



## Tissue changes of extraction sockets in humans: a comparison of spontaneous healing vs. ridge preservation with secondary soft tissue healing

### ABSTRACT

Different ridge preservation techniques are available in order to control the bone remodeling process after a tooth extraction. The aim of these procedures is the maintenance of the alveolar ridge dimensions. Guided bone regeneration techniques have shown better results when compared to tooth extraction alone and the aim of this study was to evaluate the changes of hard and soft tissues in post-extraction sockets treated with a ridge preservation procedure and to compare them with those of post-extraction sockets which had healed naturally. A total of 58 patients (29 controls, and 29 tests) were enrolled in this study and each patient was randomly allocated to a test group or control group using a specific software package. The control sites received suture without any grafting material. The test sites were grafted with cortico-cancellous porcine bone (OsteoBiol® mp3®, TecnoSS®, Giaveno, Italy) and a collagen membrane (OsteoBiol® Evolution, TecnoSS®). At baseline and at implant placement (i.e. at 4 months), vertical bone changes, horizontal bone changes and width of keratinized gingiva were evaluated. The control group showed vertical bone resorption of  $1\pm 0,7$  mm,  $2,1\pm 0,6$  mm at mesial and buccal sites, and  $1\pm 0,8$  mm and  $2\pm 0,73$  mm at distal and lingual sites respectively. With reference to the changes in horizontal dimension, an average resorption of  $3,6\pm 0,72$  mm was assessed. The test sites showed a vertical bone remodelling of  $0,3\pm 0,76$  mm,  $1,1\pm 0,96$  mm, at mesial and buccal sites, and  $0,3\pm 0,85$  mm,  $0,9\pm 0,98$  mm at distal and lingual sites respectively. The horizontal bone resorption at the test sites was  $1,6\pm 0,55$ mm.

### CONCLUSIONS

The findings of this study let the Authors affirm that *“our data clearly indicate that the use of cortico-cancellous porcine substitute and resorbable membrane left exposed succeeded in reducing alveolar contour from remodeling when compared to non-treated extraction sockets. Furthermore, our research shows that the use of a ridge preservation technique may maintain ridge height when compared to tooth extraction alone”*.

### ALVEOLAR REGENERATION

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