

Stübinger S, Ghanaati S, Orth C, Hilbig U, Saldamli B, Biesterfeld S, Kirkpatrick CJ, Sader RA
Maxillary sinus grafting with a nano-structured biomaterial: preliminary clinical and histological results.
Eur Surg Res. 2009;42(3):143-9. Epub 2009 Jan 29.

Background: In this study the potential of a new and entirely synthetic, nano-structured hydroxyapatite-based biomaterial for sinus floor augmentation is evaluated.

Methods: 20 sinus floor elevations were carried out in a total of 20 patients. After a healing period of 6 months, in 10 cases cylinder-shaped bone biopsies were taken from the augmented maxillary region using trephine burs.

Results: The healing period progressed without any complications. General and specific histological analysis of the bone biopsies showed a high osteoclast activity at the margin of the biomaterial which was well integrated into the newly formed bone.

Conclusion: This study demonstrates that new trabecular bone is formed after grafting with the nanocrystalline bone substitute after 6 months. Ongoing histomorphological studies are necessary to quantify the biomaterial-bone ratio and the exact amount of newly built bone in the augmented cavity after 6 months.