

## Bone substitutes in sinus lift procedures: a systematic review

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**Background:** Implant rehabilitation of the edentulous posterior upper area is much too often hampered by an insufficient residual bone volume. Sinus floor elevation with bone grafts is nowadays considered the most reliable pre-prosthetic surgical procedure to overcome this limitation.

**Aim/Hypothesis:** To answer the PICO question: 'For the rehabilitation of edentulous postero-superior areas in patients with a mean bone volume of < 6 mm, does sinus grafting with autologous bone, with a lateral surgical approach, result in lower implant failure rates than when applying bone substitutes?'

**Material and methods:** Primary and secondary databases (Cochrane; EMBASE and MEDLINE) with the keywords sinus lift, implant and graft, for randomized controlled clinical trials, meta-analysis, systematic reviews, coorte studies, case series, comparative and multicentre studies, in humans, without time restrictions, in English, French, Portuguese and Spanish. The data were submitted to a meta-analytic analysis, (Comprehensive Meta-analysis 2.0) with a 95% confidence interval. Fifty-five studies were included (12679 implants).

**Results:** The highest failure rate was obtained with autologous bone block grafts, while the lowest was obtained with the combination of autologous bone and bone substitutes. The difference between the results of this combination and autologous particulate bone graft, and autologous bone block grafts is statistically significant.

**Conclusion and clinical implications:** For the procedure considered, the use of autologous bone is related to statistically significant higher implant failure rates than when this type of graft is combined with bone substitutes and even when only bone substitutes are used. There is also a statistically significant difference between implant survival rates when using particulate autologous bone or the same type of graft as a block, with higher failure rates obtained when using the latter. When it comes to implant surface roughness, rough implant are clearly superior to smooth surface implants, with a statistically significant difference between implant failure rates.