

ARTICLE IN REVIEW:

Assessment of allograft particles and/or blocks in sinus augmentation with simultaneous implant placement

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TITLE: Histomorphometrical Assessment of Sinus Augmentation Using Allograft (Particles or Block) and Simultaneous Implant Placement.¹

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STUDY DESIGN: Prospective comparison of clinical, radiological, and histomorphometric outcomes following 38 consecutive atrophic maxillary sinus augmentations (n=29 patients).

SUMMARY: Allograft bone block (ReadiGraft®; n = 17) or allograft bone particulate (OraGraft®; n = 21) was used, and dental implants were inserted simultaneously in all but n = 4 particulate cases, in which they could not be stabilized. In these cases, implant insertion occurred in the second stage (at 9 months), leaving n = 17 of each allograft type for histomorphometric analysis. The difference in ability to perform simultaneous implant placement was statistically significant (P <0.05). Overall, 90 implants were inserted simultaneously with the allografts, all of which osseointegrated, and none of which were lost at final follow-up (range: 50 – 120 months). Radiographic bone gain (12.3 ± 1 mm vs. 11.2 ± 1 mm; block vs. particulate respectively) and histomorphometric new bone formation (27.7 ± 15% vs. 32.1 ± 19%; block vs. particulate respectively) showed no statistically significant differences between the two groups. The authors conclude that sinus augmentation using allograft particulate or blocks is predictable, with all outcome parameters being similar (implant survival, radiographic bone gain, histomorphometric new bone formation, and long-term follow-up), but that bone blocks may be advisable when simultaneous implant placement is imperative in cases with residual alveolar bone height of ≤3 mm.

Sinus augmentation with allograft bone particulate and/or bone block is predictable:

Radiographic bone gain and histomorphometric new bone formation were achieved in all cases, and were similar between allograft particulate and allograft bone blocks.

Superior performance in implant survival and long-term follow-up:

All 90 implants inserted simultaneously with the allografts osseointegrated, and none were lost at final follow-up (range: 50 – 120 months).

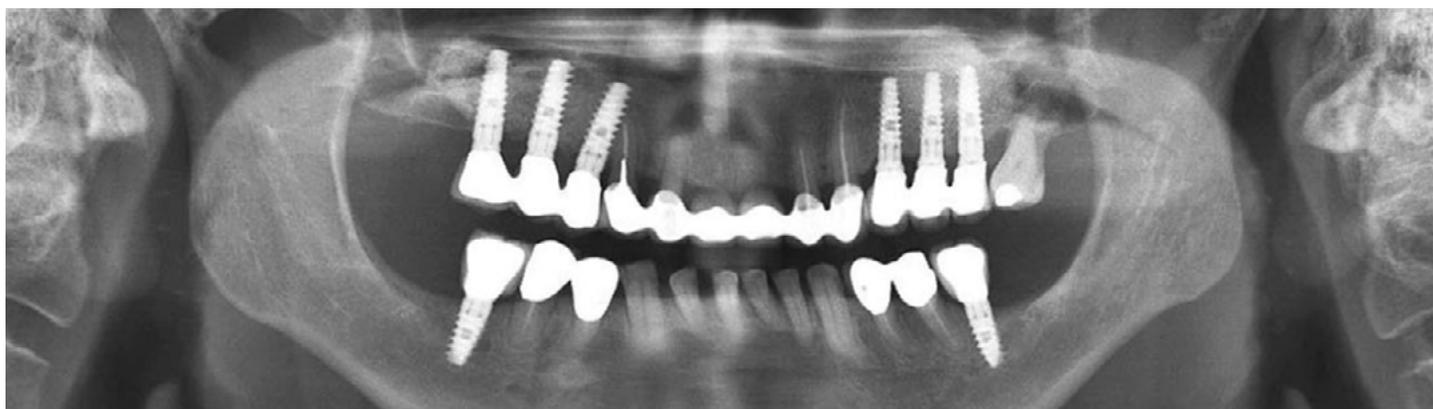
Allograft bone block may be preferred when simultaneous implant insertion is imperative:

In 4 out of 21 cases using allograft particulate, second-stage insertion (at 9 months) was required to achieve implant stability.

Reference:

1. Chaushu L, Chaushu G, Kolerman R, Vered M, Naishols S, Nissan J. Histomorphometrical Assessment of Sinus Augmentation Using Allograft (Particles or Block) and Simultaneous Implant Placement. Sci Rep. 2020; 10(1):9046. doi:10.1038/s41598-020-65874-5

Panoramic radiograph demonstrating placement of block allograft (right) and particulate (left) in the maxilla.



Note: Not all patients received both graft types. Image reproduced from Figure 3 with permission under an [open access license](#).¹

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