

## ORIGINAL ARTICLE

# Radiographic marginal bone level evaluation around two different tissue-level implant systems: a one-year prospective study

Sandrine ABI RACHED<sup>1</sup>, Carole CHAKAR<sup>1</sup>, Rawad SAMARANI<sup>1</sup>, Gabriel MENASSA<sup>1</sup>, Salvatore SEMBRONIO<sup>2</sup>, Resi PUCCI<sup>3</sup>, Leonardo CALABRESE<sup>4</sup>, Stefania CANTORE<sup>5\*</sup>, Annarita MALCANGI<sup>6</sup>, Francesca SPIRITO<sup>7</sup>, Michele DI COSOLA<sup>7</sup>

<sup>1</sup>Department of Periodontology, Faculty of Dental Medicine, Cranio-facial Research Laboratory, Saint-Joseph University of Beirut, Beirut, Lebanon; <sup>2</sup>Department of Maxillofacial Surgery, Academic Hospital of Udine, University of Udine, Udine, Italy; <sup>3</sup>Department of Oral and Maxillofacial Sciences, Sapienza University, Rome, Italy; <sup>4</sup>Department of Oral Biomedicine and Prevention, Tor Vergata University, Rome, Italy; <sup>5</sup>Regional Dental Community Service “Sorriso & Benessere - Ricerca e Clinica”, Bari, Italy; <sup>6</sup>ASL B.A.T., Trani, Barletta-Andria-Trani, Italy; <sup>7</sup>Department of Clinical and Experimental Medicine, University of Foggia, Foggia, Italy

\*Corresponding author: Stefania Cantore, Independent Researcher, Regional Dental Community Service “Sorriso & Benessere - Ricerca e Clinica”, Via A. Sciesa, 1, 70129, Bari, Italy. E-mail: [stefaniacantore@pec.omceo.bari.it](mailto:stefaniacantore@pec.omceo.bari.it)

## ABSTRACT

**BACKGROUND:** Marginal bone loss, is a frequently reported variable in the evaluation of dental implants. The primary objective of this study was to evaluate radiographic marginal bone level changes around the two different tissue-level implant systems placed adjacently in the posterior maxilla or mandible. The influence of implant macro-geometry and vertical soft tissue thickness on marginal bone loss were also evaluated.

**METHODS:** Seven patients were included in the study and a total of 18 implants were analyzed. Each patient received two different implants placed adjacently in the maxilla or the mandible. The implants used in our study were either Straumann® SP cylindrical implants or JD Octa® tapered implants. During the surgery, vertical soft-tissue thickness was measured with a periodontal probe placed on the top of the bony crest and in the center of the future implant site. Healing abutments were then seated. Three months following implant placement, impressions were taken, and screw-retained metal ceramic prostheses were delivered. Standardized intraoral radiographs were taken immediately after implant placement and one year following implant loading in order to assess marginal bone level changes.

**RESULTS:** Results showed a mean marginal bone loss of  $0.55 \pm 0.5$  mm for Straumann® SP implants and  $0.39 \pm 0.49$  mm for JD Octa® implants after one year of loading and the difference was not statistically significant between the two systems. A statistically significant correlation was found between soft tissue thickness and marginal bone loss; in sites with thin mucosal tissues ( $\leq 2$  mm), there was significantly greater bone loss compared to sites with thick, soft tissues ( $> 2$  mm) in both implants.

**CONCLUSIONS:** Radiographic marginal bone loss was not statistically different between the two implant systems at the one-year examination period. Moreover, vertical soft tissue thickness influenced marginal bone loss regardless of the implant system used.

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**KEY WORDS:** Bone remodeling; Alveolar bone loss; Prostheses and implants.

In the past decades, implant dentistry has evolved to become a highly predictable treatment modality in the rehabilitation of different types of edentulism. In fact, numerous studies<sup>1-3</sup> and systematic reviews<sup>4, 5</sup> reported high implant survival rates with follow-up periods of up to