The evidence is in...

Enhanced Outcomes from Enhanced Stability

smith&nephew

TRIGEN® INTERTAN®

Intertrochanteric Antegrade Nail

Supporting healthcare professionals

Lower
risk of implant failure and non-union

Reduced
postoperative pain

Faster
time to fracture union

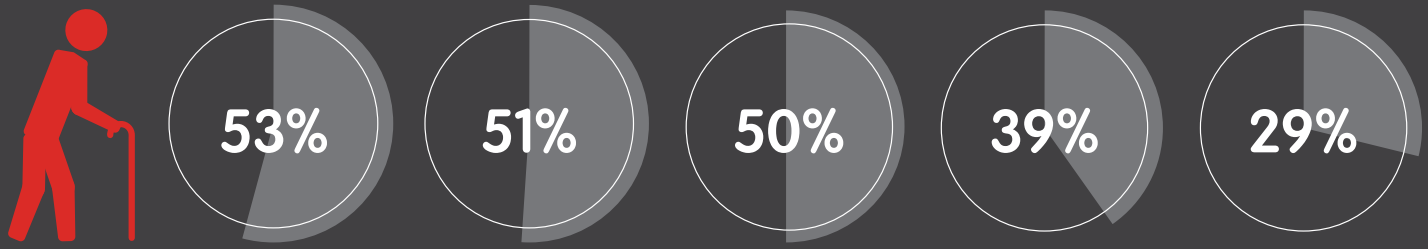
Proven
high return to pre-fracture status

How satisfied are you with current hip fracture outcomes?

Around **1 in 4** hip fracture patients over the age of 65 die within 12 months[1]

Around **6.6%** will require reoperation due to complications[2]

And for those who survive:



decline in mobility[3]

decline in daily living activities[3]

live with **reduced** ability to walk following fracture union[1]

decline in self-reported health[3]

decline in fine motor skills[3]

Your patients can enjoy life after a hip fracture

The evidence is in! Based on data from more than two-dozen published studies, the TRIGEN® INTERTAN® Intertrochanteric Antegrade Nail allows patients to experience:

Lower risk of implant failure and non-union

Reduced postoperative pain

Faster time to fracture union

Proven high return to pre-fracture status

Here's how it works

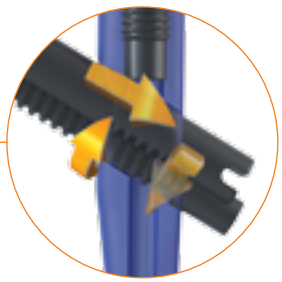
"Success rate of the operation partly depends on factors that the surgeon cannot influence. Surgeons should therefore be aware of the factors that they can manipulate with a positive outcome." – Brujin et al, 2012

Intertrochanteric rotational stability

The trapezoidal shape provides a pressfit in the metaphyseal region and positions more material on the lateral side of the nail where tensile/ stretching forces tend to be greatest

Maintain compression and eliminate Z-effect

Integrated Compression Screws thread together to generate push/ pull forces that hold compression after instruments are removed and eliminate Z-effect



Control rotation during reduction

A worm gear mechanism converts rotation to active compression while stabilizing the medial fragment

Prevent periprosthetic fractures

A clothes pin distal tip is less rigid to decrease the stress riser and reduce the incidence of anterior thigh pain

Eliminate medial migration

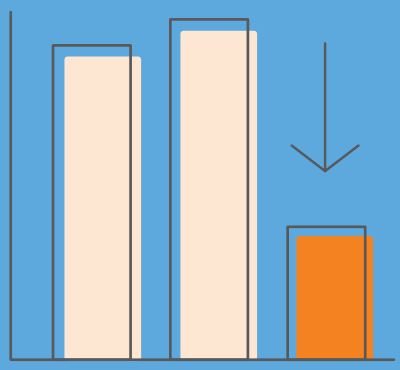
The head of the compression screw pushes medially against the nail and unloads stress forces off the lateral wall

Challenge
Postoperative complications

Complication rates are still above 4% and can reach up to 16% in highly unstable fractures[5]

The TRIGEN® INTERTAN® Solution:

Lower risk of implant failure and non-union[6,7,8,9,10,11,12,13,14,15]

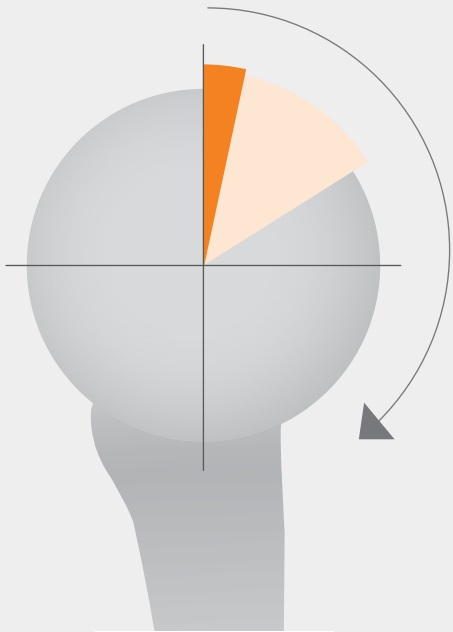


Statistically significant **69% reduction in implant related failures** (p=0.001)[16] versus comparator devices

2.5x less varus

collapse when compared to the single screw[17]

- Less varus collapse[5,17,18]
- Less peri-implant fractures[13,19]
- Effective in reducing the potential role of the tip of the short nail as a stress riser[13]



84% less

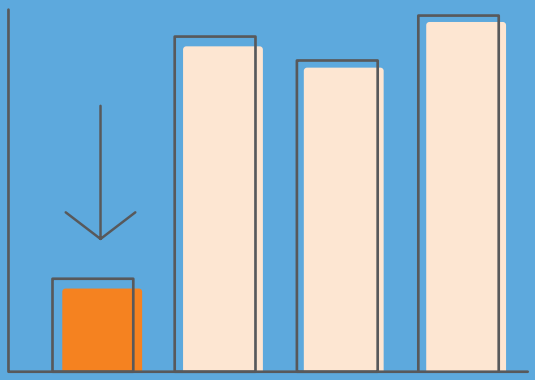
initial rotation and varus collapse[5]

Why INTERTAN?

The Integrated Compression Screws (ICS) of INTERTAN provide a second point of fixation in the femoral head, and allow for mechanical compression through the implant which is actively maintained after instrument removal. This combination creates strong interfragmentary friction and increases construct stability to resist complications such as rotation and varus collapse.

The TRIGEN® INTERTAN® Solution:

Lower risk of implant failure and non-union[6,7,8,9,10,11,12,13,14,15]



Statistically significant **73% reduction in non-union** (p=0.01)[16] versus comparator devices

"The integrated dual screw device offered significantly increased stability throughout the time interval that would be needed for fracture healing."

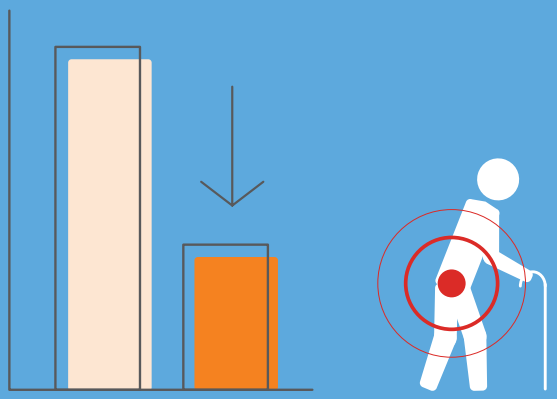
– Santoni et al, 2016

No non-unions in radiographic analysis of the TRIGEN INTERTAN nail[13,19,20]

Challenge pain management

Instability of the bone-implant construct > movement at the fracture site > pain[11]

The TRIGEN® INTERTAN® Solution: Reduced postoperative pain[9,10,11,13,14,15]



Statistically significant **54% reduction in chronic hip and thigh pain** (p=0.003)[16] versus comparator devices

"When pain is not effectively managed, patients are not able to walk as they did before their injury, and they are more likely to have compromised pulmonary and cardiac function." – Zanzone et al, 2016

"Poorly managed postoperative pain is associated with delayed ambulation, pulmonary complications, and delayed transition to lower levels of care." – Abou-Setta et al, 2011

Statistically significant improvement in postoperative pain and mobility[19]

"In our series, intertrochanteric fracture fixation using an INTERTAN nail lead to significantly shorter hospital stay, better functional outcomes, and less pain at 6 months." – Berger-Groch et al, 2016

Why INTERTAN?

With compression actively maintained postoperatively using the ICS screws, INTERTAN is designed to reduce unnatural movement of the hip at the fracture site. Patients with INTERTAN have been shown to experience less pain and therefore may feel more comfortable weight bearing on their implant postoperatively.

Challenge
Delayed healing

Insufficient stabilization > excessive motion of the fracture site > delayed healing

The TRIGEN® INTERTAN® Solution:

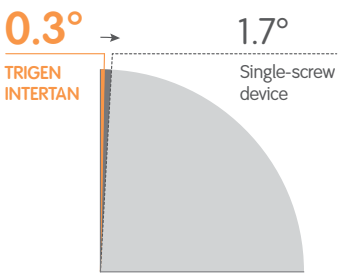
Faster time to fracture union[9,11,12,13,19,23,24,25,26,27,28,29]

Nearly **3 week faster time to fracture union**[16] versus comparator devices

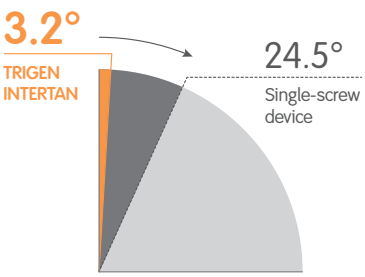
"Excess interfragmentary shear or rotational movements inhibit repair and can result in a significant delay to healing." – Gaston et al, 2007

"The INTERTAN nail can reduce healing time and is a good choice for elderly patients who need to walk bearing full weight in the early post-operative period." – Zhang et al, 2013

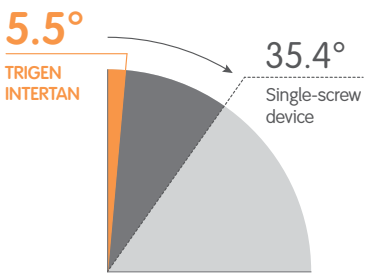
Simulated gait



Simulated chair rise



Simulated chair rise



5x greater

initial rotational stability[5]

In a biomechanical simulated gait study comparing TRIGEN INTERTAN and Gamma3

7x less

femoral head rotation[17]

In a biomechanical simulated chair rise study comparing TRIGEN INTERTAN and Gamma3

7x reduction

in maximum femoral head rotation[17]

In a biomechanical simulated chair rise study at the end of 4x body weight loading or until failure

Why INTERTAN?

By properly stabilizing the anatomy and maintaining an anatomical reduction, The INTERTAN ICS screws resist excessive motion in order to create a more stable healing environment. This provides the patient's biology a better chance to achieve an earlier and more successful union at the fracture site.

Challenge
Poor functional outcomes

Femoral neck shortening > decreases moment arm of abductors > reduced patient function[31]

The TRIGEN® INTERTAN® Solution:
Proven high return to pre-fracture status[6,13,19,23]

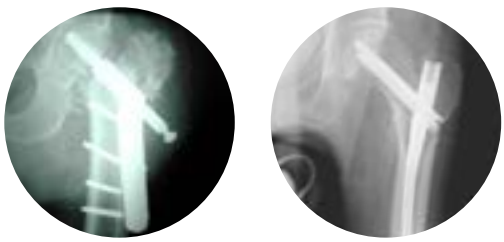
Statistically significant **higher SF-36 score** in favor of TRIGEN INTERTAN (p=0.002)[16] versus the comparator in one study[6]

up to 93% return to pre-fracture ambulatory status

"A large proportion of those patients who survive never recover to their prefracture level of function." – Abou-Setta et al, 2011

"Shortening of greater than 2cm is known to adversely affect locomotor function in otherwise active individuals." – Sanders et al, 2017

"Shortening of the femoral neck was the only significant variable predictive of a low SF-36 physical functioning score." – Zlowodzki et al, 2008



No uncontrolled collapse of the neck[19]

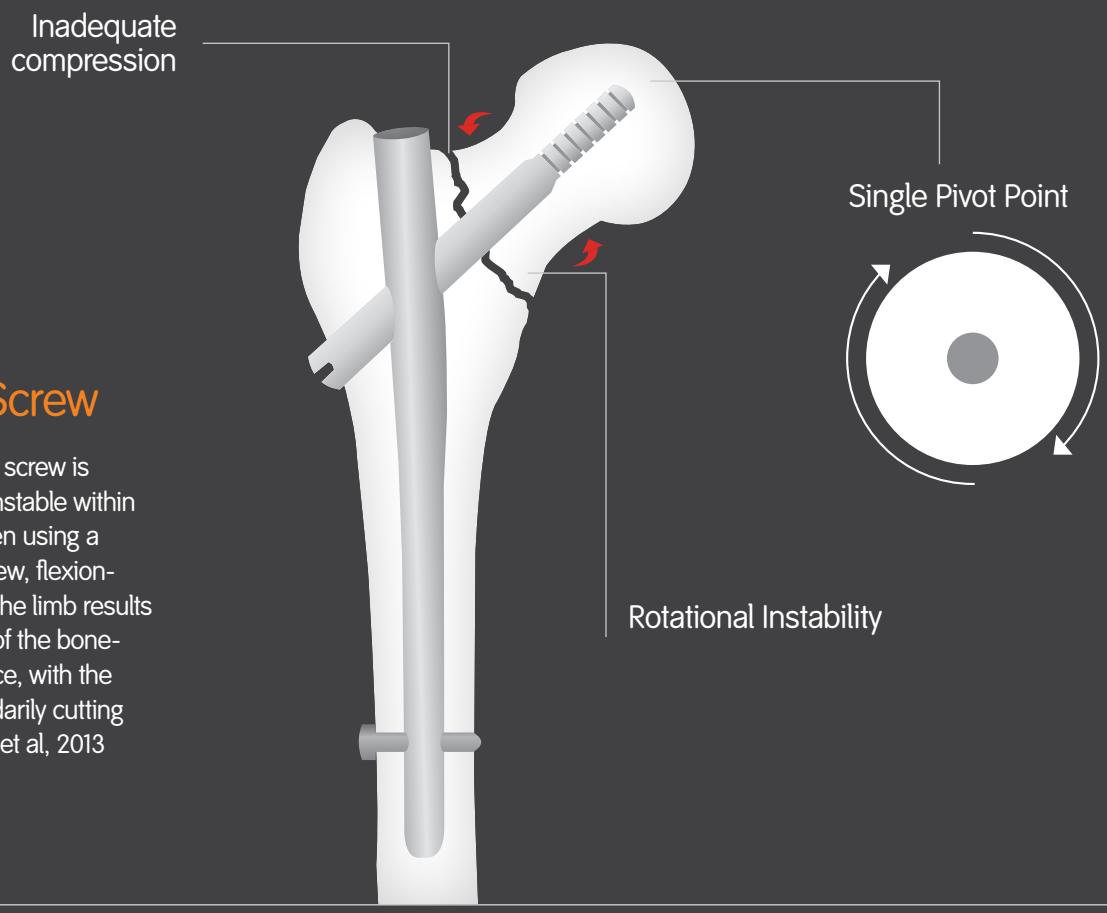
Less femoral neck shortening[8,9,17]

Why INTERTAN?

Utilizing the ICS screws for controlled active compression, rather than relying on weight bearing and uncontrolled sliding, helps resist shortening of the femoral neck which can improve patient function. By restoring the patient's natural anatomic measurements and preserving limb length, INTERTAN results in highly successful postoperative ambulatory outcomes.

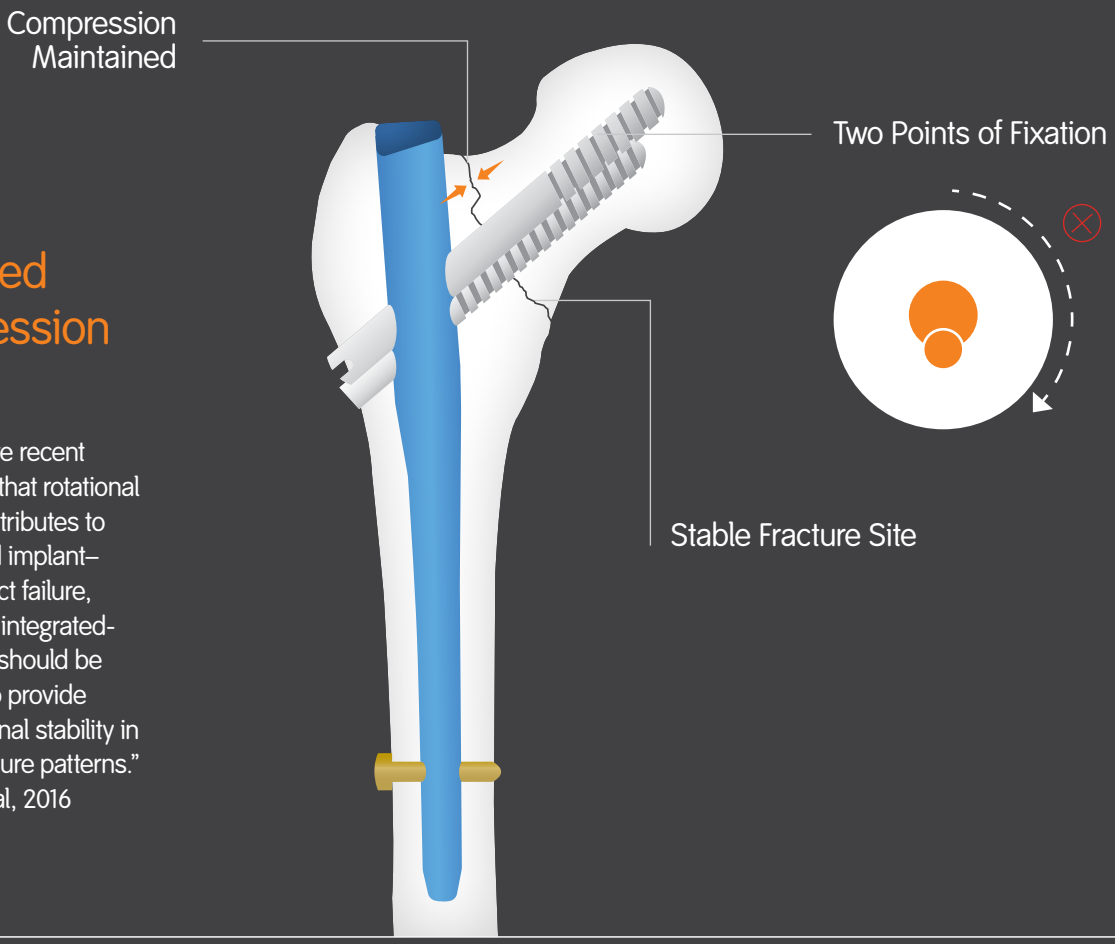
Single Screw

"Because the screw is rotationally unstable within the bone when using a single lag screw, flexion-extension of the limb results in loosening of the bone-screw interface, with the screw secondarily cutting out" – Zhang et al, 2013



Integrated Compression Screws

"With the more recent identification that rotational instability contributes to malunion and implant–bone construct failure, the use of an integrated-slide implant should be considered to provide added rotational stability in unstable fracture patterns." – Baldwin et al, 2016



There is a lack of definitive evidence identifying the superiority of a helical blade or lag screw implant[33]

"The use of the INTERTAN system may be an improvement in surgery compared to Gamma 3...In our department, we have standardized the use of INTERTAN nail for the treatment of intertrochanteric fractures." - Su et al, 2016

"The results of our study show that the incidence of femoral shaft fractures, rotational loss of reduction, varus collapse of the head/neck, [...] cut-out, and femoral neck shortening were decreased in group IT comparing with group PFNA-II."
– Yu et al, 2016

"INTERTAN is superior to DHS in internal fixation stability, thus better applies in cases of osteoporosis and unstable fractures."
– Wang et al, 2014

Economic Impact:

In the changing economic landscape of healthcare, better patient outcomes mean better outcomes for hospitals. When considering the costs involved in treating a patient with a hip fracture, the benefits of the TRIGEN® INTERTAN® system – lower risk of implant failure and non-union, reduced postoperative pain, faster time to fracture union, and a proven high return to pre-fracture status – can help you achieve better outcomes more efficiently.

"The priority remains improving functional outcomes and reducing complications. If, as a profession, we are to rise to the challenge of the ageing population, more is going to be needed for less."
–Ollivere et al, 2017

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