

## Osseointegration to Osseous Fixation: A Paradigm Shift in Dental Implants

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The oral cavity has the potential to harbor at least 600 different bacterial species, and in any given patient, more than 150 species may be present, surfaces of teeth can have as much as billion bacteria in its attached bacterial plaque.[1] Periodontal diseases are recognized as infectious processes that require bacterial presence and a host response which are further affected and modified by other local, environmental, and genetic factors. The oral cavity works as a continuous source of infectious agents, and its condition often reflects the progression of systemic pathologies.[2] The two most prevalent oral diseases, caries and periodontal disease often do not cause symptoms in early stages. However, caries and periodontal disease are progressive processes, and lead to tooth loss if not treated adequately. Tooth loss will presumably cause functional impairment, for example, with regard to chewing and esthetics, depending on the location of tooth loss, which might ultimately affect quality of life.[3]

A dental implant is a titanium screw which is placed into bone to replace missing teeth. The implant mimics the root of a tooth in function. It is not only biocompatible, but actually fuses to bone by osseointegration. The growth of osseointegrated implants symbolizes one of the most significant breakthroughs in current dental practice in the oral rehabilitation of partially or fully edentulous patients.[4] Success of dental implants is generally defined by implant survival. Implant failure perhaps results from multi-factorial process. There are diverse causes related to early (overheating, contamination and trauma during surgery, poor bone quantity and/or quality, lack of primary stability, and incorrect immediate load indication), and late (periimplantitis, occlusal trauma, and overloading) failure. With advancement of science and technology, there is a paradigm shift in designing and materializing dental implants. Many dental implant systems will have minimal placement/restorative instrumentation, and one universal implant body to fulfil all surgical needs as found today in OCO Biomedical's dental implant system. These

implants are designed for immediate loading using Dual Stabilization™, an industry unique design feature that biomechanically secures the tip and collar of the implant.

While other implant companies boast their revolutionary surface treatments, OCO implants immediately “lock” into the bone at placement. The patented Bull Nose Auger™ tip locks the apex of the implant by pulling bone up and around the threads, and the mini Cortic-O Thread™ locks into the cortical bone, stabilizing the collar. The thread pattern and pitch of are purposely designed to immediately maximize bone to thread contact. The implant placement procedure is easy (despite the complexity of implant design): placement can be done with flap or flapless surgery; no need of multiple twists, intermediate drills, or taps; and you don't need a mount to thread in implants. The Dual Stabilization™ dental implants achieve Osseous Fixation™, a biomechanical lock at placement, and are engineered to stimulate bone growth with patented implant features.[5]

Implant failure is easier to describe than implant success or survival and may consist of a variety of factors. Any pain, vertical mobility, and uncontrolled progressive bone loss warrant implant removal.[6] With changing concepts in biomechanics and biomaterials in implant design with Osseous Fixation technology; it will lead to higher success rates of dental implants by improving the quality on biomechanical responses in bone around dental implants.

### References

1. Saini R, Saini S, Sharma S. Oral sex, oral health and orogenital infections. *J Global Infect Dis* 2010;1:57-62.
2. Saini R, Saini S, Saini SR. Periodontitis: A risk for delivery of premature labor and low birth weight infants. *J Nat Sc Biol Med* 2010;1:40-42.
3. Gerritsen et al. Tooth loss and oral health-related quality of life: a systematic review and meta-analysis. *Health and Quality of Life Outcomes* 2010; 8:126.
4. Saini R. Dental Implants: A Review. *Res Rev J Dent Sci* 2013;1(3):8-11.
5. Saini R. Dental Implants: Dual Stabilization Technology. *International Journal of Biomedical and Advance Research* 2015;6(02):196-198.
6. Misc CE et al. Implant success, survival, and failure: The international congress of oral implantologists (icoi) pisa consensus conference. *Implant Dentistry* 2008;17:5-9.

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