



OsteoCentric®  
TECHNOLOGIES

UnifiMI®

# MIS Bone Preservation Interface Technology

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

## Improving & Accelerating the Patient's Path to Recovery

OsteoCentric Technologies continues to redefine Orthopedic MIS technology by applying its patented UnifiMI MIS Bone Preservation Technology capable of unprecedented performance capabilities<sup>1</sup> across all orthopedic market segments.

### First there was **Osseointegration** For Secondary Stability

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

### Now there's **Mechanical Integration** For Primary Stability

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

### Inherent Clinical Challenges

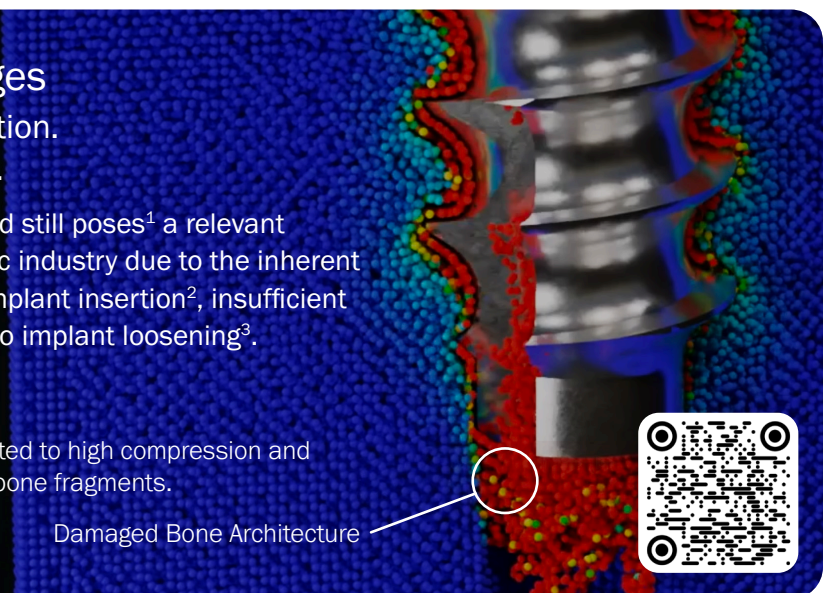
Bone Damage. Insufficient Fixation.  
Implant Instability & Loosening.

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

### Advanced Particle Based Simulation

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

Damaged Bone Architecture



# Are you Familiar with the Implant Stability Dip?

## Stability Lifecycle Explained

### Stability Dip - Legacy Compression-Based Interface

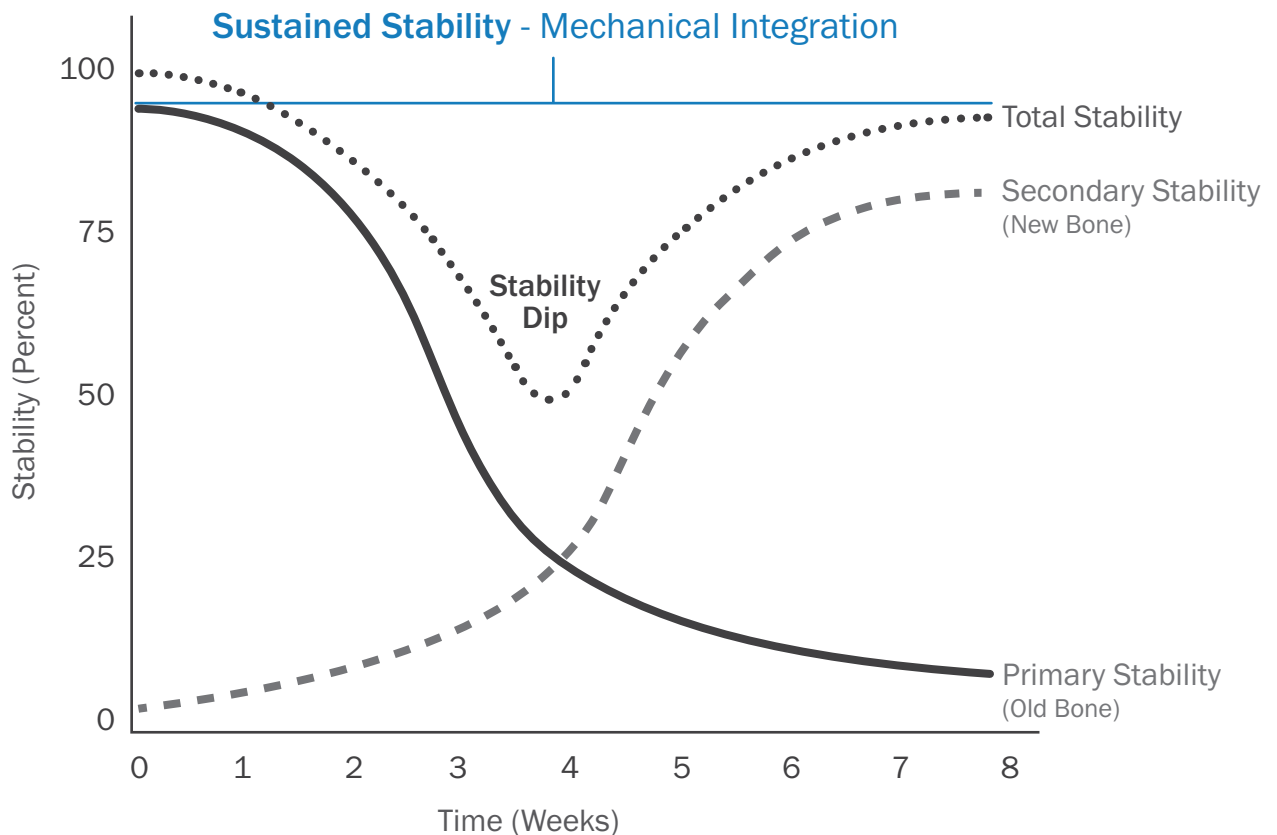
**Time 0** Primary Implant Stability Established

**Weeks 1 - 4/5** Primary Implant Stability Decreases

**Weeks 5+** Secondary Implant Stability Increases

### Sustained Stability - UnifMI Mechanical Interface

**Time 0+** Primary Implant Stability Established & Sustained Over Time



**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<sup>2</sup> which dramatically affects implant stability and limits the bone's ability to bear functional loads while it reconstitutes.

# 90+

Elite Level 1  
Trauma Centers



# 9+

Years of Proven  
Performance

**Over \$150 Million Invested in Biomechanical Testing, Advanced Research & Development, and 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

### OsteoCentric Technologies:

SI Joint Fusion, LLC | Spine, LLC | Trauma, LLC | Sports Medicine, LLC | Extremities, LLC | Dental, LLC | Oncology & Bone Anchored Prostheses, LLC



### 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.

### MIS Bone Preservation Tapping Technology & Instant Interlocking Thread-form

**UnifiMI**, 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

# Advancements in Technology

UnifiMI® 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.

UnifiMI Platform Technology  
Applications are Endless

Aerospace & Defense

Transportation



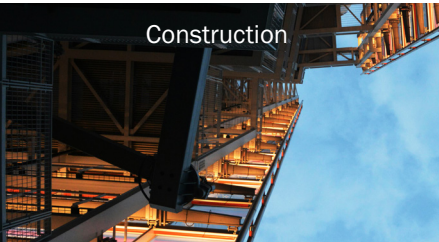
Sporting Goods



Oil & Gas



Construction



Automotive



Agriculture



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. UnifiMI is redefining the performance capabilities of fastener technologies by developing innovative next-gen solutions and fueling collaborative partnerships with industry leaders.

## 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

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75 West 300 N, Suite 150  
Logan UT, 84321  
Phone: 1-800-969-0639  
info@osteocentric.com  
osteocentric.com

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