



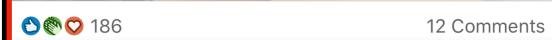
Nobel Biocare
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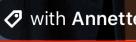
The Nobel Biocare N1™ system is set to reshape implantology, and the new journey starts today. Dr. Annette Felderhoff-Fischer placed the very first order for this great innovation, and Stefan Holst, DMD, PhD is delighted to mark the occasion, delivering it to her practice in person.

A biologically-driven design, the N1 system brings innovations in site preparation, implant macroshape, prosthetic connections, emergence profile and more, all created to help you treat more patients better.

<https://bit.ly/2UlhJPE>





 with Annette Felderhoff-Fischer

186  12 Comments



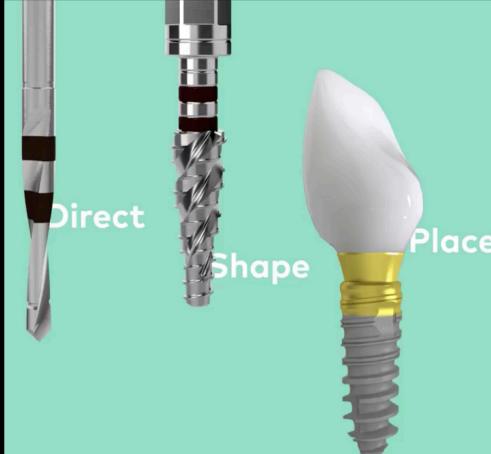
Implant design

Engineered for immediate placement and function in extraction sockets, the Nobel Biocare N1 implant meets the demands of your patients. The trioval implant neck reduces stress on cortical bone*** (compared to traditional round implants) and promotes fast osseointegration**** together with the TiUltra™ surface.



Trioval conical connection

Abutments slide into place with the fully indexed trioval conical connection (TCC). The clinical screw engages only when fully centered, providing confidence in a strong and tight connection. Together with the trioval implant, the TCC ensures a 360° consistent width of the implant wall and platform shift, for excellent strength and soft tissue management.



Direct Shape Place

The diagram illustrates the three-step process of the Nobel Biocare N1 system: Direct (implant), Shape (osteotome), and Place (abutment).



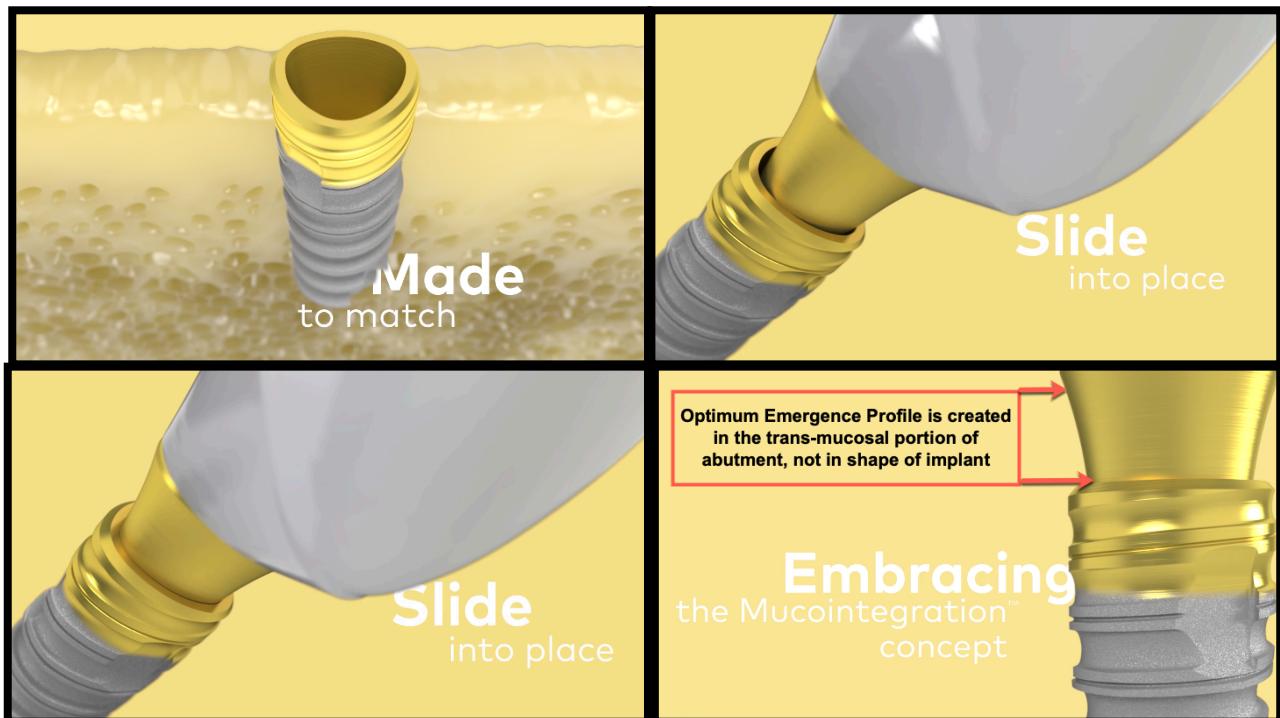
OsseoShaper™

The OsseoShaper instrument preserves vital bone due to less trauma with low speed and no irrigation[†]. It creates a specific osteotomy for the co-packed Nobel Biocare N1 Implant. The torque measured during shaping guides the surgical procedure.

NobelBiocare includes a final sizing, tapered drill with each N1 implant. This defeats the well established concept of using a series of progressively wider diameters to enlarge the osteotomy without overheating while evaluating the density of the bone. Following use of a locator or pilot drill, the N1 surgical protocol calls for using a single "OsseoShaper" drill turning at 25rpm to create the osteotomy. This is a slower process than using an intermediate and a final sizing drills turning at 1200 rpm in dense bone. In soft bone, creating an undersized socket will allow a tapered screw implant to expand and compress the bone for increased initial stability. [G. Niznick. Achieving Osseointegration in Soft Bone Oral Health, Aug. 2000](#)

NobelBiocare further claims that the "Trioval conical connection" on the N1 implant with its matching Trioval shaped abutment neck provides "*optimized emergence profiles.*"

Only the anterior teeth are somewhat triangular in shape. The bicuspids could be considered more rectangular and the molars more square. Therefore the N1 implant's design rational has a very limited application. Furthermore, emergence profile is, as its name indicates, the profile of the abutment as it emerges from the implant connection. The ideal emergence profile for anterior as well as posterior teeth can be achieved with custom cad-milled abutments that take into consideration the angle of emergence, the diameter of the implant as well as the B-L and M-D widths of the final crown to be attached to the abutment. There is no 1 size fits all, remanufactured oval shape, that matches the emergence profile of teeth. The desired emergence profile will be dictated by the tooth number being replaced, the M-D space of the missing tooth and the diameter of the implant that was selected based on available bone width.



NobelBiocare claims that its new N1 implant is “*Engineered for immediate placement and function in extraction sockets.*” In immediate extraction sockets, the Trioval shape of the N1 implant just contributes to a wider gap between the implant and the bone compared to a round implant, and will require more bone graft material to fill the void.

NobelBiocare’s rational behind the N1 design is that its “*Trioval implant neck reduces stress on cortical bone (compared to traditional round implants) and promotes fast osseointegration****

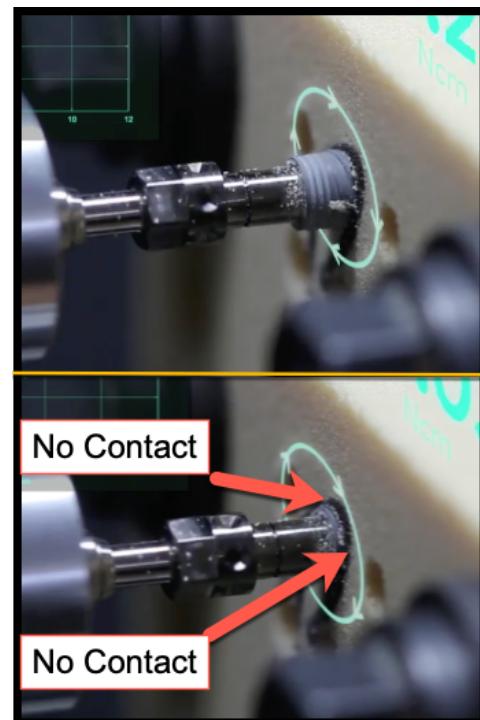
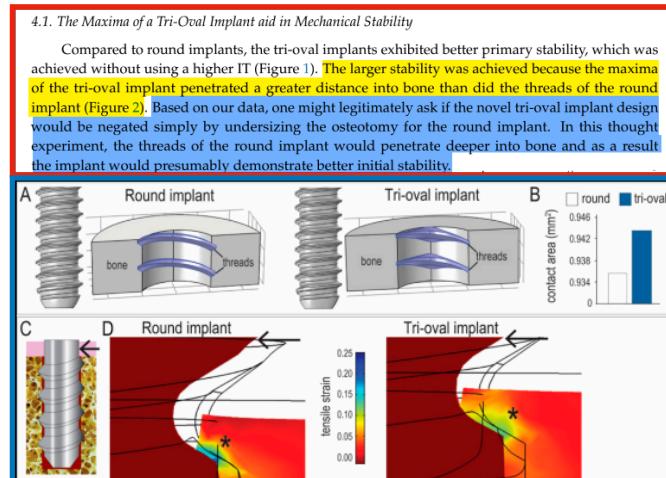


It consists of insertion torque tests in wood and histology in mice. The data demonstrated the same insertion torque for both the round and Trioval implants, while lateral stability of the Trioval implant was slightly greater. The slight increase on bone contact after healing in the mouse model was interpreted as “faster osseointegration” and was attributed by the authors to the increased lateral stability.

The study acknowledged that this increased initial stability was due to the threads of the Trioval implant penetrating deeper into bone, as shown in this picture from the article. The major diameter of the threads is a factor that could easily been controlled in manufacturing the test implants, so all the study proved was that increasing the depth of penetration of threads into bone increases stability and that could effect osseointegration i.e the study did not prove the efficacy of a Trioval implant design..

The authors further acknowledge that higher initial stability can be achieved by inserting a round tapered implant into an undersized socket. This successful technique was developed for soft bone insertions to increase stability and densify the bone. This study further claims that the Trioval shape reducing stress at the neck of the implant compared to a round implant. This can also be achieved by back-tapered the implant neck (NobelActive) as shown here but back-tapering the neck reduces initial stability.

***This study, referenced by NobelBiocare to support its claim of “faster osseointegration” with the N1 implant does not withstand scrutiny.





Gerald Niznick DMD, MSD • You
Dental Implant Pioneer

A "harmonized emergence profile" is one that replicates the dimensions and flare of the neck of the tooth being replaced. The neck of the Trioval N1 implant is sub-crestal and therefore plays little if any role in creating a natural emergence profile. The neck of the abutment is also oval shaped as it emerges from the implant's oval internal conical connection. Its cross-sectional dimensions bear little if any relationship to the B-L and M-D dimensions of most natural teeth.

The way to "harmonize emergence profile" is to first make a customized healing collar that supports the tissue in an immediate extraction socket or forms the tissue from a surgical opening. Shown below (left) is a shortened titanium carrier from a Legacy2 implant modified by adding acrylic to create the desired emergence profile. This can be replicated in a soft tissue model (right), followed by fabrication of a cad milled abutment with its trans-mucosal section matching the emergence profile and dimensions of the customized healing collar.

