

Stability of Narrow Diameter Implants Placed with Different Angulations In-vitro



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INTRODUCTION

Narrow diameter implants are an excellent treatment alternative for cases where traditional implants are not an ideal option. Therefore, the aim of this study was to evaluate the primary stability (PS) of two different narrow diameter implants placed at different angulations in artificial bone.

MATERIALS & METHODS

A total of 80 (**Dentatus Anew**[®]) narrow diameter dental implants were placed in commercially available bone blocks (type II bone quality) at 0 and 20 degree-angulations. All implants were 10mm in length and had two different narrow diameters, 2.2mm (very narrow) and 2.4 mm (narrow) (20 in each group). PS was evaluated by an independent, calibrated examiner using the Periotest device. Descriptive statistics and statistical comparison between the groups using non-parametric Kruskal Wallis test, followed by Dunn's multiple comparison test, was performed.



Figure 2A. Narrow diameter implants placed at 20 degrees.

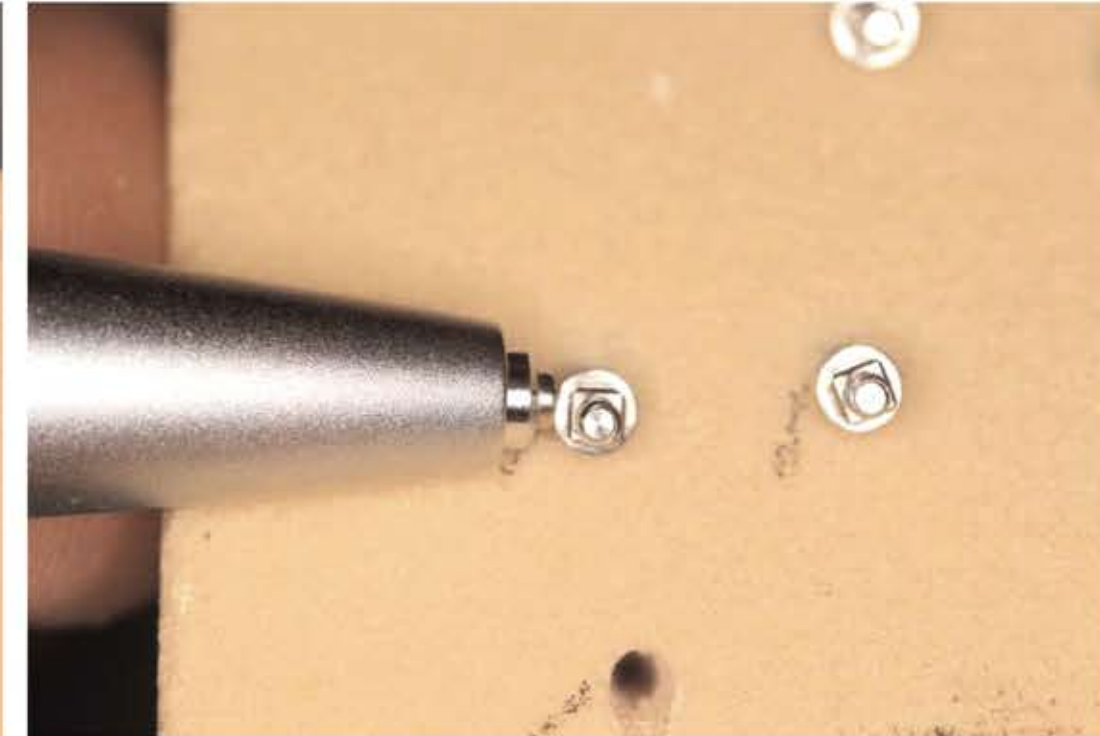


Figure 2B. Measuring PS with Periotest device

RESULTS

The study showed higher Periotest stability values (lower initial stability) for tilted implants compared to axial placed implants for both implant diameters (see Table 1). With the increase of implant diameter was found an increase of implant stability (<0.05) (Table 1).

CONCLUSIONS

Within the limitations of this study, a good initial stability (clinically acceptable) was found for (**Dentatus Anew**[®]) narrow diameter implants with 2.2 and 2.4mm diameter, especially when implants are placed in dense bone axially at 0 degrees.

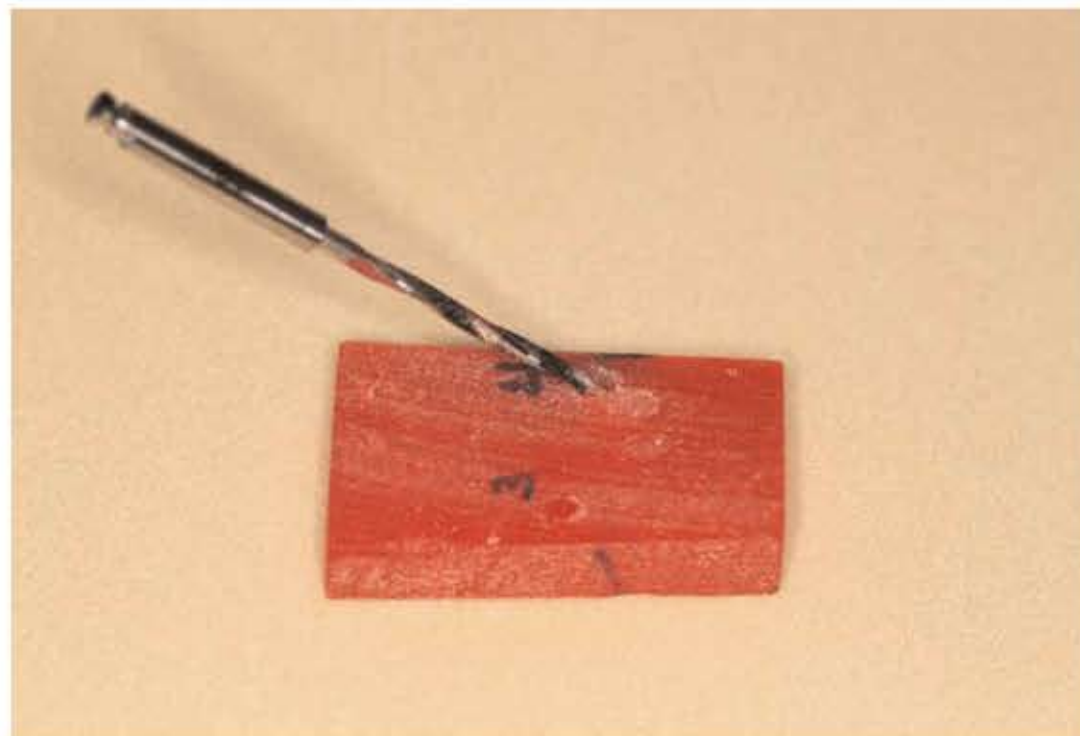


Figure 1. Acrylic block used to place implants at 20 degrees

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	2.2mm Axial (0°)	2.2mm Tilted (20°)	2.4mm Axial (0°)	2.4mm Tilted (20°)
Mean	1.80	2.50	0.95	3.15
Standard Deviation	0.61	1.31	0.40	1.60
Sample Size	20	20	20	20

Table 1. Narrow-Diameter Implants placed at different angulations and primary stability