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## Abstracts

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## 15. New Bone Formation Using Bone Substitutes in Sinus Lift Procedure

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True bone ceramic (TBC) is a biomaterial which is produced by baking bovine bone after the removal of organic substances. Boneject (Kohken Ltd.) is TBC granules mixed with collagen gel. Here we report the results of an animal experiment to confirm the value of these bone substitutes in the space caused by lifting the sinus membrane by means of the sinus lift procedure. Both frontal sinuses in ten adult dogs around 10 kg in weight were used. Under general anesthesia, an opening was made in the frontal sinus. An implant was placed beside the opening after lifting the sinus membrane. The space caused by lifting the sinus membrane in the right frontal sinus was filled with Boneject and the space in the left sinuses only with TBC. The dogs were sacrificed at intervals of one week, one, two, three and six months. The frontal sinuses were then histologically observed.

### Results

When Boneject was placed in the right sinuses, the results showed that one week later coagulated blood and granulation tissue with TBC granules filled the space. Active new bone formation was observed at the surface of the sinus wall bone. No new bone was noticed on TBC granules outside of the area of new bone and at the sites of the sinus membrane. One month later the space contained TBC granules, new bone and fibrous connective tissue. Three months later new bone formation reached its peak. In the left sinus group in which TBC was used, histological findings of the spaces was similar to the ones of the right sinus in which Boneject was used.

The summarized results are as follows: 1) The histological findings in the Boneject group were similar to that in TBC group. 2) Active new bone formation was observed for the first time after one week and it reached its peak after three months. 3) New bone was confirmed at the surface of the sinus wall bone and the bone fragment. 4) No case showed new bone formation at the sinus membrane which was lifted and at TBC granules outside of the area of new bone.