Gain total control of distal locking

Saves time
Increases accuracy & control
Reduces ionizing radiation

Supporting healthcare professionals

Smith & Nephew
TRIGEN° SURESHOT°
Distal Targeting System
TRIGEN™ SURESHOT™ Distal Targeting System

Radiation-free technology for distal locking in TRIGEN Intramedullary (IM) Nails that projects a virtual image of the distal end of nail onto the screen and provides real time feedback:

- Probe is inserted into the nail
- Electromagnetic field locates the position of the drill bit relative to the locking holes

**Reduces ionizing radiation**
Potentially eliminates elevated cancer risk by 33%\(^5\)\(^\text{-}\)\(^11\)

**Increases accuracy and control**
It has been reported to have fewer complications and high reliability. \(^5\)

**Saves time**
48% reduction in distal locking time\(^5\)
Challenge
Radiation exposure
Current methods expose surgeons, OR staff, and patients to unnecessary and potentially hazardous radiation.\(^1,2\)

The TRIGEN\(^\circ\) SURESHOT\(^\circ\) Solution:
Reduces ionizing radiation

**Reduction of radiation exposure from 10.8 to 0 Rad during distal locking of IM Nails\(^7\)**

Cumulative Radiation Exposure over 10 years in Rads (assumption of 20 cases per annum)

One rad of exposure increases risk of cancer by 3\(\%\).\(^3\)

United States Nuclear Regulatory Commission (USNRC) recommends an occupational radiation exposure maximum of 200 mSv/10 yrs. SURESHOT is designed to prevent up to 54\% of that total exposure limit. (10.8 rad = 108mSv)\(^9-11\)

**Why TRIGEN SURESHOT?**
The TRIGEN SURESHOT System is designed to reduce exposure levels for the OR team and patients by replicating the perfect circle technique without radiation.

Perfect circles with x-ray

Perfect circles with TRIGEN SURESHOT Distal Targeting System

\(^1\) United States Nuclear Regulatory Commission (USNRC) recommends an occupational radiation exposure maximum of 200 mSv/10 yrs. SURESHOT is designed to prevent up to 54\% of that total exposure limit. (10.8 rad = 108mSv)

\(^2\) One rad of exposure increases risk of cancer by 3\%.

\(^3\) United States Nuclear Regulatory Commission (USNRC) recommends an occupational radiation exposure maximum of 200 mSv/10 yrs. SURESHOT is designed to prevent up to 54\% of that total exposure limit. (10.8 rad = 108mSv)

\(^4\) One rad of exposure increases risk of cancer by 3\%.

\(^5\) United States Nuclear Regulatory Commission (USNRC) recommends an occupational radiation exposure maximum of 200 mSv/10 yrs. SURESHOT is designed to prevent up to 54\% of that total exposure limit. (10.8 rad = 108mSv)

\(^6\) One rad of exposure increases risk of cancer by 3\%.

\(^7\) United States Nuclear Regulatory Commission (USNRC) recommends an occupational radiation exposure maximum of 200 mSv/10 yrs. SURESHOT is designed to prevent up to 54\% of that total exposure limit. (10.8 rad = 108mSv)

\(^8\) One rad of exposure increases risk of cancer by 3\%.

\(^9\) United States Nuclear Regulatory Commission (USNRC) recommends an occupational radiation exposure maximum of 200 mSv/10 yrs. SURESHOT is designed to prevent up to 54\% of that total exposure limit. (10.8 rad = 108mSv)

\(^10\) One rad of exposure increases risk of cancer by 3\%.

\(^11\) United States Nuclear Regulatory Commission (USNRC) recommends an occupational radiation exposure maximum of 200 mSv/10 yrs. SURESHOT is designed to prevent up to 54\% of that total exposure limit. (10.8 rad = 108mSv)
**Challenge**

**Inaccurate targeting**
Current distal targeting methods are imprecise, difficult and inconvenient. ⁴

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**The TRIGEN° SURESHOT° Solution:**

**Increases accuracy and control**

Distal locking using the TRIGEN SURESHOT System led to **fewer complications** and showed a **high reliability**. ⁵

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**Outcomes using freehand technique are dependent on expertise of surgical staff and x-ray technicians.** ⁶

**Current methods can result in extra drill holes and potential damage to implants.** ⁶

**Repositioning of the leg for fluoroscopic distal locking can compromise the fracture reduction.** ⁵

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**Why TRIGEN SURESHOT?**

The TRIGEN SURESHOT System allows the surgeon to be in complete control of distal locking without the need for fluoroscopy. The virtual imaging is designed to reduce the number of misses and potential complications.
**Challenge**

**Time consuming**

Current distal targeting methods are time consuming – distal locking time can range from 4 to 60 minutes.\(^5\)\(^6\)\(^7\)

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**The TRIGEN\(^\circ\) SURESHOT\(^\circ\) Solution:**

Saves time

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**Statistically significant 48% reduction of distal locking time (p<0.001)**\(^5\)

Distal drill time in minutes - Freehand technique vs. TRIGEN SURESHOT

- **Freehand Technique**
- **TRIGEN SURESHOT**

Distal locking can, at times, require over 60 shots of radiation.\(^8\)

Freehand techniques can require prolonged anaesthesia time for patients and increased staff time in the OR.\(^6\)

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**Why TRIGEN SURESHOT?**

By reducing time to complete distal locking, TRIGEN SURESHOT is designed to reduce procedure times which may lead to decrease of the anaesthesia duration for patients.

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50 fluoro shots for distal locking

Image courtesy of Dr. Ricci
Femoral

**TRIGEN® META-TAN®**
Trochanteric Antegrade Nail

- **Integrated compression screws** provide active compression
- **Standard** and **Recon** Locking options
- Optional **set screw** to create fixed angle construct
- Length dependent AP bows to accommodate varying patient anatomy
- Threaded multiplanar distal holes

Tibial

**TRIGEN® META-NAIL**
Tibial Nail

- **Threaded multiplanar hole configuration** is designed to offer stable, fixed angle construct
- **Proximal 10° Herzog bend** is designed to minimize fracture displacement.
- Up to **7 mm compression** possible
- **Semi-extended** instruments avoid malreduction / malalignment
TRIGEN™ FAN
Femoral Antegrade Nail
- **Standard** and **Recon** Locking options
- **Hybrid AP bow** 1.5 m proximal, 2.5 m distal
- **Piriformis fossa** entry point
- 12° Anteversion

TRIGEN SURESHOT™ Distal Targeting System works with all of these TRIGEN IM Nails

TRIGEN™ META-NAIL™
Retrograde Femoral Nail
- Threaded multiplanar distal hole configuration is designed to provide angular stability
- Polyethylene bushing is designed to increase fixation
- **STABLE-LOK Nut optimizes purchase** - Lateral compression for intracondylar fracture patterns

Humeral

TRIGEN HUMERAL NAIL
- **Straight and bent nail** options available
- Multiplanar proximal screws
- Threaded proximal locking holes with polyethylene bushings designed to prevent screw back-out
- **Trapezoidal nail profile** designed to provide enhanced rotational stability
TRIGEN™ IM Nail System

References


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