

# TRIGEN IM Nail System. Like no other.



Utilizing the  
**TRIGEN SURESHOT<sup>®</sup>**  
Distal Targeting System



# TRIGEN<sup>®</sup> IM Nail System



Femoral

**INTERTAN<sup>®</sup>**  
Short and long lengths

**META-NAIL<sup>®</sup>**  
Retrograde Femoral\*

**FAN**  
(Femoral Antegrade Nail)  
Standard\* and recon\*  
locking options

**TAN<sup>®</sup>**  
(Trochanteric Antegrade Nail)  
Standard\* and recon\*  
locking options

Reducing radiation. Increasing efficiency. Simplifying techniques.



Tibial



Humeral



**META-NAIL**° Tibial\*

**Humeral Nail**  
Long\*, short (straight and bent) options

**SURESHOT**°  
Distal Targeting System  
\*nails that utilize this technology

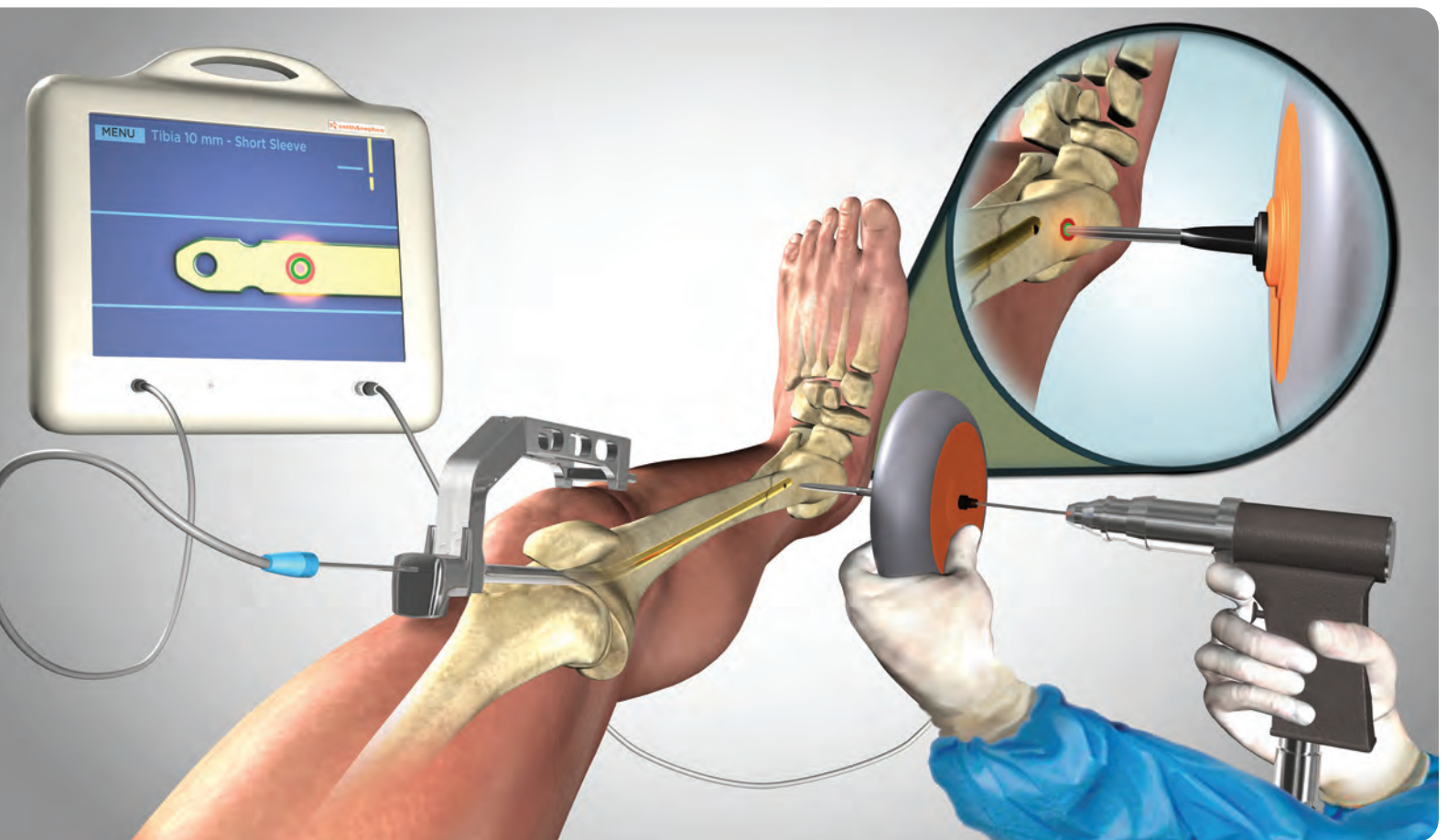


# Challenge: Radiation exposure

The TRIGEN<sup>◇</sup> solution:

## TRIGEN SURESHOT<sup>◇</sup> Distal Targeting System

Achieve perfect circles without the use of radiation. Real-time video feedback ensures the proper screw orientation relative to the distal interlocking holes.



◀ Watch the video



**Accuracy:**

Distal locking was 100% successful on 50 procedures using the TRIGEN® SURESHOT® System.<sup>1</sup>

**Reduced time:**

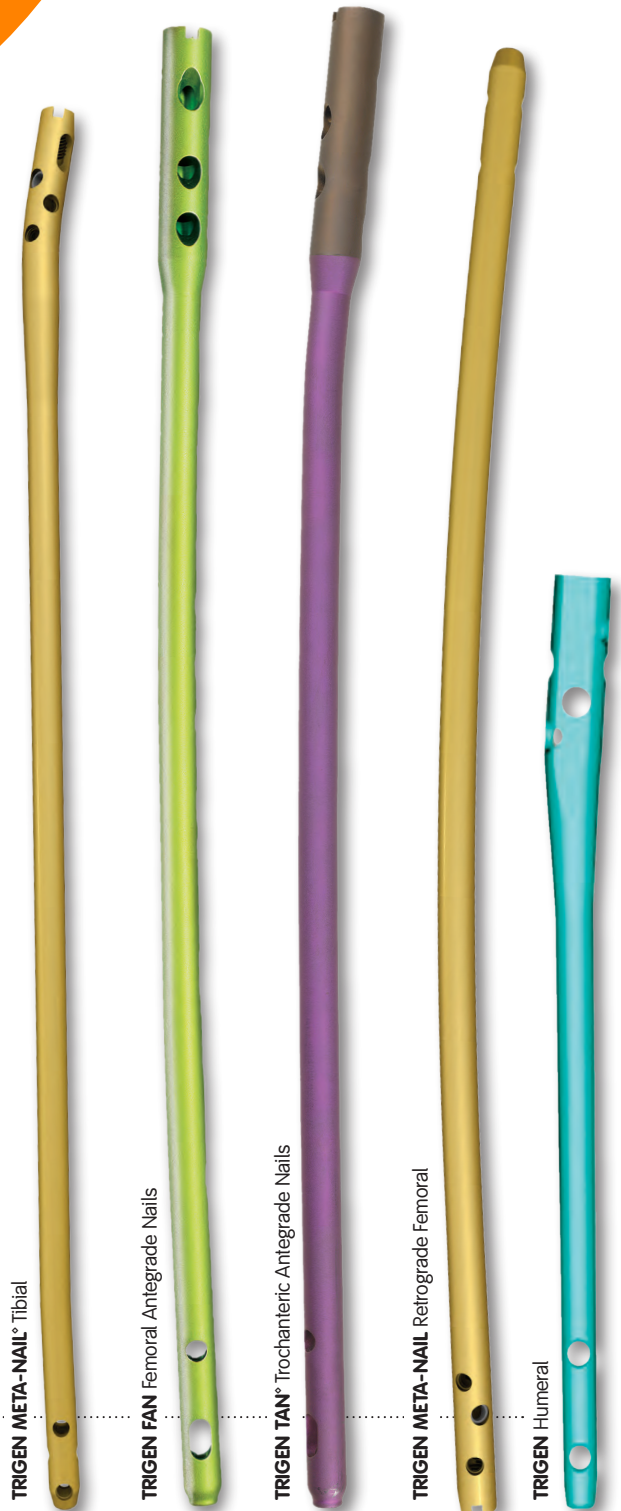
Distal locking time was reduced by an average of 48% compared to the standard fluoroscopy technique.<sup>1</sup>

**Reduced radiation:**

Regarding radiation emission, fluoroscopy time was reduced by an average of 31 seconds which is the equivalent to approximately 0.663 rad.<sup>1</sup>

1  =  3%

One rad of exposure increases risk of cancer<sup>2</sup>

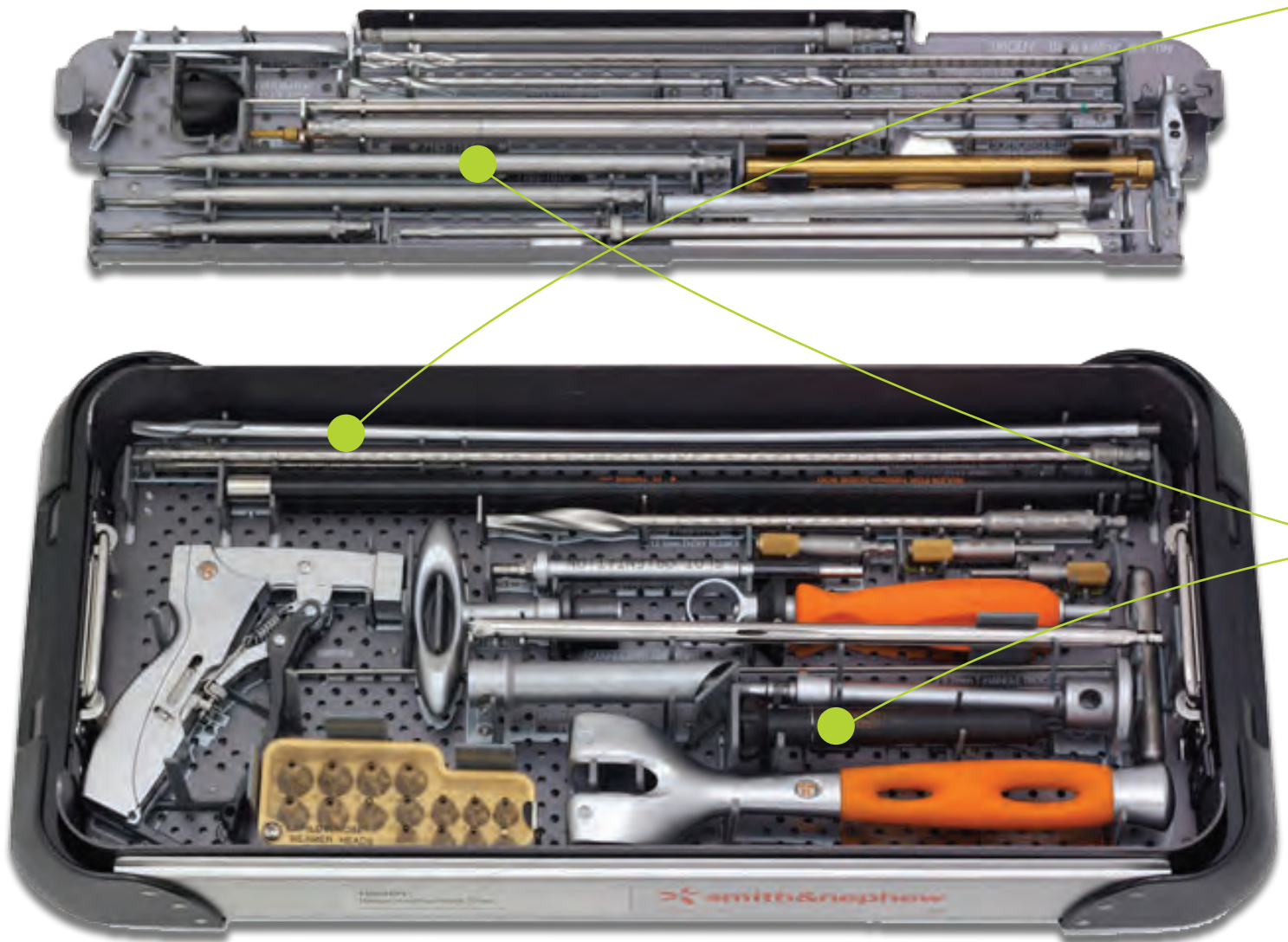


Nails that utilize TRIGEN SURESHOT technology. ▶

# Challenge: Instrumentation efficiency

The TRIGEN<sup>®</sup> solution:

One base instrument tray for all lower extremity long bones that allows the OR staff to make short work of long bone fractures.





## Specialized instruments

### Reducer

Curved tip directs the guide rod past the fracture site.



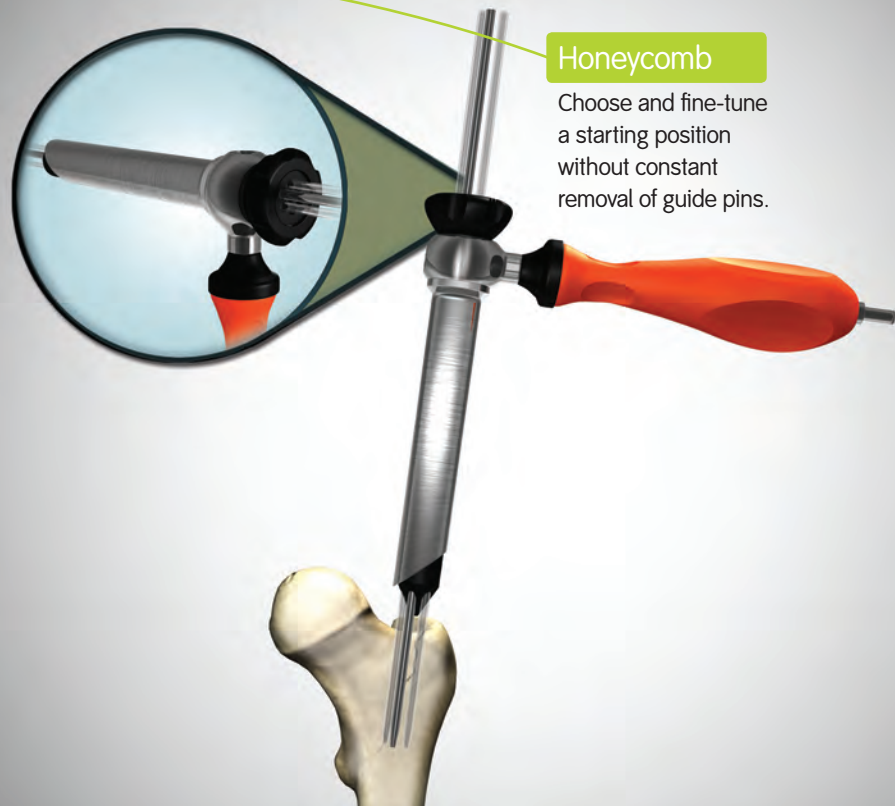
### Captured Screw Hexdriver

Internal threading allows the hexdriver to rest just inside the screw head to ensure positive contact and prevent screw loss.

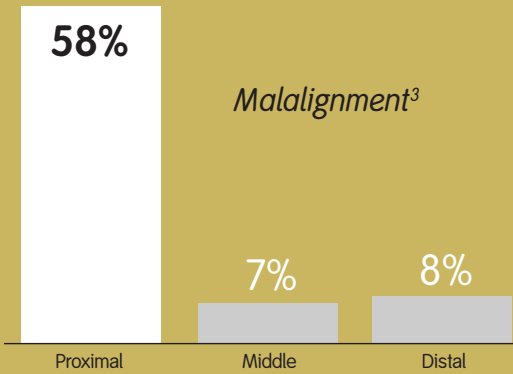


### Honeycomb

Choose and fine-tune a starting position without constant removal of guide pins.



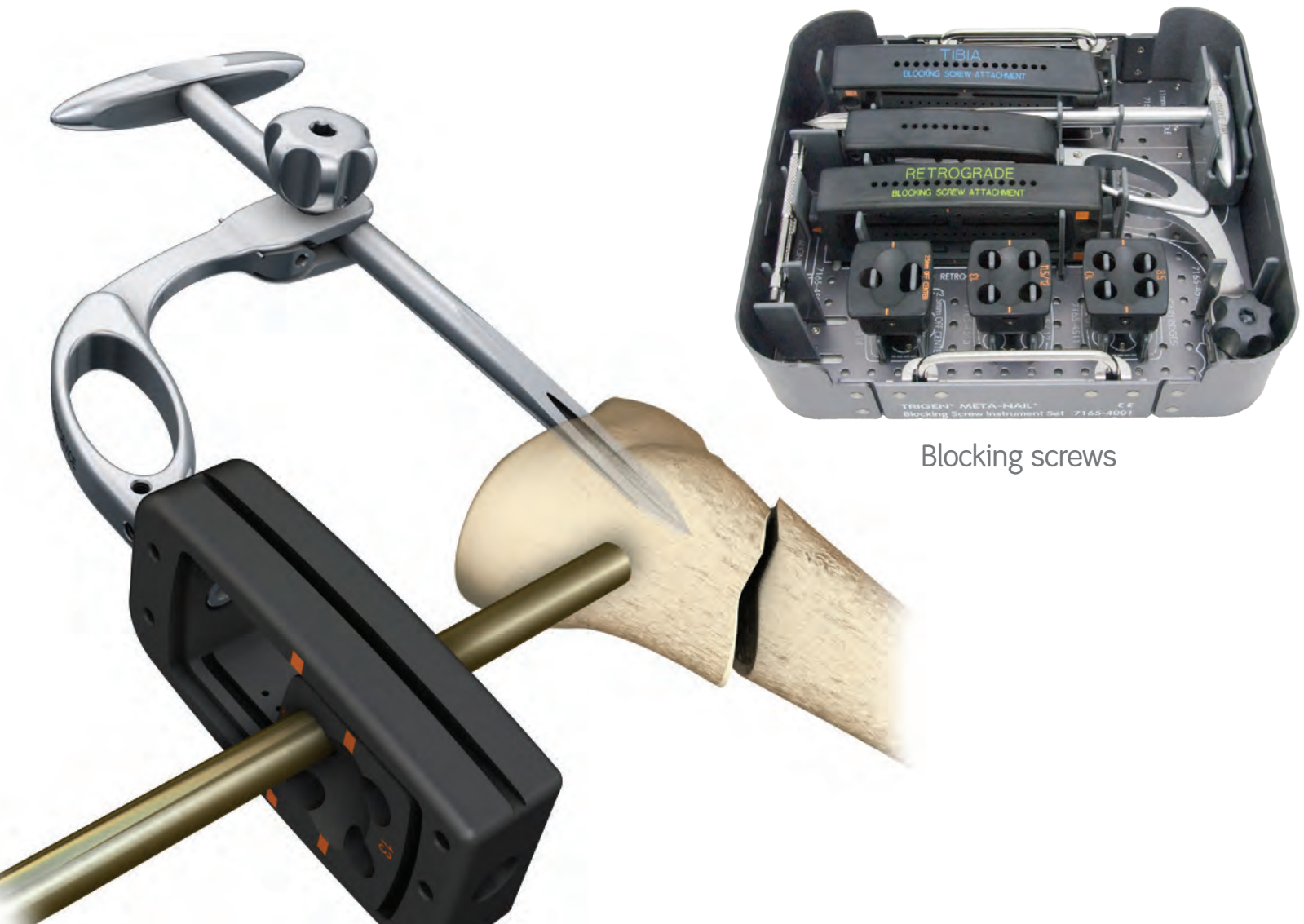
# Challenge: Tibial fractures



133 tibia nailing cases showed 58% of proximal tibia fractures were malaligned (>5° angulation).

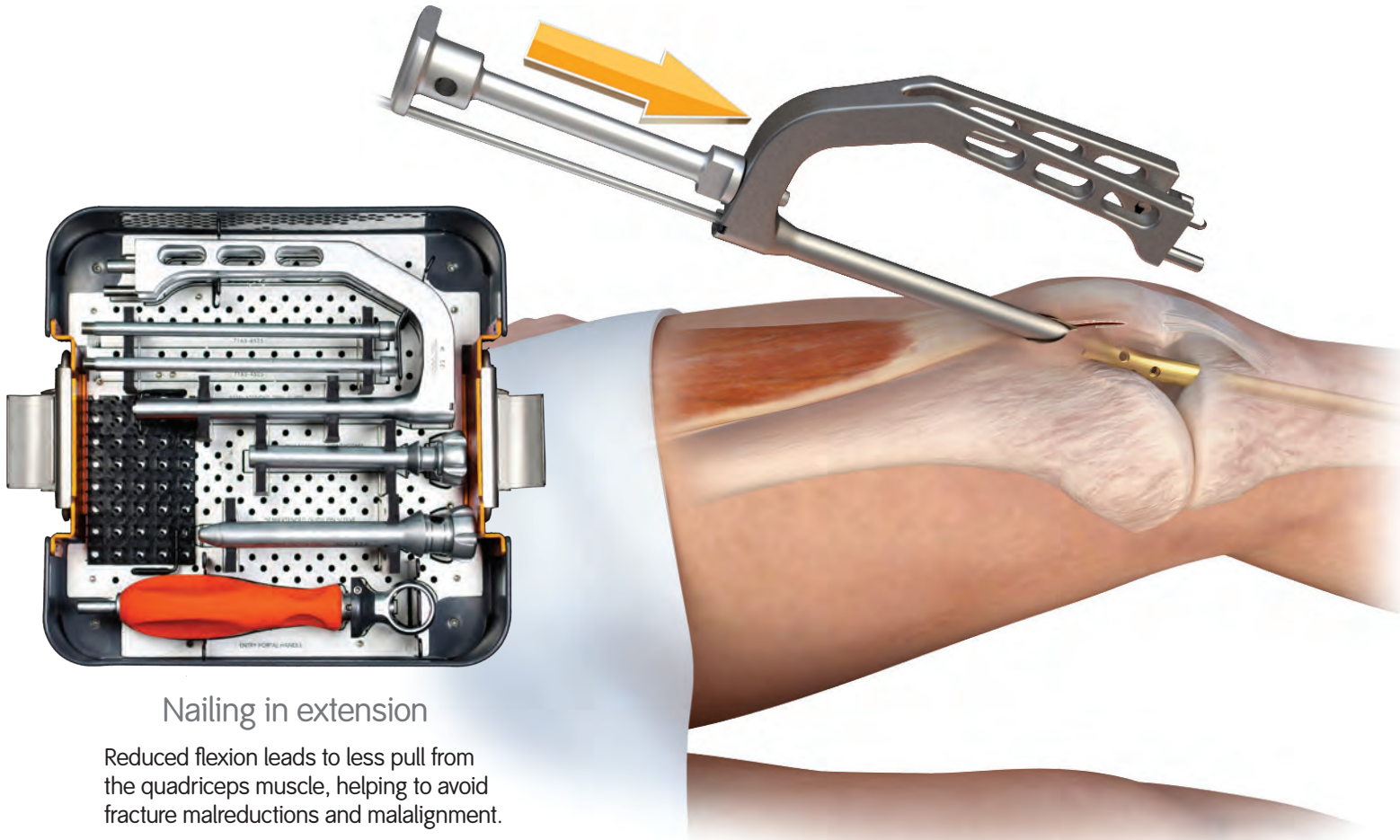
## The TRIGEN<sup>◇</sup> solution:

Dedicated instruments  
for blocking screws and extension nailing



Blocking screws

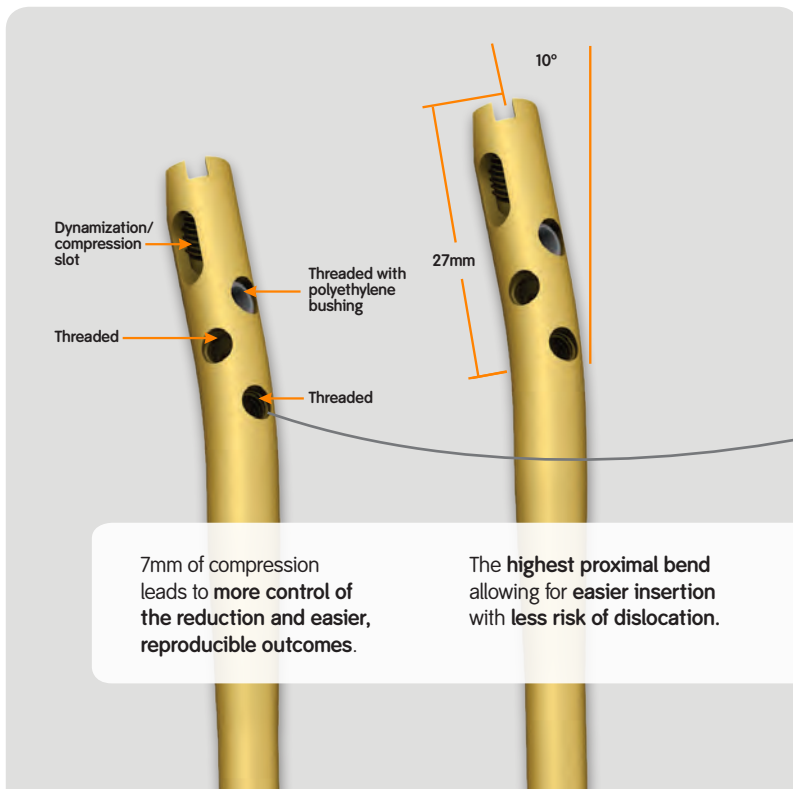




### Nailing in extension

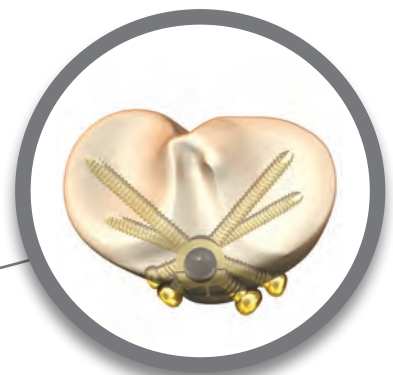
Reduced flexion leads to less pull from the quadriceps muscle, helping to avoid fracture malreductions and malalignment.

## Enhanced fixation



7mm of compression leads to **more control of the reduction and easier, reproducible outcomes.**

The **highest proximal bend** allowing for easier insertion with less risk of dislocation.



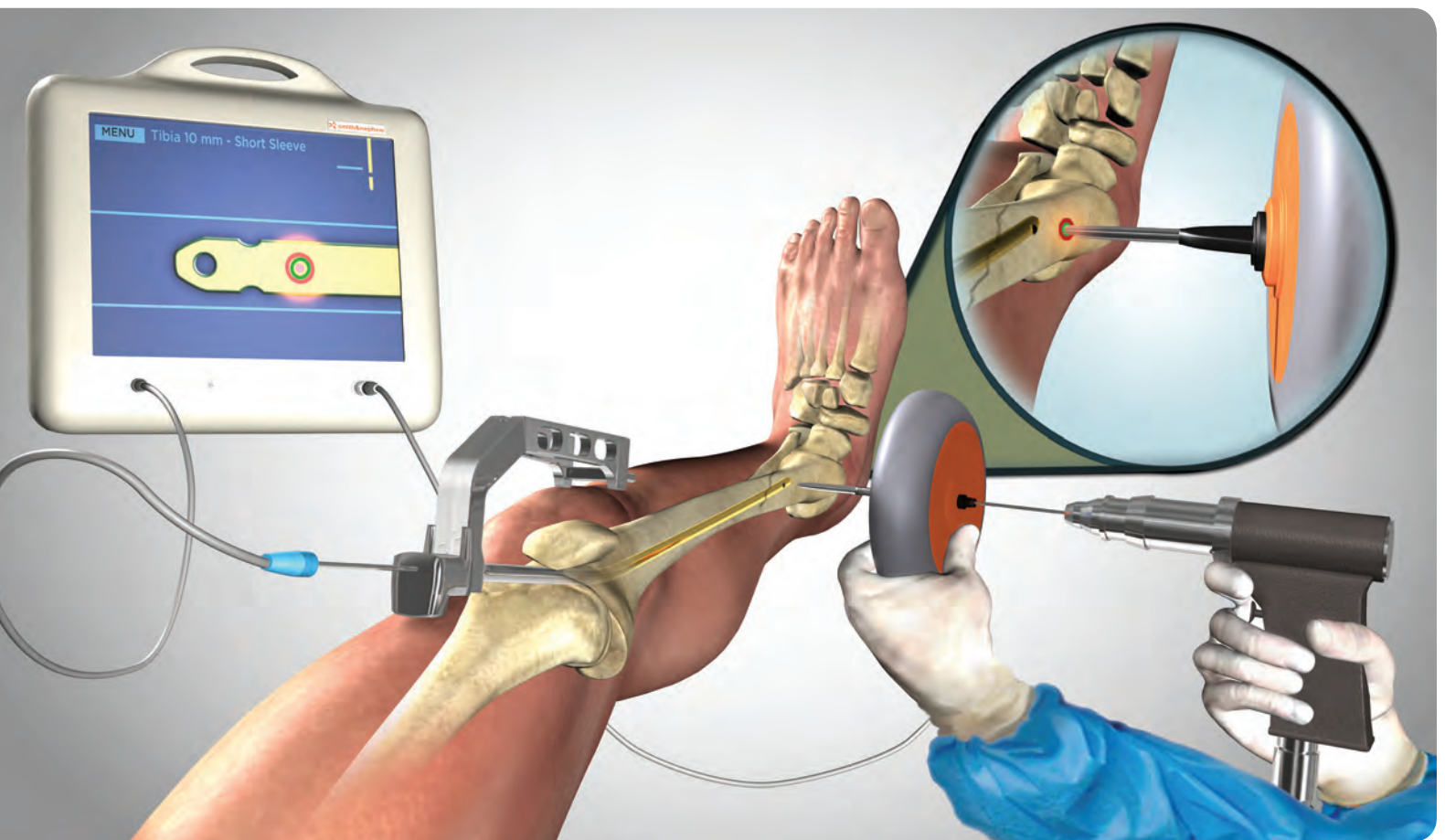
Threaded holes combined with a multiplanar screw configuration offer a stable, locked construct.

# Challenge: Femoral fractures

## The TRIGEN<sup>◇</sup> solution:

### Lessen the risk of femoral malrotation.

With the TRIGEN SURESHOT<sup>◇</sup> Distal Targeting System, the leg does not need to be maneuvered for fluoroscopy.<sup>4</sup>

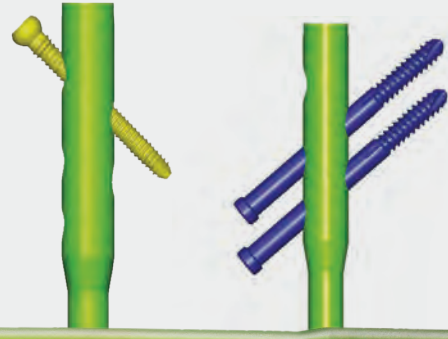
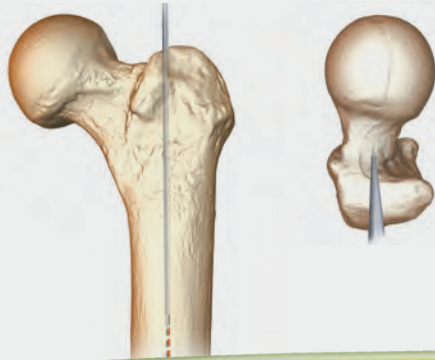


In the picture the TRIGEN SURESHOT method is shown for the tibia. The setup for TRIGEN SURESHOT for the femur is similar.

Three femoral entry options

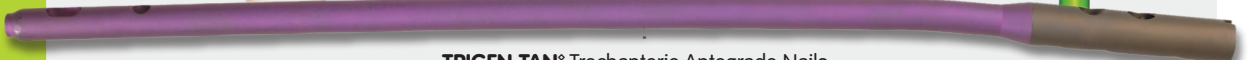
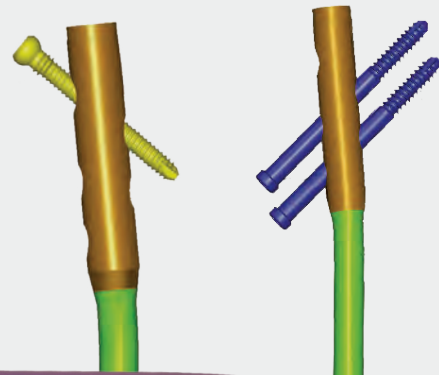
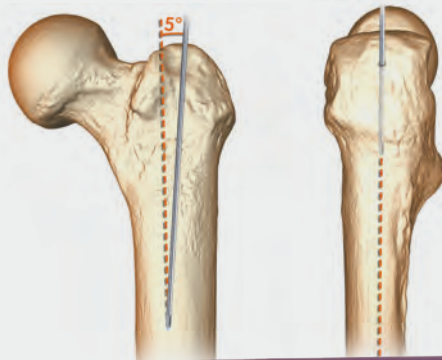
Locking hole options

Piriformis fossa



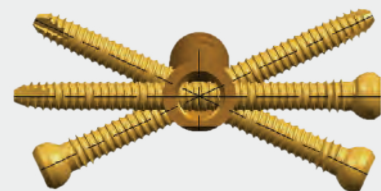
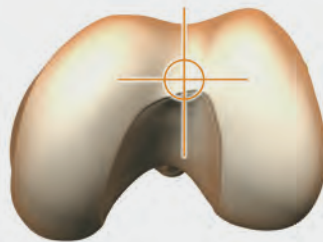
TRIGEN<sup>®</sup> FAN Femoral Antegrade Nails

Greater trochanter



TRIGEN TAN<sup>®</sup> Trochanteric Antegrade Nails

Intercondylar fossa



TRIGEN META-NAIL<sup>®</sup> Retrograde Femoral



## References

1. Michael Hoffmann, MD, MBA, Malte Schroeder, MD, Wolfgang Lehmann, MD, PhD, Michael Kammal, MD, Johannes Maria Rueger, MD, PhD, and Andreas Herrman Ruecker, MD. Next generation distal locking for intramedullary nails using an electromagnetic X-ray-radiation-free real-time navigation system. *J Trauma Acute Care Surg.* 2012; 73: 243-248.
2. Ashmore JP, Krewski D, Zielinski JM, Jiang H, Semenciw R, Band PR. First analysis of mortality and occupational radiation exposure based on the National Dose Registry of Canada. *Am J Epidemiol* 148(6): 564, 1998
3. Freedman EL, Johnson EE. Radiographic analysis of tibial fractures malalignment following intramedullary nailing. *Clin Orthop Relat Res.* 1995:25-33.
4. Tornetta P, Patel P, Tseng S, Whitten A, Ricci W. Distal locking using an electromagnetic field guided computer based real time system. Orthopaedic Trauma Association (OTA) Annual Meeting Poster No. 98, 2009



Reducing radiation. Increasing efficiency. Simplifying techniques.

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