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## Narrow-diameter implants: A systematic review and meta-analysis.

Schiegnitz E, et al. Clin Oral Implants Res. 2018.

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### Abstract

**OBJECTIVES:** Narrow-diameter implants (NDI) are claimed to be a reasonable alternative to bone augmentation procedures. The aim of this comprehensive literature review was to conduct a meta-analysis comparing the implant survival of NDI and standard diameter implants (SDI) and to provide recommendations and guidelines for application of NDI.

**MATERIAL AND METHODS:** An extensive systematic literature search was performed in the PubMed/MEDLINE and the Cochrane Library databases. NDI were classified into Category 1 (implant diameter <3.0 mm, "mini-implants"), Category 2 (implant diameter 3-3.25 mm) and Category 3 (implant diameters 3.3-3.5 mm). Clinical studies at all levels of evidence with at least 10 patients included and a follow-up time of at least 12 months were included. The primary outcome criterion was the survival rates of NDI.

**RESULTS:** Seventy-six studies were identified for qualitative and 16 studies for quantitative synthesis. Quality assessment illustrated a high risk of bias for the included literature. Mean implant survival rates were  $94.7 \pm 5\%$ ,  $97.3 \pm 5\%$  and  $97.7 \pm 2.3\%$  for Categories 1, 2 and 3. Meta-analysis indicated a statistically significant lower implant survival of Category 1 NDI compared to SDI ([OR], 4.54; [CI], 1.51-13.65). For Category 2 and Category 3, no statistical significant differences in implant survival were seen compared to SDI ([OR], 1.06; [CI], 0.31-3.61 and [OR], 1.19; [CI], 0.83-1.70).

**CONCLUSION:** NDI of Category 1 performed statistically significantly worse than SDI and were mainly described for the rehabilitation of the highly atrophic maxilla or mandible. Category 2 and Category 3 NDI showed no difference in implant survival compared to SDI. Category 2 NDI were mostly used for the rehabilitation of limited interdental spaces in anterior single-tooth restorations. NDI of Category 3 were described in all regions, including posterior single-tooth restorations. However, resilient long-term data and data on the possible risk of biological and technical complications with wide platform teeth on NDI are missing so far.

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