular right first molar under a fixed PFM bridge. The tooth was in good health and had no medical contraindications that would prevent routine dento-alveolar surgery. Pre-operative photographs and periapical radiographs were taken of the site. After bridge removal, the tooth was deemed hopeless. It was extracted and submitted for a histologic examination. The extraction site was filled to the level of the gingival margin, and the BONDBONE® was grafted to the socket in an atraumatic manner using periotomes and luxators (Figs. 1-3).

The socket was covered with a collagen membrane (Fig. 4). A day or two after, the final level of bone was confirmed. If the site was not filled to the ideal contour, dry gauze was packed in the extraction site. The grafted site was allowed to heal for a week before uncovering (Fig. 5), which was allowed to heal for 3 months before uncovering (Fig. 6), and then restored (Fig. 7). The patient was in good health and had no medical contraindications that would prevent routine dento-alveolar surgery.

Histologic Preparation and Histomorphometry
At the time of implant placement, bone core was harvested from the surgical site. The histologic specimen that was fixed in 10% neutral buffered formalin. After dehydration, the specimen was infiltrated with cements and polymerized by 450 nm light. The specimens were embedded in resin and sectioned. Histologic preparations were stained with hematoxylin and eosin.

Discussion
Calcium sulfate is the simplest synthetic bone graft material. It has been shown to support bone regeneration in a variety of cases during repair of bone defects.

BONDBONE® is a granulated powder that functions as a scaffold to promote bone regeneration in dental augmentation procedures. It is self-reinforced and reduces time in dental augmentation procedures.

In the presented case, vital bone was formed in the re-entered, augmented site. The maximum residual bone graft was preserved without any remnant bone-replacement graft material.
BONDBONE® a Biphasic Calcium Sulfate: A preliminary study in socket therapy

Ziv Mazor, DMD; Michael D. Rohrer, DDS, MS; Hari S. Prasad, BS, MDT; Nick Tovar, PhD; Robert A. Horowitz, DDS

Introduction
Clinical studies have shown various time intervals between tooth extraction and bone augmentation of the extraction socket to be beneficial. In recent years, there has been a growing interest in the use of graft material at the time of tooth extraction. Several types of graft material have been advocated to eliminate the need for a secondary reconstructive procedure has been shown to prevent bone resorption and volume loss (1). Various techniques and materials have been used to achieve this goal, including autogenous bone, allogenic bone, xenogenic bone, and alloplastic materials. A variety of graft materials is available, including calcium sulfate (7-9), which has been shown to be beneficial in the hard tissue repair of the extraction socket. The purpose of the present study was to evaluate the use of BONDBONE® as a graft material in the extraction socket. The aim of this study was to evaluate the use of BONDBONE® as a graft material in the extraction socket.

Case Description
A 39-year-old woman presented with a failing mandibular right first molar under a fixed PFM prosthesis. The tooth was in good health, with no signs of periodontal disease. The patient had no medical contraindications to surgical intervention. The tooth was extracted under local anesthesia, and the socket was immediately grafted with BONDBONE®. The site was covered with a collagen fleece and monitored for soft tissue healing and bone formation. A radiograph was taken which revealed a defect fill (Fig. 6).

Histological Preparation and Histomorphometry
At the time of implant placement, bone core biopsies were retrieved from the implant site. A radiograph was taken which revealed a defect fill (Fig. 6).

Discussion
Calcium sulfate has a good reputation because of its biocompatibility, bio-resorbability, and osteoconductivity (16). However, it has been shown that calcium sulfate grafted to bone defects does not result in complete bone regeneration within the desired time period. In recent years, there have been reports of the use of calcium sulfate in the hard tissue repair of the extraction socket. The purpose of this study was to evaluate the use of BONDBONE® as a graft material in the extraction socket.

Further research is needed to compare vital bone formation in sockets grafted with calcium sulfate mixture to other graft materials. Additional studies are needed to determine the optimal time for grafting and the effect of different materials on bone regeneration. This study demonstrates the potential of BONDBONE® as a graft material in the extraction socket, and further research is needed to determine its long-term benefits.

References
Conclusions

This technique of extraction and immediate placement of a bone graft and barrier membrane is a predictable method for enhancing alveolar ridge volume. BONDBONE® can be safely left partially exposed to the oral environment during the experimental period. Additionally, the bone has maintained its integrity radiographically and enabled support of osseointegrated implants. The bone has maintained its morphologic integrity and has exhibited the ability to regenerate new bone. The bone has maintained its success rate in implant placement and loading. In the study, the predictable formation of vital bone in treated extraction sockets has led to 100% success rate in implant placement and loading. Additionally, the bone has maintained its integrity radiographically and enabled support of osseointegrated implants.

References

Conclusions

The technique of extraction and archbusque graft and barrier placement is a predictable alternative to ridge preservation. In this prospective study, the predictable formula of risk issues in clinical practice was noted. A 100% success rate in implant placement was achieved. Additionally, the rate of primary bone loss in the experimental group was limited to the limits of the presented cases. It is suggested that BONDBONE® is an optimal solution for the treatment of extraction sockets in presence of bone loss. BONDBONE® appears to be an acceptable material in socket therapy.

References