A Contemporary Hybrid Implant

No Increased Peri-implantitis Risk

The T3 Implant utilizes the proven Osseotite® Surface technology at the coronal aspect of the implant. In a five-year study, the dual acid-etched surface of the Osseotite implant presented no increased risk of peri-implantitis or soft-tissue complications versus a machined surface. 7

SUB-MICRON TOPOGRAPHY
The DCD Discrete Crystalline Deposition of calcium phosphate nanoparticles establishes a Bone Bonding® surface via the interlocking of the cement line matrix of bone with the implant surface. 6

FINE-MICRON TOPOGRAPHY
Dual acid-etched fine-micron topography features have been shown to support osteoconduction mechanisms, including the promotion of fibrin blood clot retention and modulation of platelet activity. 3,4

COARSE-MICRON TOPOGRAPHY
Pre-clinical studies on surfaces including moderate surface roughness (1.0 ≤ Sa ≤ 2.0 microns) have shown stronger bone response as compared to smoother (turned) or rougher (plasma spray) surfaces. 7

No implant (test or control) showed changes in probing depths greater than 3.0 mm.

SULCUS BLEEDING INDEX

Multicenter, Randomized Controlled 5-Year Study Of Hybrid And Fully-Etched Implants For The Incidence Of Peri-implantitis


Primary Stability

The specifications of the T3 Implant are held to rigorous tolerances aiming to provide a closely integrated implant-to-osteotomy fit, creating a dental implant system that is designed to help the clinician achieve primary stability.

Initial bone to implant contact is a major contributor to the implant’s stability. 1

“Excessive micromotion during the endosseous dental implant healing process has been documented to impede or prevent osseointegration.” 2

References

3–9 discuss the Biomet 3i OSSEOTITE® and/or NanoTite™ Implant dual acid-etched or DCD technology, which is incorporated into the 3i T3 Implant.

References 1–2 discuss the Biomet 3i tapered Implant macrodesign, which is incorporated into the T3 Implant.

** Values may vary depending on test methodology.

* Preclinical studies are not necessarily indicative of clinical performance.

†† Dr. Gubbi, Dr. Kenealy, Dr. Stach and Mr. Towse contributed to the above research while employed by Biomet 3i.

† These clinicians had financial relationships with Zimmer Biomet Dental resulting from speaking engagements, consulting engagements and other retained services at the time of their involvement.

8. Gubbi P ††, Towse R††, Quantitative and qualitative characterization of various dental implant surfaces. Poster Presentation P421: European Association For Osseointegration, 20th Meeting; October 2012; Copenhagen, Denmark.


One hundred twelve patients who were enrolled at seven centers received 139 control and 165 test implants (total: 304 implants). This research was funded by Biomet 3i. Dr. Zetterqvist has financial relationship with Biomet 3i, LLC resulting from speaking engagements, consulting engagements and other retained services.

No implant (test or control) showed changes in probing depths greater than 3.0 mm.

PROBING DEPTHS: CHANGE FROM BASELINE (mm)


SBI SCORES

References

5. Foster B, Foster R, Bernard J. Preservation by Design® technology at the coronal aspect of the implant. In a five-year study, the dual acid-etched surface of the Osseotite implant presented no increased risk of peri-implantitis or soft-tissue complications versus a machined surface. 7

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PROBING DEPTHS: CHANGE FROM BASELINE (mm)

110
60
30
20
10


Implant Surface Characterization Comparison

Surface Needs:
Implant surface topographies influence the osseointegration process, as well as help to mitigate potential risks associated with peri-implantitis. Studies have shown that implant topographies play a role in both osteoconduction and the subsequent de novo bone to implant interface strength. The prevalence of implants experiencing peri-implantitis has been reported in excess of 12%. Studies have shown that minimally rough implants are less likely to develop peri-implantitis than rough implants once exposed to the oral environment.

### Attributes

<table>
<thead>
<tr>
<th>ATTRIBUTES</th>
<th>Zimmer Biomet T3 With DCD Surface</th>
<th>Competitor 1 Surface</th>
<th>Competitor 2 Surface</th>
<th>Competitor 3 Surface</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PROCESS</strong></td>
<td>- Grit blasting with Calcium Phosphate media (threaded area only on T3)</td>
<td>- Anodic oxidation</td>
<td>- Grit blasting with TiO2 media</td>
<td>- Grit blasting with alumina oxide media</td>
</tr>
<tr>
<td><strong>SUB-MICRON SURFACE FEATURES</strong> (~30,000x) DCD VERSION ONLY</td>
<td>- 10-100 nm HA Crystals</td>
<td>- Limited micron scale tubular pores</td>
<td>- Limited micron scale angular facets</td>
<td>- 0-20 nm rod shaped features</td>
</tr>
<tr>
<td><strong>MICRON SURFACE FEATURES</strong> (~2,000x)</td>
<td>- 1-3 micron pitting</td>
<td>- 3-15 micron tubular pores</td>
<td>- 1-50 micron angular facets</td>
<td>- 1-3 micron pitting</td>
</tr>
<tr>
<td><strong>MICRON SURFACE FEATURES (~300x) - COLLAR REGION</strong></td>
<td>- Sa≈0.5 microns</td>
<td>- Sa≈1.1 microns</td>
<td>- Sa≈1.5 microns</td>
<td>- Sa≈1.6 microns</td>
</tr>
<tr>
<td><strong>COARSE-MICRON SURFACE FEATURES (~300x) - THREADED REGION</strong></td>
<td>- Sa≈1.4 microns</td>
<td>- Sa≈1.1 microns</td>
<td>- Sa≈1.5 microns</td>
<td>- Sa≈1.6 microns</td>
</tr>
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For More Information, Please Contact Your Local Zimmer Biomet Dental Sales Representative.

* Results may vary depending on test methodology. Testing conducted with Osseotite 2 Implants and Biomet 3i blasted and dual acid-etched implants.

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