This review does not in any way substitute for professional advice and should not be regarded as clinical guidance. As always, any evidence should be carefully considered by clinician and patient to ensure that in their views, all potentially desirable consequences outweigh all potentially undesirable consequences.

**JADA+ CLINICAL SCANS**

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**TITANIUM-ZIRCONIUM NARROW-DIAMETER IMPLANTS MAY HAVE GOOD OUTCOMES, BUT THERE IS INSUFFICIENT EVIDENCE TO SUPPORT THEIR OVERALL PERFORMANCE SUCCESS**


**Key words.** Implantology; prosthodontics; narrow-diameter implant; titanium-zirconium; systematic review.

**Clinical relevance.** Even though dental implant placement is a surgical procedure, patients often perceive and accept this as a minor surgical procedure. Patients’ perceptions may differ when other procedures, such as bone augmentation, are required when placing a dental implant. Titanium-zirconium narrow-diameter implants (TZNDI) may be a good alternative for patients with reduced bone levels who do not want to undergo extra surgical procedures.

**Study summary.** The authors conducted a systematic review (SR) to synthesize the evidence from prospective clinical studies that assessed implant survival, implant success rate, bone level, and prosthetic success rate of TZNDI. They searched for randomized clinical trials (RCTs) in 2 electronic databases. They found 8 observational studies and 3 RCTs that had evaluated TZNDI supporting single and multiple fixed restorations, single TZNDI splinted to larger implants, and removable overdentures for up to 36 months from implant placement. TZNDI survival and success rates ranged from 95% to 100% across the studies. The prosthesis success rate was 100%. Radiographic bone level change ranged from 0.11 to 0.78 millimeters across the studies. One of the included RCTs compared TZNDI with conventional-diameter implants directly and found no differences in implant survival, bone level, and prosthetic complications up to 3 years after implant placement.

**Strengths and limitations.** The trustworthiness of the results presented in this SR is compromised by limitations in the methods used by the authors. The authors were not clear about their inclusion criteria for the studies, did not assess the methodological quality of the included observational studies, and did not perform meta-analyses. In addition, they did not include a description of key aspects in the methods and results sections of the SR. Although the authors assessed the methodological quality of the 3 included RCTs, they did not consider that the tool they chose for this purpose was not relevant to their main objective. Consequently, we are not certain about the risk of bias of the studies included in this SR and its potential implications. However, the results seemed to be consistent across the studies, which increases our confidence in the potential beneficial outcomes of TZNDI. In addition, the authors in the included studies assessed TZNDI placed in different anatomic sites and supporting different types of prosthesis, which increases the applicability of the results. Considering all the above, TZNDI may have good outcomes, yet the evidence presented in this SR is not sufficient to provide a definite answer about their success rates or performance compared with other types of dental implants.

http://dx.doi.org/10.1016/j.adaj.2017.02.039

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**Disclosure.** Dr. Brignardello-Petersen did not report any disclosures.

* Equal to or less than 3.5 millimeters in diameter, approximately 15% zirconium and 85% titanium.
† Studies included an average of 49 patients (range, 10 to 233) and an average of 80 implants (range, 20-409).
‡ All of the studies provided information about this outcome.
§ Researchers in 3 prospective cohort studies provided information regarding this outcome and followed patients for 12, 18, or 24 months.
¶ For example, in the methods section they stated that “prospective clinical trials” was a selection criterion, yet they included randomized clinical trials, prospective cohort studies, and prospective case series.