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Radiographic Evaluation of Narrow-Diameter Implants After 5 Years of Clinical Function: A Retrospective Study

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recommended to ensure adequate bone to implant contact. However, when the width of the edentulous crest is insufficient for the placement of a regular-sized implant, the use of a narrow-diameter implant (NDI) should be considered to prevent the need for invasive reconstruction techniques such as grafting procedures. The aim of the present study was to evaluate the survival and marginal bone levels of NDIs 5 years after prosthetic loading. A total of 159 NDIs belonging to 4 brands (Straumann, Astra Tech, BioloK, Xive) were evaluated in 71 patients. Clinical and radiographic evaluations using digital panoramic radiography were carried out. Two implants failed and no progressive bone loss or periapical lesions were detected in the remaining 157 implants, which is an overall success rate of 98.74%. Mean marginal bone loss (MBL) was found 1 mm on the mesial side and 0.98 mm on the distal side of the implants. No statistically significant relationship was detected between patient age, gender, implant location, implant length, type of the prosthesis, and MBL ($P > .05$). Among the 4 brands used, the MBL was highest around the BioloK implants but this was significant only compared with the Astra Tech implants ($P < .05$). The results of the present study indicate that NDIs can be a good solution for specific clinical situations where regular-sized implants are not suitable.

Key Words: *narrow-diameter implants, marginal bone loss, dental implants, implant survival, fixed prosthesis, overdenture*

- Introduction
- Materials and Methods
- Results
- Discussion
- Conclusion

Characteristic	Mean ± SD	P
Age ^a		
MBL distal	0.98 ± 0.18	.796
MBL mesial	1.00 ± 0.18	.393
Gender ^b		
Women (n = 41)		
MBL distal	0.99 ± 0.19	.340
MBL mesial	0.96 ± 0.18	.177
Men (n = 30)		
MBL distal	1.02 ± 0.24	
MBL mesial	1.01 ± 0.25	

^a Pearson correlation analyses.
^b Student t test.

Table 1 Relationship between marginal bone loss (MBL), patient age, and gender

Location	Mean MBL (mm)	SD	P
Anterior	1.00	0.18	.796
Posterior	0.98	0.18	.393

Table 2 Relationship between the location of narrow-diameter implants (NDIs) and marginal bone loss (MBL)

Brand	Mean MBL (mm)	SD	P
Astra Tech	0.98	0.18	.340
BioloK	1.02	0.24	.177
Straumann	1.00	0.20	
Xive	1.01	0.25	

Table 3 Comparison of implant brands in terms of marginal bone loss (MBL)

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