OsteoCentric® TECHNOLOGIES

Powered by Unifi*MI*®

MIS Bone Preservation Fastener Technology

The Principles of Minimally Invasive Surgery (MIS) ***Applied to Bone***

Designed to Improve & Accelerate the Patient's Path to Recovery

OsteoCentric Technologies continues to redefine minimally invasive surgical technology across all Orthopedic market segments by moving beyond incremental improvements and addressing the root cause of delayed patient recovery. UnifiMI MIS Bone Preservation Fastener & Tapping Technology is focused on preserving the bone, instantly interlocking to the preserved bone, and sharing energy with the preserved bone.

First there was **Osseointegration**

For Secondary Stability

A pivotal breakthrough in medical technology uncovering Titanium's ability to integrate with bone allowing for time-dependent biological implant stability.

Now there's **Mechanical Integration**

For Immediate & Sustained Primary Stability

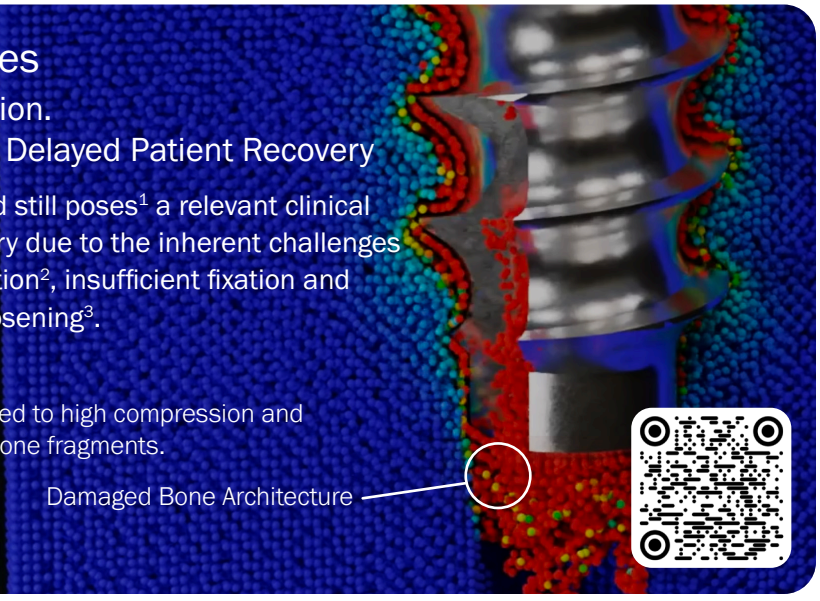
Following in the footsteps of Osseointegration, **Unifi*MI*** - MIS bone preserving interface technology creates an immediate structural and functional connection that provides sustained primary implant stability.

Inherent Clinical Challenges

Bone Damage. Insufficient Fixation.
Implant Instability & Loosening. Delayed Patient Recovery

Implant fixation has its limitations and still poses[1] a relevant clinical problem within the Orthopedic industry due to the inherent challenges of bone damage during implant insertion[2], insufficient fixation and instability that can lead to implant loosening[3].

Advanced Particle Based Simulation
Simulates complex bone structure subjected to high compression and crushing deformations resulting in micro bone fragments.



Video by: numalogics

Implant Stability Dip at a Glance

Stability Dip - Legacy Compression-Based Interface

Time 0 Primary Implant Stability Established

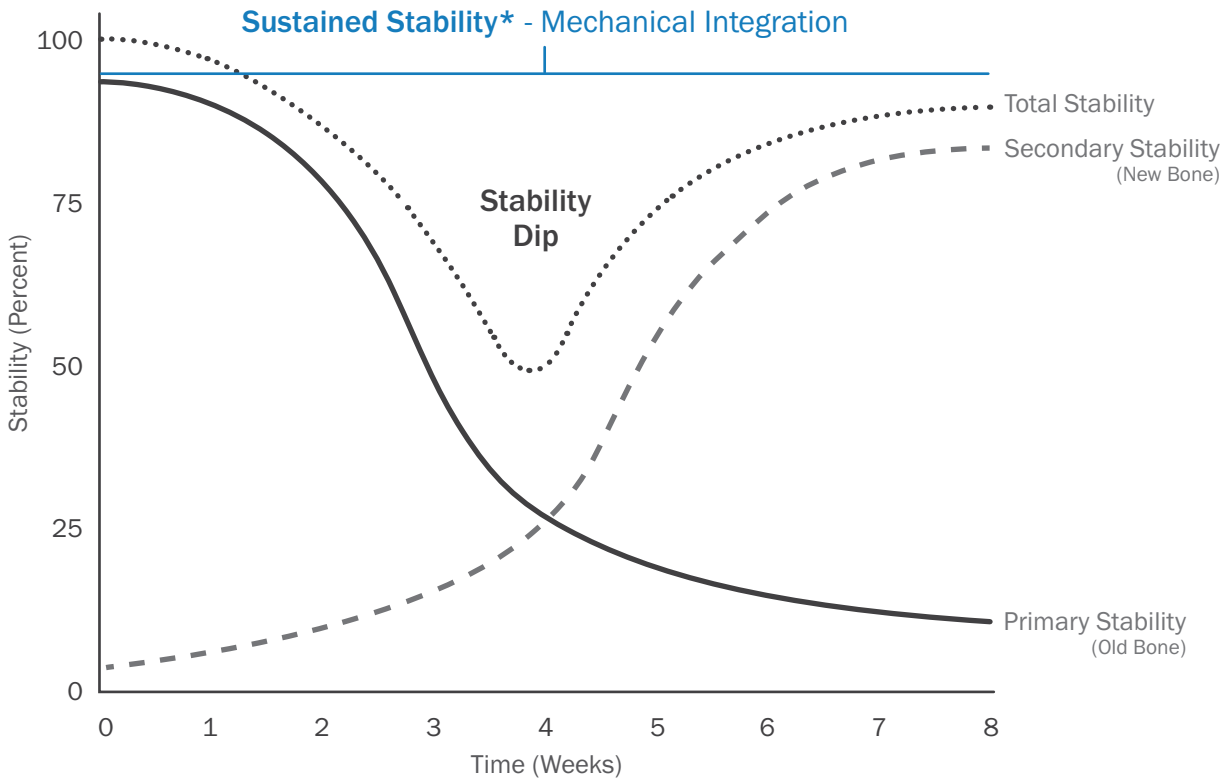
Weeks 1 - 4/5 Primary Implant Stability Decreases

Weeks 5+ Secondary Implant Stability Increases

Sustained Stability* - Unifi*MI* Mechanical Integration

Time 0+ Primary Implant Stability Established & Sustained Over Time

**Anticipated Stability Projection*



Most Orthopedic Implants Are Impacted By And Experience a Similar Stability Response During The Recovery Phase

Dentists discovered the stability dip because they are able to monitor and measure implant stability during patient follow up. Whereas compared to an orthopedic procedure, post-operative access to the implant is not possible. Monitoring stability and determining when the implant is capable of bearing loads is considered a critical factor in the short and long-term success of the implant.

The Dip in Implant Stability

The dip in implant stability is due to the structural and biologic response to bone damage that occurs during implant insertion[2] which dramatically affects implant stability and limits the bone's ability to bear functional loads while it reconstitutes.

Skip The Dip: Optimize & Accelerate Recovery

Intended to accelerate the patient's healing journey by addressing and confronting the root causes that can lead to delayed recovery by:

Preserving the bone

Instantly interlocking to the preserved bone

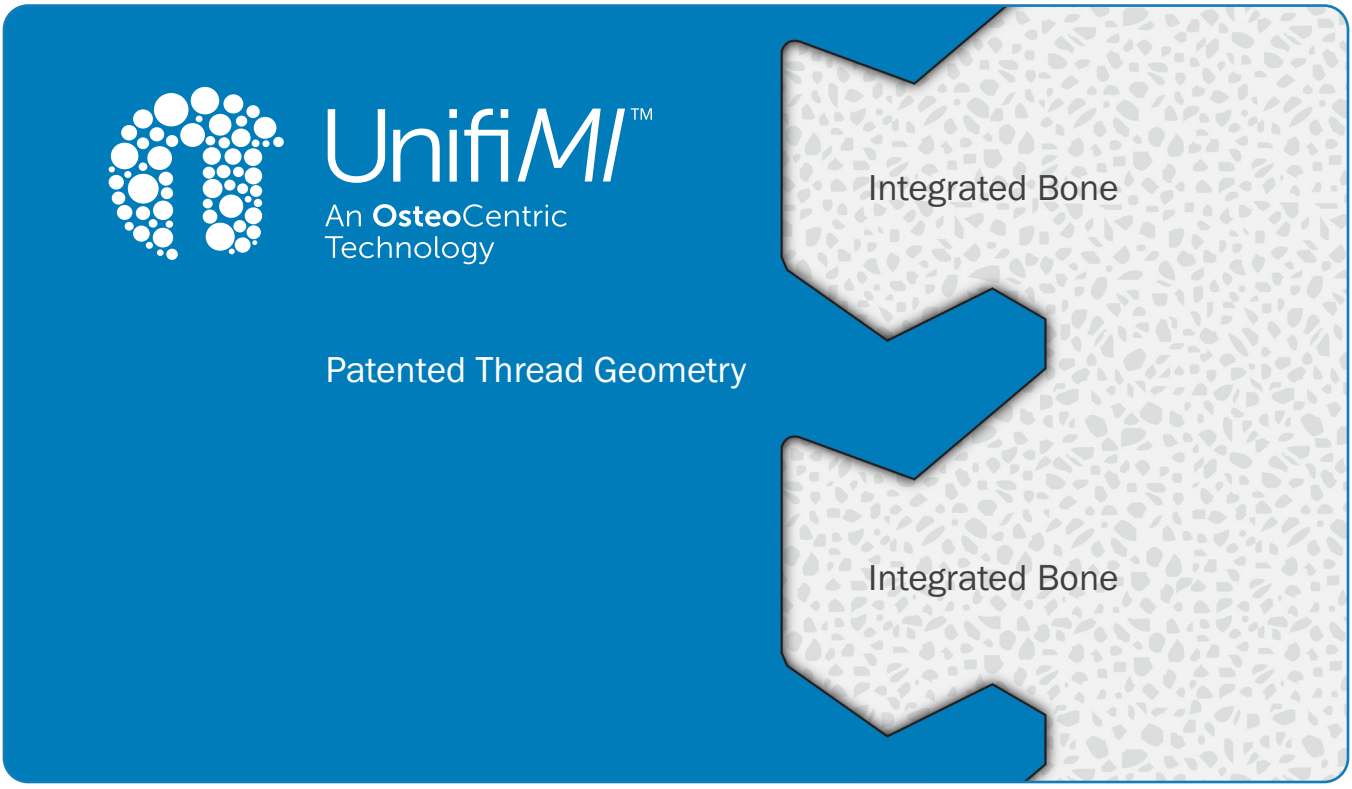
Sharing energy with the preserved bone

Mechanical Integration Technology

Unique thread geometry instantly and circumferentially interlocks with bone by entrapping and containing bone between the thread form.

Mechanical Integration creates a structural and functional connection between an implant and bone which transfers and shares loads in a similar manner to biological integration (Osseointegration).

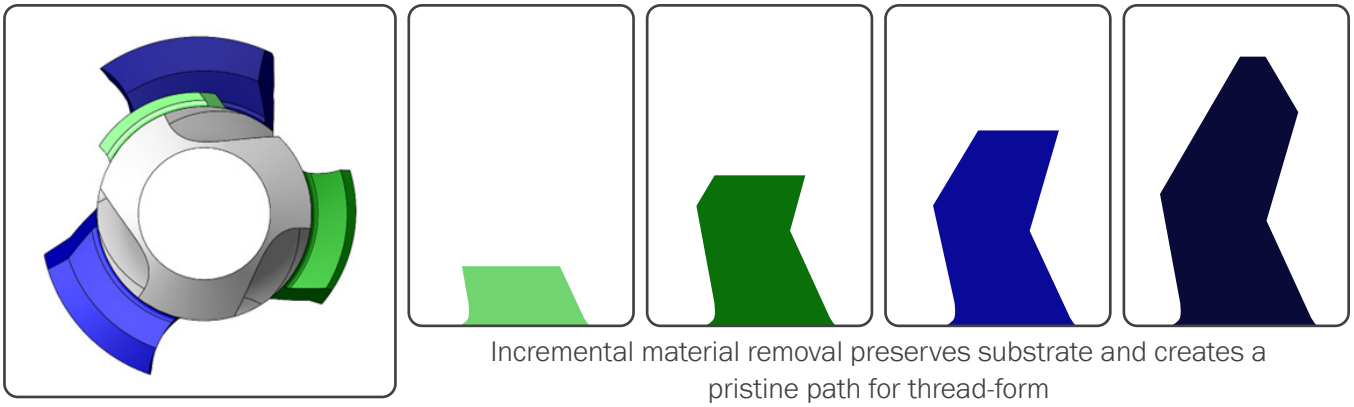
Unifi*MI* is supported by 10 years of advanced research and development. No other Dental System on the market is equipped with advanced Unifi*MI* technology.



Unifi*MI*® MIS Bone Preservation Fastener & Tapping Technology

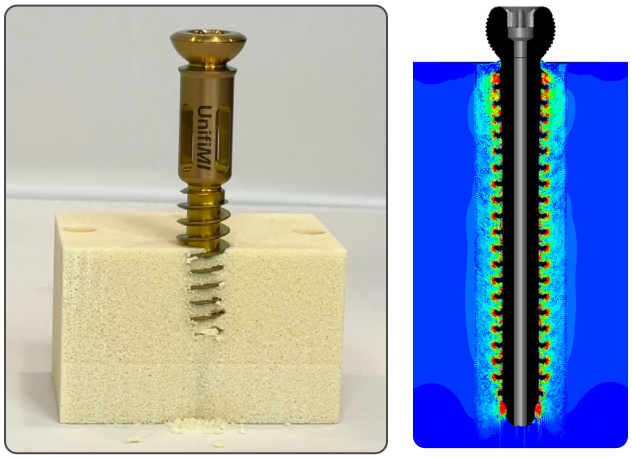
Unifi*MI* utilizes proprietary tapping technology that prepares and preserves the structural integrity of bone by advancing bone chips forward, creating a pristine pathway for implant insertion.

Unifi*MI* was designed to provide advantages in both short and long-term response to mechanical stress creating a platform for optimal recovery and long-term success. The incremental and gradual bone removal process preserves the substrate and helps to establish a stable implant-to-bone interface, which is known to play major role in improving implant fixation and prolonging stability.



Incremental material removal preserves substrate and creates a pristine path for thread-form

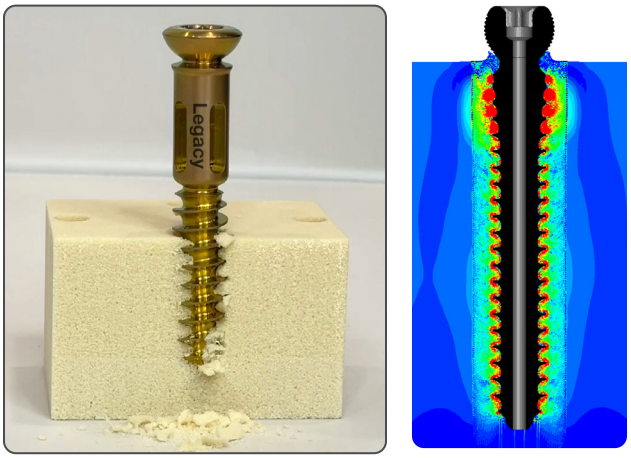
Bone Architecture Preservation



Unifi*MI* Interface

- Cleanly Prepares & Preserves During Insertion
- Creates a Stable Mechanically Integrated Interface

Bone Architecture Damage



Legacy Interface

- Crushes & plows during insertion
- Creates a damaged & unstable interface

MIS Bone Preservation Tapping Technology & Instant Interlocking Thread-form

Unifi*MI*, the new standard and clinically proven platform technology that utilizes the principles of MIS bone preservation and mechanical integration to address the challenges associated with implant survivorship and patient outcomes by:

- Preserving the architecture of the patient's bone during implant insertion
- Sustaining primary implant stability over time
- Leveraging MIS technology to accelerate the patient's healing journey

100+

Elite Level 1 Trauma Centers

7+

Years of Proven Performance

UnifiMI™

An **Osteo**Centric Technology

Backed by over 9 years of R&D, and More Than $200 Million Invested in Advanced Biomechanical Testing & Clinical Evaluation

A New Era in Orthopedics

OsteoCentric Technologies is leading an industry-wide, global revolution to address the systemic issue of bone damage, compromised implant stability and loosening by developing new, minimally invasive techniques, instruments, and implants that go beyond soft tissues and focuses on preparing and preserving bone.

Trusted & Adopted in:

- SI Joint Fusion
- Spine
- Trauma
- Sports Medicine
- Extremities
- Dental
- Oncology & Bone Anchored Prostheses

Surgeons Finally Have a **Choice**

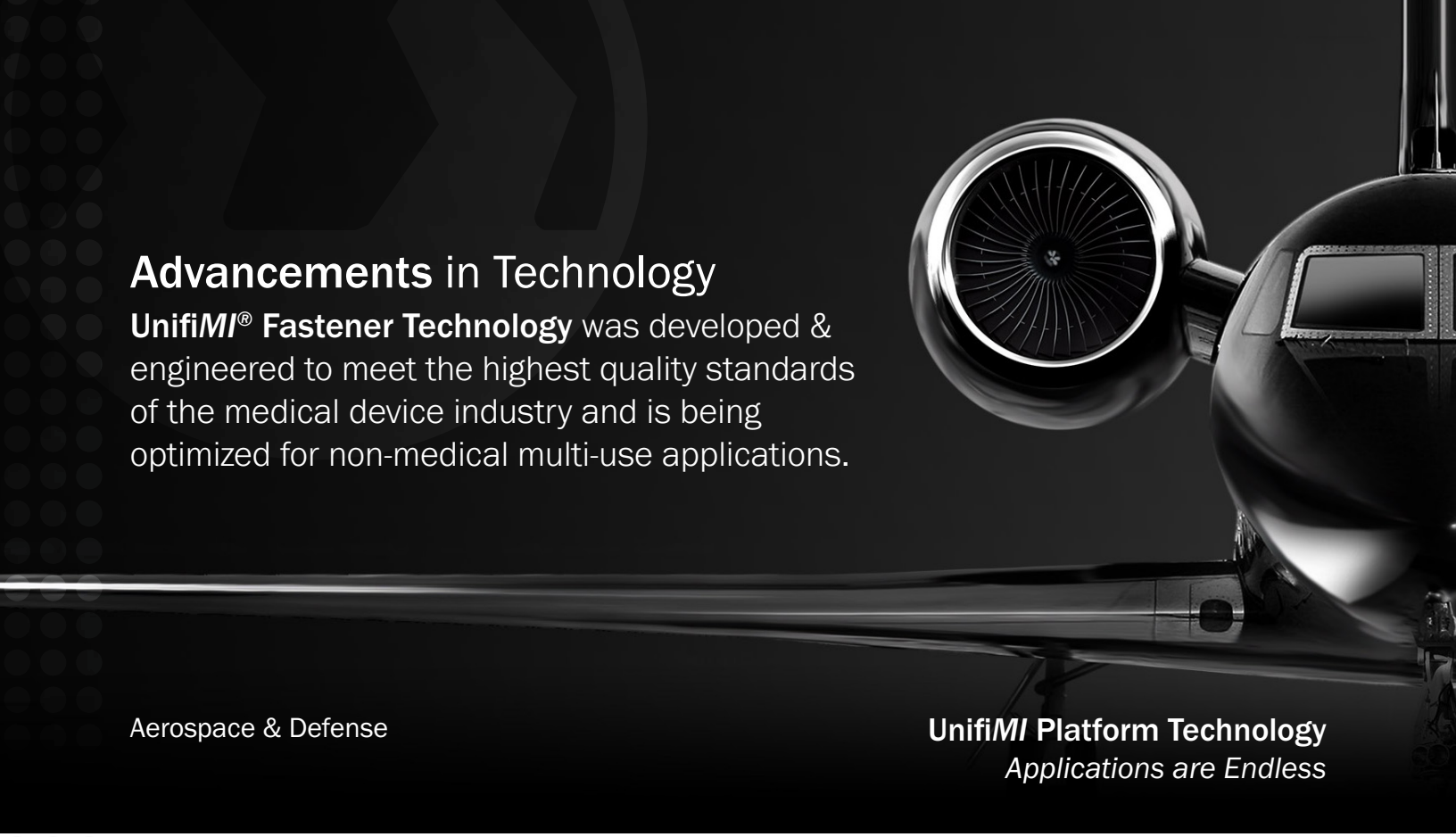
Discover the MIS bone preservation solution that elite surgeons in world-renowned institutions have rapidly adopted and trust to help accelerate the patient's healing journey.

OsteoCentric Technologies Inc.
Develops Technologies in These Market Segments:

SI Fusion, Spine, Trauma, Sports, Extremities, Dental, Oncology & Bone Anchored Prostheses

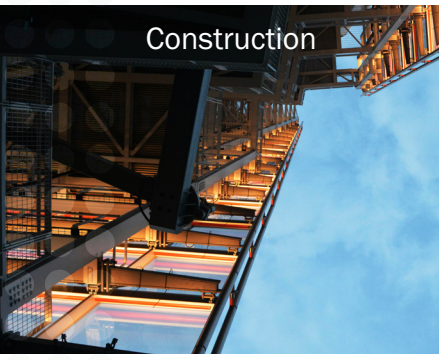
Advancements in Technology

Unifi*MI*® Fastener Technology was developed & engineered to meet the highest quality standards of the medical device industry and is being optimized for non-medical multi-use applications.



Aerospace & Defense

Unifi*MI* Platform Technology
Applications are Endless



Non-medical market segments developed advanced interfaces technologies to achieve mechanical stability while considering different material types and environmental conditions. Substrate preservation and interlocking for off-axis load resistance is critical for initial and sustained long-term stability. Unifi*MI* is redefining the performance capabilities of fastener technologies by developing innovative next-gen solutions and fueling collaborative partnerships with industry leaders.

UnifiMI™

An OsteoCentric Technology

References:

1. Widmer J, Aubin CE, van Lenthe GH, Matsukawa K. Innovations to improve screw fixation in traumatology and orthopedic surgery. Front Bioeng Biotechnol. 2022 Nov 25;10:1094813. doi: 10.3389/fbioe.2022.1094813. PMID: 36507265; PMCID: PMC9733944.

2. Steiner JA, Ferguson SJ, van Lenthe GH. Screw insertion in trabecular bone causes peri-implant bone damage. Med Eng Phys. 2016 Apr;38(4):417-22. doi: 10.1016/j.medengphy.2016.01.006. Epub 2016 Feb 23. PMID: 26920074.

3. Steiner JA, Christen P, Affentranger R, Ferguson SJ, van Lenthe GH. A novel in silico method to quantify primary stability of screws in trabecular bone. J Orthop Res. 2017 Nov;35(11):2415-2424. doi: 10.1002/jor.23551. Epub 2017 Mar 8. PMID: 28240380

OsteoCentric® TECHNOLOGIES

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