

Immediate loading of implants installed in a healed alveolar bony ridge or immediately after tooth extraction: an experimental study in dogs.

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Abstract

OBJECTIVE:

To compare the sequential healing at immediately loaded implants installed in a healed alveolar bony ridge or immediately after tooth extraction.

MATERIAL AND METHODS:

In the mandible of 12 dogs, the second premolars were extracted. After 3 months, the mesial roots of the third premolars were endodontically treated and the distal roots extracted. Implants were placed immediately into the extraction sockets (test) and in the second premolar region (control). Crowns were applied at the second and third maxillary premolars, and healing abutments of appropriate length were applied at both implants placed in the mandible and adapted to allow occlusal contacts with the crowns in the maxilla. The time of surgery and time of sacrifices were planned in such a way to obtain biopsies representing the healing after 1 and 2 weeks and 1 and 3 months. Ground sections were prepared for histological analyses.

RESULTS:

At the control sites, a resorption of the buccal bone of 1 mm was found after 1 week and remained stable thereafter. At the test sites, the resorption was 0.4 mm at 1-week period and further loss was observed after 1 month. The height of the peri-implant soft tissue was 3.8 mm both at test and control sites. Higher values of mineralized bone-to-implant contact and bone density were seen at the controls compared with the test sites. The differences, however, were not statistically significant.

CONCLUSIONS:

Different patterns of sequential early healing were found at implants installed in healed alveolar bone or in alveolar sockets immediately after tooth extractions. However, three months after implant installation, no statistically significant differences were found for the hard- and soft-tissue dimensions.