

## **Clinical, Histological, and Histomorphometric Evaluation of Demineralized Freeze-Dried Cortical Block Allografts for Alveolar Ridge Augmentation.**

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### **Abstract**

Autogenous bone-block grafts are the "gold standard" for block bone grafting, but have several disadvantages. Allografts have the potential to overcome these disadvantages. The purpose of this study was to evaluate the clinical and histomorphometric features of demineralized freeze-dried cortical block allografts (DCBA) used for ridge augmentation. Eleven patients who showed bone deficiencies of <5mm in the horizontal plane were included in this study. The recipient sites were reconstructed with DCBA. The primary outcomes of interest were bone-width measurements, postoperative clinical evaluations, and histomorphometric analysis of the biopsy samples collected during the implant surgery. Clinical analysis showed that the mean gain in horizontal bone was  $1.65\pm 0.14$  mm, and that the mean percentage of graft resorption was  $5.39\pm 2.18\%$ . On postoperative day 7, edema, pain, and bruising were observed in 18.2%, 0%, and 9.1% of the patients, respectively. In the biopsy samples, the mean percentages of newly formed bone, residual block allograft, and marrow and connective tissue were  $40.30\pm 24.59\%$ ,  $40.39\pm 21.36\%$ , and  $19.30\pm 15.07\%$ , respectively. All of the block grafts were successfully integrated into the recipient sites. DCBA may be a viable alternative for treating both deficient maxillary and mandibular alveolar ridges.