Simplified Drilling Technique Does Not Decrease Dental Implant Osseointegration: A Preliminary Report

Ryo Jimbo, Gabriela Giro, Charles Marin, Rodrigo Granato, Marcelo Suzuki, Nick Tovar, Thomas Lilin, Malvin Janal and Paulo G. Coelho
“Simplified Drilling Technique Does Not Decrease Dental Implant Osseointegration: A Preliminary Report”

Background
To date, some experimental studies have addressed the effect of bone drilling technique and sequence on dental implant osseointegration. In the present study, the authors hypothesize that there would be no differences in osseointegration when reducing the number of drills for osteotomy compared to the conventional drilling protocols.

Methods
Seventy-two implants (diameters 3.75 mm and 4.2 mm; n = 36 for each diameter) were bilaterally placed in the tibia of 18 beagles for 1, 3, and 5 weeks. Half of the implants of each diameter were placed using a simplified drilling procedure (pilot and final drill), and the other half were placed using a conventional drilling procedure (all drills in sequence). The retrieved samples were subjected to histologic and histomorphometric evaluation.

Results
Histology showed that new bone formed around the implant, and inflammation or bone resorption was not evident for both groups. Histomorphometrically, the simplified group presented significantly higher bone-to-implant contact and bone area fraction occupancy compared to the conventional group after 1 week; however, no differences were detected at 3 and 5 weeks.

Conclusions
Bone responses to the implant with the simplified protocol can be comparable to the conventional protocol.