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TRIGEN®
INTERTAN®
Intertrochanteric Antegrade Nail

Improving patient outcomes in hip fractures

Fastest growing bone fracture segment in the world[1]

1.6 million hip fractures annually in the world[2]

6.3 million expected annually in the world during the next 30 – 40 years[2]

3 out of 4 over age 50 never regain pre-fracture function after hip fracture[1]

50% of surviving patients have to live with a reduced ability to walk following fracture union[3,4]

Challenge with conventional hip fracture implants

Varus collapse of the femoral neck and head ➤ Lag screw cutout ➤ Revision surgery

Uncontrolled shortening of the femoral neck ➤ Malrotation and Shortening of the neck and head ➤ Weakening of the hip abductor muscles ➤ Leg length discrepancy, decreased strength, and impaired patient mobility

Rigid distal tip ➤ Shaft fractures at the distal tip of the nail ➤ Revision surgery

TRIGEN® INTERTAN® solutions

Rotational control provided by the **integrated screws** in the femoral neck and head and the **trapezoidal shape** of the nail in the proximal femur help to combat forces that cause instability and varus collapse

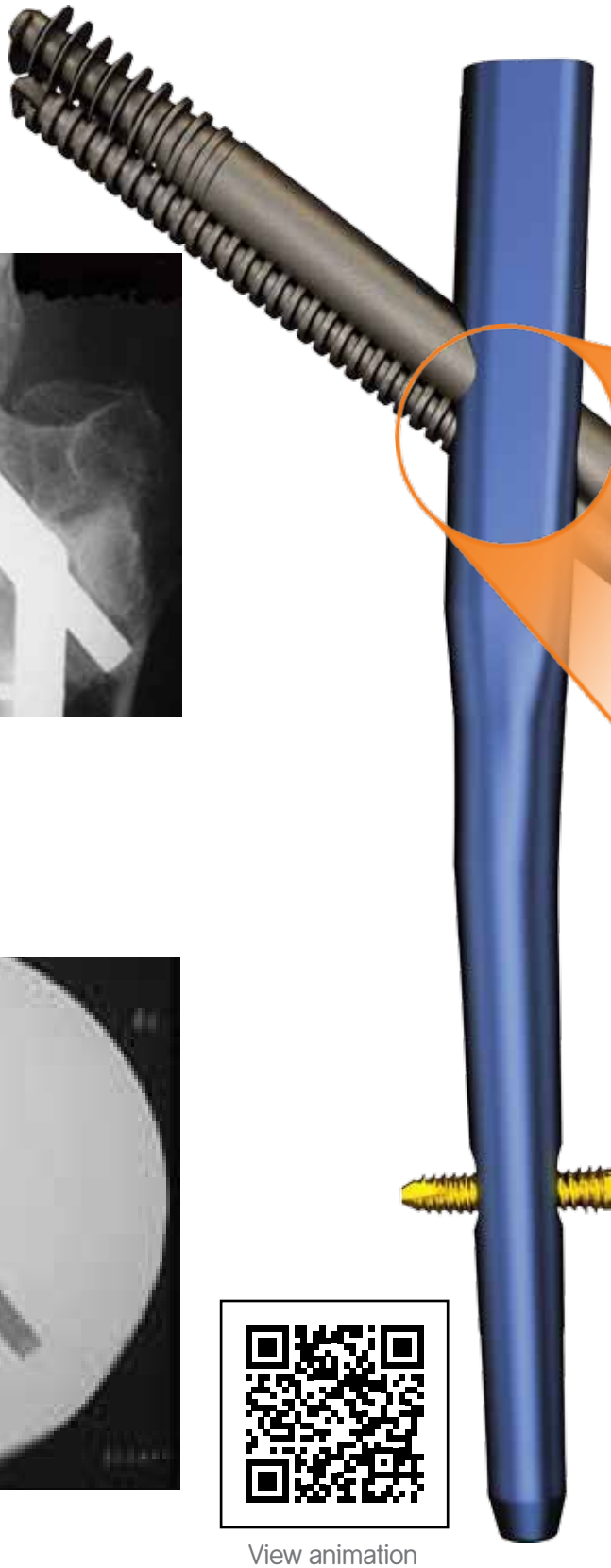
The **two integrated screws** give the surgeon the ability to gain active linear compression intraoperatively and reduce the incidence of uncontrolled shortening of the femoral neck as well as the Z-effect which can occur with two separate screws placed in the femoral neck and head

The **clothes pin distal tip** of the short nail makes it less rigid, helping to prevent periprosthetic fractures and reducing the incidence of anterior thigh pain

Pitfalls of conventional devices

Uncontrolled collapse and shortening of the femoral neck caused by fracture sliding with the implant

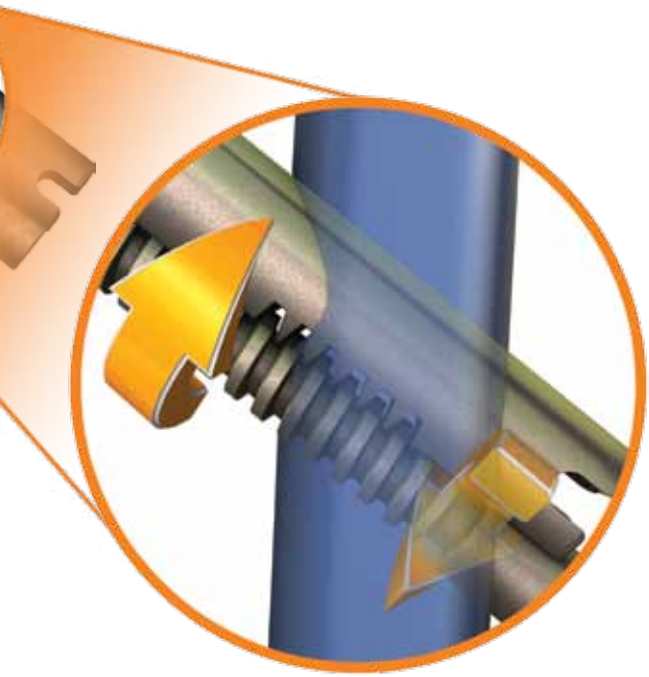
Medial migration of a single lag screw and Z-effect of two independent cephalomedullary screws



View animation

Fracture stability through active linear compression

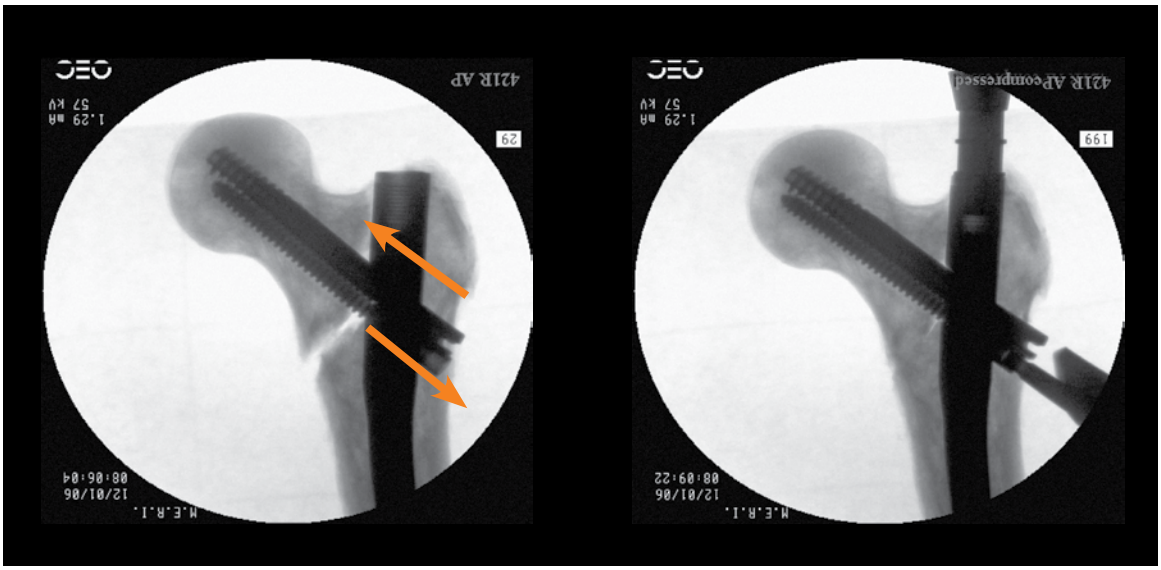
The primary difference in the TRIGEN® INTERTAN® nail system is its integrated, interlocking screw construct. The “rack and pinion” design allows for a lag and compression screw to **compress the fracture while controlling rotation** with the required amount of force.[5]



Steps of active linear compression

- Smaller 7mm compression screw head engages the nail
- The 11mm lag screw and femoral neck/head begin to move laterally
- Nail and shaft of the femur begin to move medially
- Linear compression is achieved in a controlled fashion

See video



Active linear compression helps unload the lateral wall and restore the proximal femur. Note: The INTERTAN compression screw is always against the nail. This makes medial migration and the Z-effect nearly impossible.

Rotational control through integrated screws and proximal geometry

Intgegrated screws

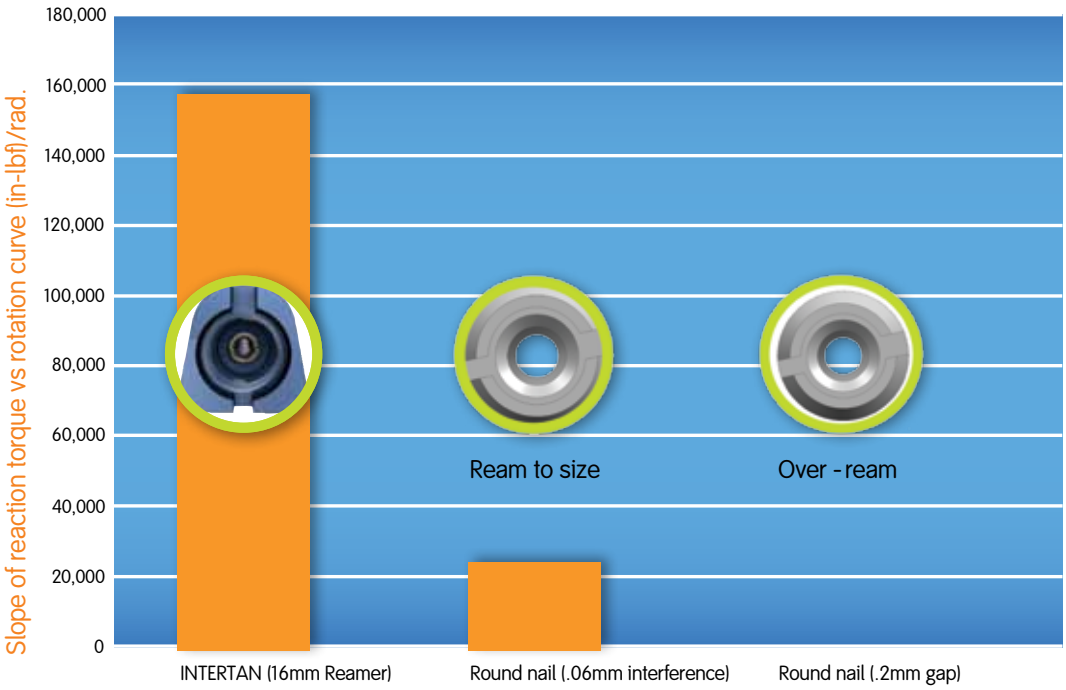
- Two integrated screws - 11mm lag screw and 7mm compression screw
- Oval screw or “snowman” is created giving composite diameter of 15.25mm
- Increased rotational control of the femoral neck and head is achieved

Proximal geometry

- Trapezoidal proximal shape with a diameter of 15.25mm x 16.25mm
- More material on the lateral side of the nail where tensile/stretching forces tend to be greatest
- Provides a press fit in the metaphyseal region of proximal femur
- Enhanced stability is achieved allowing early weight bearing status

Watch video of head rotations with a conventional single lag screw device

Rotational stability – nail
INTERTAN® interference fit: **More stable**



Compared to traditional cylindrical designs, it takes more torque to cause a TRIGEN INTERTAN nail’s proximal section to rotate in the proximal femur.

Improved patient outcomes[6]

0 incidence of neck malunion, non-union, uncontrolled collapse or Z-effect at one year

0 patients had shortening in 73% of cases (only 27% of cases had mild shortening, <5mm)

90% of patients recovered their pre-fracture functional status according to the Barthel Index and

58% recovered according to the Harris Hip Score

References

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3. Koval KJ; Zuckerman JD. Functional recovery after fracture of the hip. J Bone Joint Surg (A). 1994: 76-1, 751-758.
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5. Rueger Johannes; Moore Chris. Shortening of the Femoral Neck Following Peritrochanteric Fracture. Bone & Joint Science. Vol. 2, No. 5, May 2011
6. Rueger J, Moore C. Shortening of the Femoral Neck Following Peritrochanteric Fracture. Bone&Joint Science (www.KLEOS.md) 2011; 2(5)

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Smith & Nephew, Inc.
7135 Goodlett Farms Parkway
Cordova, TN 38016
USA

Telephone: 1-901-396-2121
Information: 1-800-821-5700
Orders/Inquiries: 1-800-238-7538

www.smith-nephew.com

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