

Simplified method to quantify the osseointegration area of dental implants [Método simplificado para cuantificar el área oseointegrable de implantes dentales]

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Introduction: Many studies have been conducted about dental implants. However, the osseointegration area is a topic not commonly dealt with in the scientific literature. Objective: Design a method to estimate the osseointegration area in the placement of dental implants. Methods: The implant areas were estimated with implant models four times as large as real size, using known formulas for cylinder mantles, cone trunks and circles (among others). Linear relationships were applied for heights and square diameters (assimilation to model theory). Use was made of a metal calibrator, a magnifying glass and a scalimeter. The implants were divided into sectors according to their different geometric configuration. The sum of the surfaces made it possible to obtain the total implant area. The surfaces were compared with the total theoretical area of the same implants. The data were then extrapolated for all the models in keeping with their particular dimensions. Results: The areas obtained for screw and cone implants (diameter / length in mm) were, respectively: $3.75/7 = 129 \text{ mm}^2$; $3.75/13 = 234 \text{ mm}^2$; $3.75/15 = 270 \text{ mm}^2$; $4/15 = 306 \text{ mm}^2$; $5/7 = 224 \text{ mm}^2$ and $3.5/13 = 143 \text{ mm}^2$; $4.3/10 = 166 \text{ mm}^2$; $4.3/13 = 215 \text{ mm}^2$; $4.3/16 = 265 \text{ mm}^2$. Conclusions: The methodology used in the study seems to be a good alternative to estimate the final osseointegration area. ©

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Cone implants

Dental implants

Osseointegration area

Screw implants