

# **$\beta$ \_TCP (CERASORB®)**

**In Bony Defect Around Dental Implant  
(Comparative and Experimental Study)**

**A thesis submitted to the council of  
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# Abstract

The purpose of this study was to evaluate histologically the role of **Cerasorb** bone graft substitute material ( **$\beta$ -TCP**) ( **$\beta$ -tri calcium phosphate**) as a therapeutic method for augmentation of bony defect adjacent to the dental implant, and to evaluate the state of bone osseointegration in comparison to the use of **Frios Algipore** bone graft substitute material.

A Fifteen New Zealand white male rabbits of 4-6 months in age and of 2-2.5 Kg in weight were used in the study. The experimental study was carried out in the Animal Care Center in the Medical College, University of Baghdad. The animals were housed in a wire mesh cages under supervision of the veterinarian staff.

The animals were divided into three groups:

**Group A (Control group):** Consist of five animals with insertion of dental implant in the right femur of the experimental animal with creation a traumatic bone defect 3×3 mm in diameter around the coronal part of dental implant which was left for healing without augmentation.

**Group B (Cerasorb group):** Consist of five animals with insertion of dental implant in the right femur of the experimental animal and creation a traumatic bone defect 3×3 mm in diameter around the coronal part of dental implant which was augmented with Cerasorb bone substitute.

**Group C (Algipore):** Consist of five animals with insertion of dental implant in the right femur of the experimental animals and creation a traumatic bone defect 3×3 mm in diameter around the coronal part of dental implant which was augmented with Algipore bone substitute.

The animals were sacrificed at 2 weeks, 4 weeks, and 12 weeks postoperatively. Block biopsies were taken from the implanted region of the femoral bone from each animal for histological evaluation.

The histological findings shows that Cerasorb bone substitute was faster in resorption and earlier in initiation of the newly bone formation that become completely matured during the third period (12 weeks) with successful bone osseointegration and direct contact to the implant surface , in comparison to the Aligpore bone substitute material that shows delayed resorption and longer time for newly bone formation with complete osseointegration, but shows an intervening layer between the bone and Aligpore bone grafted material. While in the control group without augmentation the amount of the bone was less, woven type, and immature and incomplete osseointegration around implant surface.

The study concluded that the use of Cerasorb bone substitute material was preferable to be used in augmentation of bony defect around implant site than the use of Aligpore bone substitute material.