

# Immediate Fixation Improves Longterm Stability

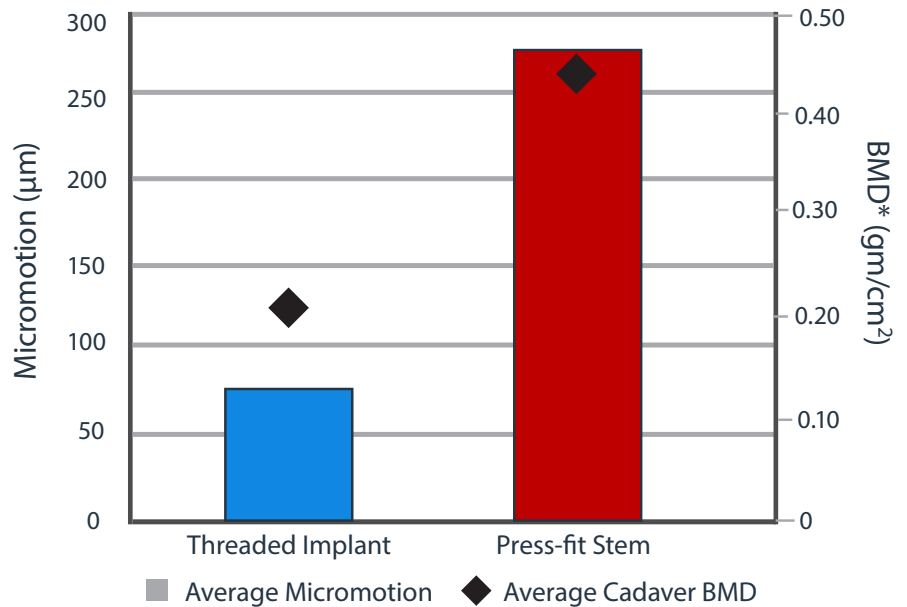
Important Considerations When Moving Patients Early

- Reliable fixation strength depends largely on the initial stability of the fixation. Bone-prosthesis micromotion in excess of 50–150  $\mu\text{m}$  will produce fibrocartilage/fibrous tissue formation at bone-implant interface.

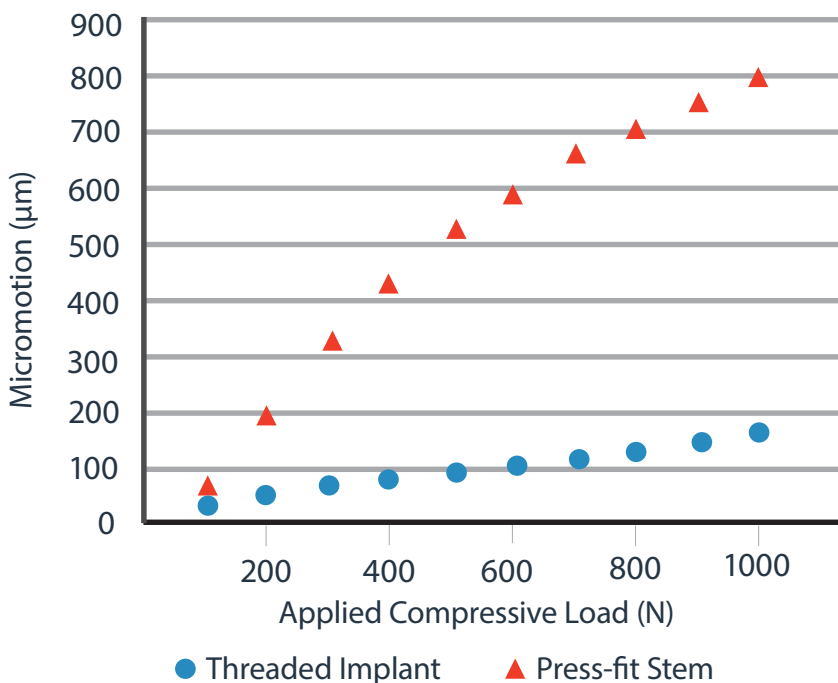
*Chong, Desmond YR, Ulrich N. Hansen, and Andrew A. Amis. "Analysis of bone-prosthesis interface micromotion for cementless tibial prosthesis fixation and the influence of loading conditions." Journal of Biomechanics 43.6 (2010): 1074-1080.*

- A threaded taper post implant design reduces the bone-implant interface micromotion by  $\geq 3\text{X}$  compared to a press-fit stem.

Bone-Implant Interface Micromotion\*



Bone-Implant Interface Micromotion  
In Weak Bone: BMD < 0.25  $\text{gm}/\text{cm}^2$  \*



- "There is evidence that too much relative motion between the implant and host bone leads to ingrowth of fibrous connective tissue rather than bone. The extent of implant stability contributes to a reduction in relative motion between the implant and host bone."

*Kienapfel, H., et al. "Implant fixation by bone ingrowth." The Journal of Arthroplasty 14.3 (1999): 355-368.*

\*Data on file at Arthrosurface

\*BMD= Bone Mineral Density