The OSSEOTITE® Implant – Documented Success

• Numerous Studies Report 98% Cumulative Success Rates
• Surface Provides For Effective Implant Attachment
• Human Histology With Demonstrated High Bone-To-Implant Contact\(^1\)
• Five-Year Study\(^2\) Showed No Increased Risk Of Peri-implantitis vs. A BIOMET 3i Hybrid Implant
The OSSEOTITE® Implant Family

Introducing The OSSEOTITE®2 Implant

- OSSEOTITE® Tapered Certain® Internal Connection
- OSSEOTITE® Tapered External Hex Connection
- OSSEOTITE® Certain® PREVAIL® Expanded Platform Internal Connection
- OSSEOTITE® Certain® Straight Collar Internal Connection
- OSSEOTITE® External Hex Connection
- Full OSSEOTITE® Certain® Internal Connection
- Full OSSEOTITE® External Hex Connection
- Full OSSEOTITE® Internal Connection
- Full OSSEOTITE® External Hex Connection
- Full OSSEOTITE XP® Certain® Internal Connection
- Full OSSEOTITE XP® External Hex Connection
- OSSEOTITE XP® Certain® Internal Connection
- OSSEOTITE XP® External Hex Connection

OSSEOTITE® 4.0mm
OSSEOTITE® 5.0mm
OSSEOTITE® Implants

Enhanced Microscopy Image of OSSEOTITE® Surface Showing Platelet Activation.

Proven Clinical Success

The OSSEOTITE® Implant features an acid-etched surface designed to facilitate osseointegration by increasing platelet activation and red blood cell agglomeration.

The OSSEOTITE® Surface has more than 10 years of documentation from numerous global multicenter clinical evaluations. Clinical studies on the OSSEOTITE® Surface continue to document the benefits of increased contact osteogenesis, especially in poor-quality bone.
The OSSEOTITE® Surface And The Healing Process

Blood Clotting And Implant Attachment

A blood clot attaches to an implant when its fibrin strands become intertwined in an implant’s micro-surface features. The strength of the clot/implant attachment depends on how tightly the fibrin strands are entangled in the surface. Fibrin strands are typically submicron in diameter. Therefore, for the strongest bond, the implant surface features should create a maze of slightly larger spaces that can tightly capture the fibrin strands. Characterized by a 1 to 3 micron peak-to-peak surface created by a unique acid-etched process, the OSSEOTITE® Surface features are optimally sized to entangle the fibrin strands of the blood clot.

Platelet Aggregation

Platelet Activation Up-Regulates Healing Response

Osteogenic cell migration will occur through the blood clot and can be expected to be influenced by the release of cytokines and other growth factors from activated cellular components of the blood clot. In a study of red blood cell (RBC) and platelet interactions with implant surfaces, the amount of RBC agglomeration on the OSSEOTITE® Surface was 54% greater than as seen on a smooth-machined surface.

In addition, platelet adhesion onto the OSSEOTITE® Surface was enhanced by 110% in comparison to a smooth-machined surface. RBC agglomeration is known to enhance blood clot permeability, which can lead to enhanced wound healing. Increased platelet activity can also lead to enhanced wound healing by the release of cytokines and growth factors. Taken together, both platelet adhesion and RBC agglomeration can therefore result in increased bone formation on the OSSEOTITE® Surface.
Clot Attachment Increases Contact Osteogenesis

Contact Osteogenesis Optimizes Bone Healing

Bone heals around an implant through two distinct and overlapping phenomena: distance osteogenesis and contact osteogenesis. The rate and extent of healing around an implant is dependent on the degree of contact osteogenesis that occurs at the implant surface. The migration of osteogenic cells through the clot matrix causes contraction of the fibrin strands in the clot matrix, which can detach the strands from smooth machined implant surfaces, disrupting or stopping contact osteogenesis and osteoconduction.14

Distance Osteogenesis –
A gradual process of bone healing inward from the edge of the osteotomy toward the implant. Bone does not grow directly on the implant surface.

Contact Osteogenesis –
The direct migration of bone-building cells through the clot matrix to the implant surface. Bone is quickly formed directly on the implant surface.

“At the earliest stages of healing, fibrin in the blood clot binds strongly to the microtexture of the OSSEOTITE® Surface. This facilitates migration of bone cells to the implant surface and results in contact osteogenesis.”

– J.E. Davies†, BSc, BDS, PhD

†J.E. Davies has a financial relationship with BIOMET 3i LLC resulting from speaking engagements, consulting engagements and other retained services.
The OSSEOTITE® Surface And Bone Contact

Human Histologic Data

In a study on the effect of implant surface features on bone healing, human histologic data confirmed the increase in osteoconduction and contact osteogenesis with the OSSEOTITE® Surface as compared to a smooth-machined surface. Two millimeter diameter screws, each having on one side a OSSEOTITE® Surface and on another side a smooth-machined surface, were placed in the posterior maxilla and removed after six months of healing.

The thirty-nine histologic sections prepared showed a mean percent bone/implant contact for OSSEOTITE® of 72.96% as compared to 33.98% for the smooth-machined surface.15

Human Histology Matched Smooth-Machined And OSSEOTITE® Surface Pairs

Full OSSEOTITE® Implants And Peri-Implantitis

A Five Year Study

A five-year prospective, multicenter, randomized-controlled study of the incidence of peri-implantitis for hybrid-DAE and fully-DAE implants.²

Considerations for potential benefits of extending the DAE surface to the seating surface led to this prospective randomized-controlled study designed to assess the risk and incidence of peri-implantitis for fully-DAE-surfaced implants (Full OSSEOTITE®/FOSS).

Study implants, fully-DAE-surfaced “test” implants and hybrid-DAE “control” implants, were placed in a single-stage approach with the seating surface level with the crestal margin of the alveolar bone. The implants were allowed to heal for two months and were then provisionalized. Final restorations were placed at six months and patients were followed for five years at annual intervals.

Follow-up evaluations included Sulcus Bleeding Index scores (SBI), probing for suppuration, assessments for mobility and periapical radiographs to identify radiolucencies and crestal bone levels.

One hundred twelve patients were enrolled and 165 test and 139 control implants were placed supporting 127 prostheses. No substantial differences in mucosal health outcomes between test and control groups were observed throughout the five year follow-up. For both groups, the bleeding-on-probing scores were no different. There was one case of peri-implantitis reported over the five years of observation and this was for a hybrid implant.

Radiographic analysis of crestal bone regression demonstrated that the mean change from baseline (provisionalization) is less for test implants in comparison to control implants (P<.01). The results of this five-year study showed no increased risk in soft tissue outcomes and peri-implantitis for fully-DAE-surfaced implants versus the controlled implants in this study.

References:


²Clinicians have a financial relationship with BIOMET 3i LLC resulting from speaking engagements, consulting engagements and other retained services.
Want A Dental Implant Surface With A Proven Record?

OSSEOTITE® Is For You!

For More Information, Please Contact Your Local

BIOMET 3i® Sales Representative Or Visit:

www.biomet3i.com

BIOMET 3i
4555 Riverside Drive
Palm Beach Gardens, FL 33410
1-800-342-5454
Outside The U.S.: +1-561-776-6700
Fax: +1-561-776-1272
www.biomet3i.com

BIOMET 3i
Europe, Middle East & Africa
WTC Almeda Park, Ed. 1, Planta 1ª
Pl. de la Pau, s/n
08940, Cornellà de Llobregat
(Barcelona) Spain
Phone: +34-93-470-55-00
Fax: +34-93-371-78-49

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