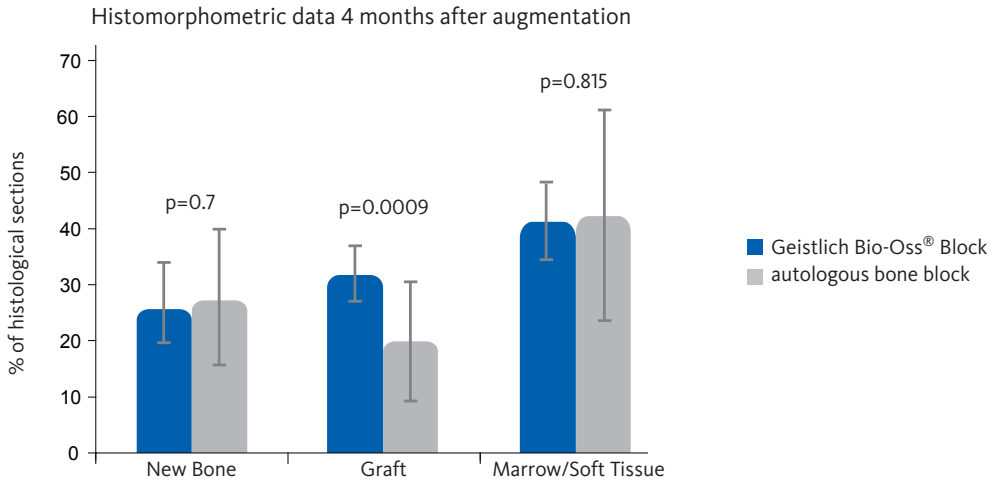
Vertical ridge augmentation: comparable results with bone from the iliac crest and Geistlich Bio-Oss® Block

Excerpt from Felice P, Marchetti C, Iezzi G, Piattelli A, Worthington H, Pellegrino G, Esposito M: Vertical ridge augmentation of the atrophic posterior mandible with interpositional bloc grafts: bone from the iliac crest vs. bovine anorganic bone. Clinical and histological results up to one year after loading from a randomized-controlled clinical trial.
Clin Oral Impl Res 2009; 20(12): 1386–1393.

Results

- No statistically significant differences occurred between sites treated with Geistlich Bio-Oss® Block and sites treated with autogenous bone block from the iliac crest in failures and complications.
- Paired histomorphometric analyses revealed more residual graft with Geistlich Bio-Oss® Block. The amount of new bone and marrow space/soft tissue was not significantly different between sites.



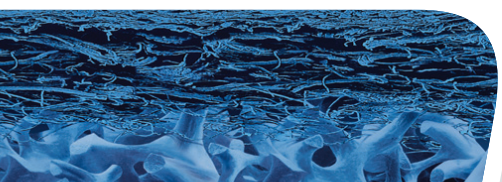
- With both treatments some peri-implant marginal bone loss occurred. It appeared that bone loss was less at sites treated with Geistlich Bio-Oss® Block (0.59 mm vs. 0.82 mm); however, the difference was not statistically significant.

Conclusion

Good results were achieved with both the block grafts from the iliac crests and the Geistlich Bio-Oss® Block. However, the use of xenogenic blocks is less invasive and may be preferable to harvesting bone from the iliac crest.

Study design

- 10 partially edentulous patients with bilateral 5-7 mm residual mandibular crest.
- Split mouth design: interpositionally placed bone blocks, either from the iliac crest or Geistlich Bio-Oss® Block, were randomly assigned to the sites.
- Grafted sites were covered with Geistlich Bio-Gide®.
- Implants were inserted after 4 months, provisional prostheses were placed after another 4 months, and final prostheses were delivered after 4 more months.
- Biopsies were taken upon implant placement.
- Prosthesis/implant failures, complications after loading, and marginal bone levels were assessed.



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Vertical ridge augmentation of the atrophic posterior mandible with interpositional bloc grafts: bone from the iliac crest vs. bovine anorganic bone. Clinical and histological results up to one year after loading from a randomized-controlled clinical trial.

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Abstract

Objectives: To compare two different techniques for vertical bone augmentation of the posterior mandible: bone blocs from the iliac crest vs. anorganic bovine bone blocs used as inlays.
Materials and methods: Ten partially edentulous patients having 5-7 mm of residual crestal height above the mandibular canal had their posterior mandibles randomly allocated to both interventions. After 4 months implants were inserted, and after 4 months, provisional prostheses were placed. Definitive prostheses were delivered after 4 months. Histomorphometry of samples trephined at implant placement, prosthesis and implant failures, any complication after loading and peri-implant marginal bone-level changes were assessed by masked assessors. All patients were followed up to 1 year after loading.
Results: Four months after bone augmentation, there was statistically significant more residual graft (between 10% and 13%) in the Bio-Oss group. There were no statistically significant differences in failures and complications. Two implants could not be placed in one patient augmented with autogenous bone because the graft failed whereas one implant and its prosthesis of the Bio-Oss group failed after loading. After implant loading only one complication (peri-implantitis) occurred at one implant of the autogenous bone group. In 16 months (from implant placement to 1 year after loading), both groups lost statistically significant amounts of peri-implant marginal bone: 0.82 mm in the autogenous bone group and 0.59 mm in the Bio-Oss group; however, there were no statistically significant differences between the groups.
Conclusions: Both procedures achieved good results, but the use of bovine blocs was less invasive and may be preferable than harvesting bone from the iliac crest.