DIMENSIONAL CHANGES OF THE ALVEOLAR RIDGE 4 MONTHS POST-EXTRACTION: PRELIMINARY RESULTS OF A RANDOMIZED CONTROLLED CLINICAL TRIAL COMPARING RIDGE PRESERVATION WITH NATURAL HEALING.

BACKGROUND
The biologic process of alveolar ridge resorption following tooth extraction results in important horizontal and vertical dimensional changes. It occurs especially in the buccal/crestal region, hampering esthetic implant treatment outcome. The use of different ridge preservation techniques has been suggested to minimize alveolar ridge resorption and to maintain as much volume as possible.

The aim of this randomized controlled clinical trial was to evaluate the 4-month post-extraction dimensional changes in natural healed sockets compared with ridge preservation.

MATERIALS & METHODS
Patients in need for tooth replacement in the anterior maxilla or mandible were randomly assigned to 3 different post-extraction treatment groups: A) natural healing, B) coverage of the alveolus with a Symbios slow resorbable collagen membrane, C) ridge preservation using Symbios biphasic bone graft in combination with a Symbios slow resorbable collagen membrane (Symbios, Dentsply Implants, Mölndal, Sweden). Only non-smoking patients with an intact buccal bone wall were included. CBCT images were taken immediately after tooth extraction (T1) and after 4 months healing (T4), prior to implant placement (Figure 1). Images were superimposed using the OnDemand-3D software (Cybermed, Daejeon, Korea) to compare dimensional bone changes on the midfacial level of each socket (Figure 1). Surface changes were calculated for the crestal 3 mm and 5 mm of the socket (Figure 2).

RESULTS
Twenty patients (7 females, 13 males; mean age = 50.79, SD 13.95) with 24 extraction sockets were randomly assigned to the 3 treatment groups. Each group consisted of 8 sockets. The study sample included 2 incisors, 5 canines and 13 premolars in the maxilla and 4 premolars in the mandible.

After 4 months, group A showed a midfacial dimensional loss of 48.03% (SD 31.10) and 38.79% (SD 25.57) for the crestal 3mm and 5 mm, respectively. 45.92% (SD 32.80) and 33.87% (SD 37.77) were the corresponding values for group B; 32.72 % (SD 30.80) and 26.77 % (SD 24.19) for group C.

CONCLUSIONS
Preliminary results suggest a beneficial effect in terms of contour preservation when Symbios biphasic bone graft is used in combination with a slow resorbable collagen membrane. However, at this stage, it is difficult to draw strong conclusions based on a limited sample size.

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