

## Histological and clinical analysis of fresh-frozen allogeneic vs autogenic bone grafts for 3D alveolar bone reconstruction

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Reconstruction of atrophic alveolar bone can be made with many grafting materials. Autogenous bone, from intra- or extraoral donor sites, represents the best documented material in terms of number of patients and follow-up; allogeneic fresh-frozen bone (FFB), from dead bodies has been suggested as an alternative to overcome problems related to autogenous bone collection (1, 2). The aim of this work is to histologically and histomorphometrically compare bone biopsies obtained during dental implant placement in reconstructed jaws with either FFB or autologous iliac crest bone blocks using the same surgical grafting procedure. All samples were processed for ground sections and then underwent a histomorphometrical evaluation using a stereologic method. Twenty edentulous patients were treated with either FFB (14 patients, group A) or with autografts (6 patients, group B) iliac crest grafts. Five to 9 months later, dental implants were placed in the reconstructed jaws and bone biopsies were harvested. Reconstructive procedure was uneventful in 9 patients of group A and in all patients of group B. In 5 patients of group A, bone sequestra were obtained and processed for ground sections. These specimens showed the typical findings of a bone necrosis. All other samples from both groups presented the same values in terms of proportion of lamellar, newly formed bone and bone marrow. In group A, the decreasing proportion of blood vessels from apical to coronal, the larger amount of osteocytic lacunae in the apical portion and the fewer vessels in the coronal portion compared to group B, evoke an effort of the host bone to “integrate” the graft from the apical portion. FFB cannot be considered as successful and safe in alveolar bone reconstruction as autogenous bone grafting.

### References

- [1] Contar et al. (2009) Maxillary ridge augmentation with fresh-frozen bone allografts. *J Oral Maxillofac Surg* 67:1280-1285.
- [2] Chiapasco et al. (2013) Iliac crest fresh-frozen allografts and autografts in maxillary and mandibular reconstruction: a histologic and histomorphometric evaluation. *Minerva Stomatol* 62:3-16.

### Keywords

Atrophic jaws; autografts; allografts; histomorphometry; implant-supported rehabilitation.