

Groovy Implants

The Nobel Biocare groovy implants incorporate a groove at the implant thread along the entire length of the intraosseous portion of the implant. Histomorphometric analyses in rabbit tibia and femur bone have revealed an affinity for bone formation within and along the groove and have shown that bone formation occurs more often within the groove than on other parts of the implant^{1,2}; the observed preferential bone growth along the groove provides evidence of its osseoconductive properties. Removal torque analyses in rabbit tibia have shown as much as 30% higher values for implants with a groove at the thread compared to control implants without a groove¹.

Nobel Biocare has received FDA clearance to claim faster bone formation within the groove resulting in faster integration of the implant and a mechanical interlock, leading to increased stability compared to implants without the groove.

Clinical data on NobelSpeedy™ implants in Immediate Function™³⁻⁵ placed at periodontally compromised³ and infected sites⁴ has shown good clinical outcome with respect to stability^{4,5}. Tapered groovy implant system used in suboptimal clinical conditions has been further discussed⁶.

At present, Nobel Biocare is sponsoring two clinical pilot studies and one multicenter study on groovy implants⁷⁻⁹.

References

1. Hall J, Miranda-Burgos P, Sennerby L. Stimulation of directed bone growth at oxidized titanium implants by macroscopic grooves: an *in vivo* study. *Clin Implant Dent Relat Res*, 2005;7 Suppl 1:S76-82.
2. Miranda-Burgos P, On the influence of micro-and macroscopic surface modifications on bone integration of titanium implants. Doctoral thesis. Department of Biomaterials Institute for Clinical Sciences, Sahlgrenska Academy at Göteborg University and the Department of Oral and Maxillofacial Surgery, Lund University Hospital. Göteborg 2006.
3. Maló P, de Araújo Nobre M, Rangert B. Implants placed in immediate function in periodontally compromised sites: A 5-year retrospective and a 1-year prospective study. *J Prosthet Dent*, 2007; 97(suppl):S86-S95.
4. Villa R, Rangert B. Immediate and early function of implants placed in extraction sockets of maxillary infected teeth: A pilot study. *J Prosthet Dent.*, 2007; 97(suppl):S96-S108.
5. Maló P, de Araújo Nobre M, Lopes A. The use of computer-guided flapless implant surgery and 4 implants placed in immediate function to support a fixed denture: Preliminary results after a mean follow-up period of 13 months. *J Prosthet Dent*, 2007; 97(suppl):S26-S34.
6. Hanao G. The Tapered Groovy implant optimizes implant success in suboptimal clinical conditions. *Dent Implantol Update*, 2006;17:1-4.
7. Pilot study evaluating a modified Brånemark System MkIII implant. Ongoing clinical study in one center. Clinical Research Department, Nobel Biocare AB.
8. Pilot study evaluating a modified ReplaceSelect Tapered implant. Ongoing clinical study in one center. Clinical Research Department, Nobel Biocare AB.
9. Multicenter study evaluating the NobelReplace Tapered Groovy Implant. Ongoing clinical study in 8 centers. Clinical Research Department, Nobel Biocare AB.