

My Emory Orthopaedics Summer Internship Experience – 2019

Isabella Amador

INTRODUCTION

- Born in Caguas, Puerto Rico → Moved to Jacksonville, FL
- Graduated from University of South Florida – Tampa (Go Bulls)
- Currently applying to medical school for Fall 2020
- Passions:

Travelling

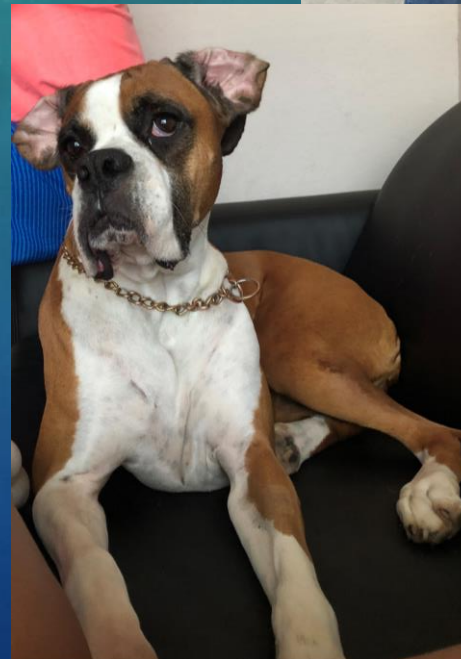
Reading

Good food

Exercise

Movie buff

Family & Friends



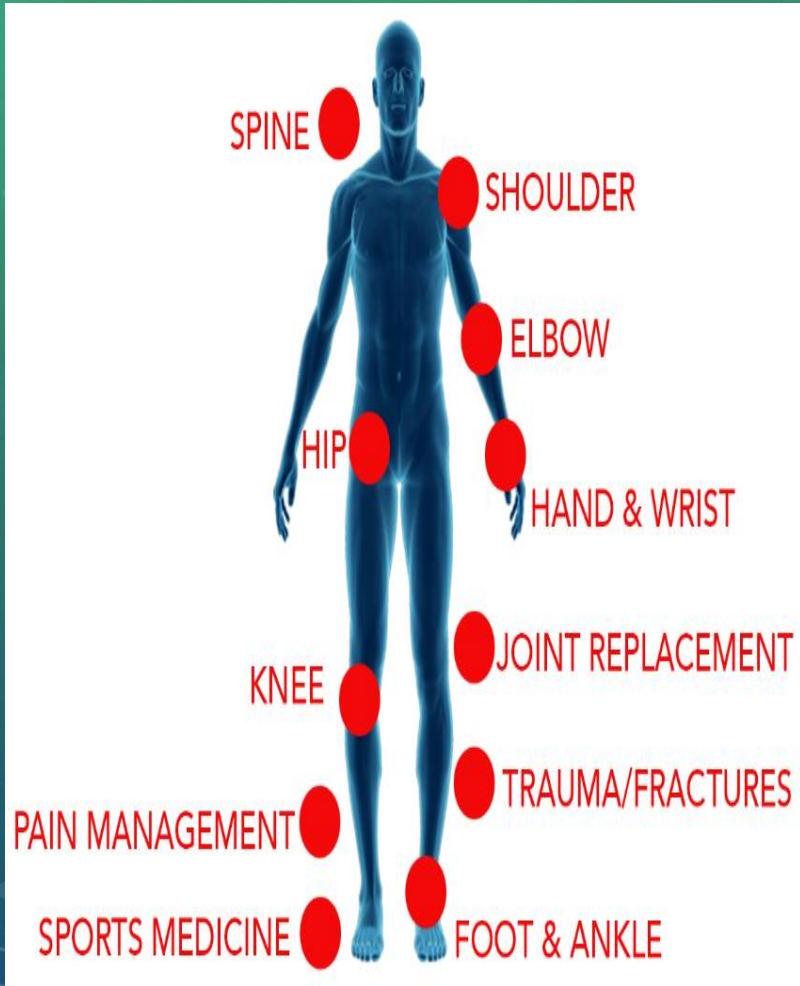
SO WHY ORTHO?

- Brother had spinal fusion surgery to correct 56° curvature of the spine
- 11 years old – Determined I had scoliosis as well
- Monitored, braced and went through physical therapy



SUMMER PROGRAM EXPERIENCE & WHAT I LEARNED

When you tell a student to not break sterile field for the third time but you still want them to learn.



- Never knew that there were so many specialties
- You never have the same day twice
- Pursuing a career in Orthopedics is hard work
- Orthopedics is more than just performing surgeries
- Constantly learning and improving skills
- Sterile field struggle is real

The background features a gradient from light green at the top to dark blue at the bottom. It is overlaid with several semi-transparent circular elements, including concentric circles, dashed lines, and arrows, suggesting a technical or scientific theme. A prominent circular scale with numerical markings (140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260) is visible on the left side.

Distraction Osteogenesis & Ilizarov Limb Lengthening in Pediatric Patients

INITIAL EXPOSURE TO ILIZAROV EXTERNAL FIXATOR



HISTORY



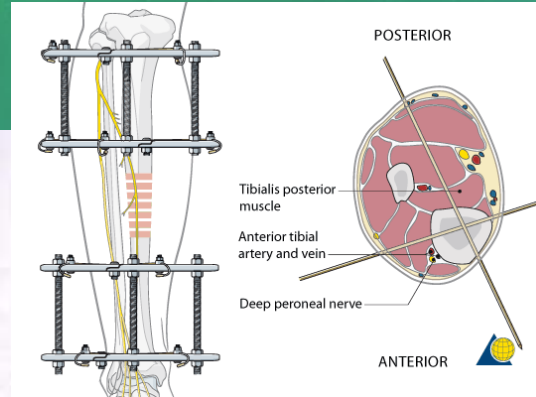
ACCIDENTAL DISCOVERY

- 1956 – Dr. Ilizarov performs osteotomy to ankylosed knee with flexion deformity
- External fixator accidentally distracted
- Callus bone forms in distracted space

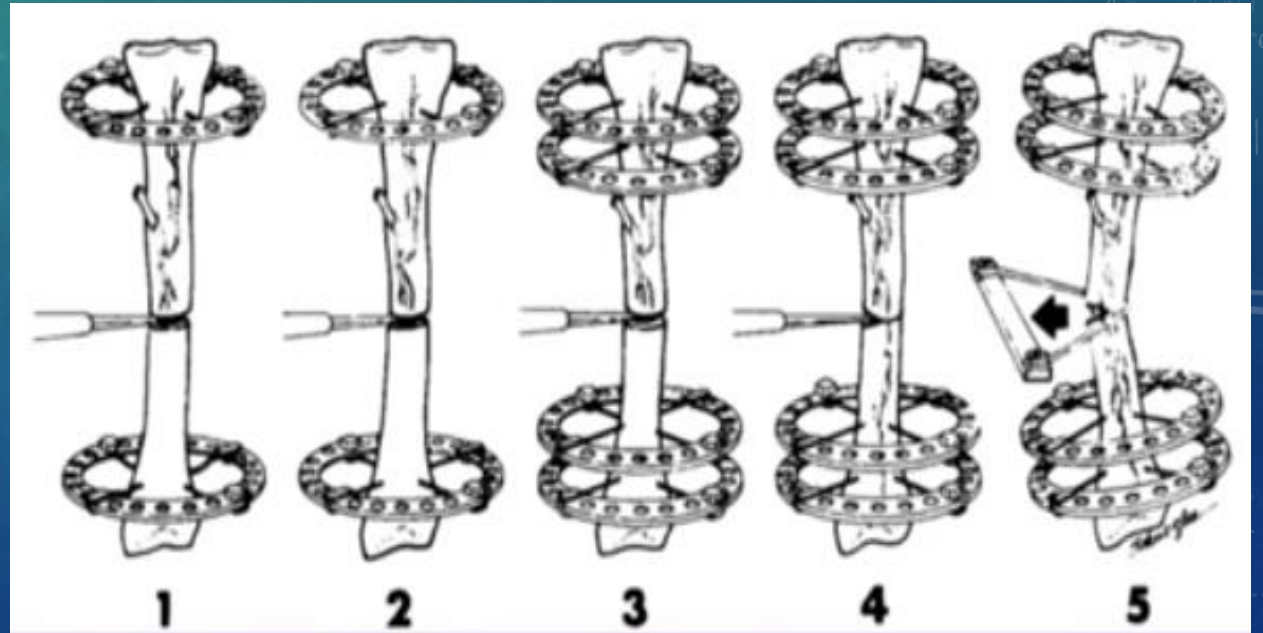
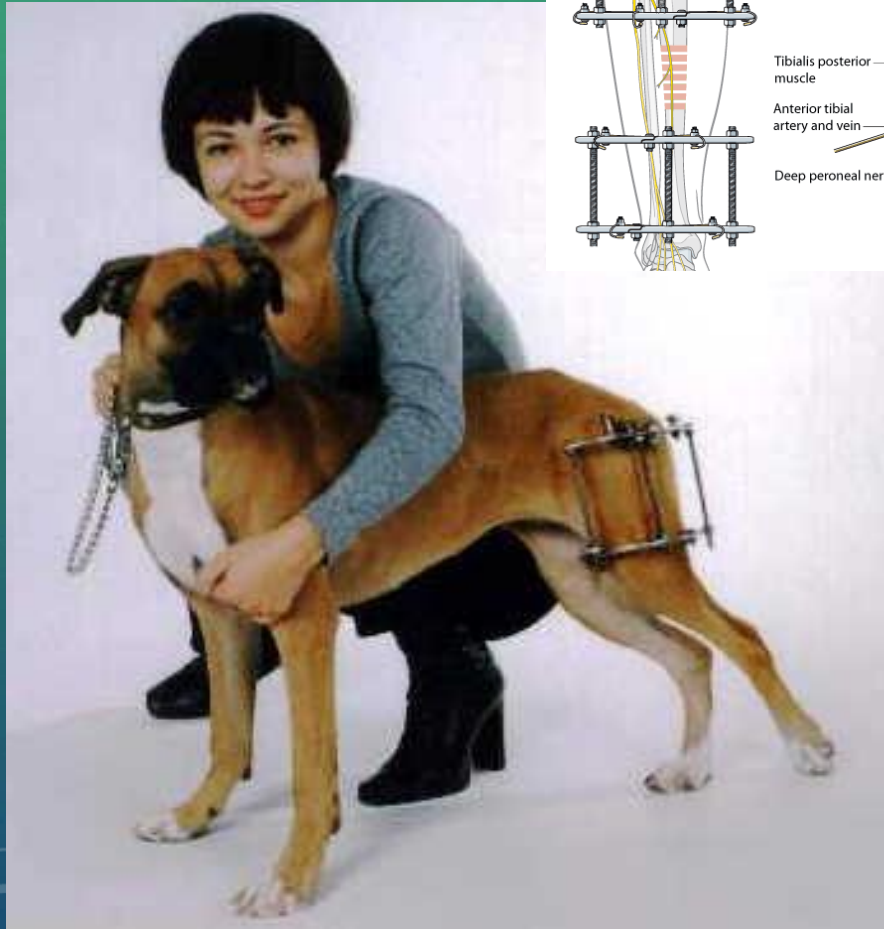


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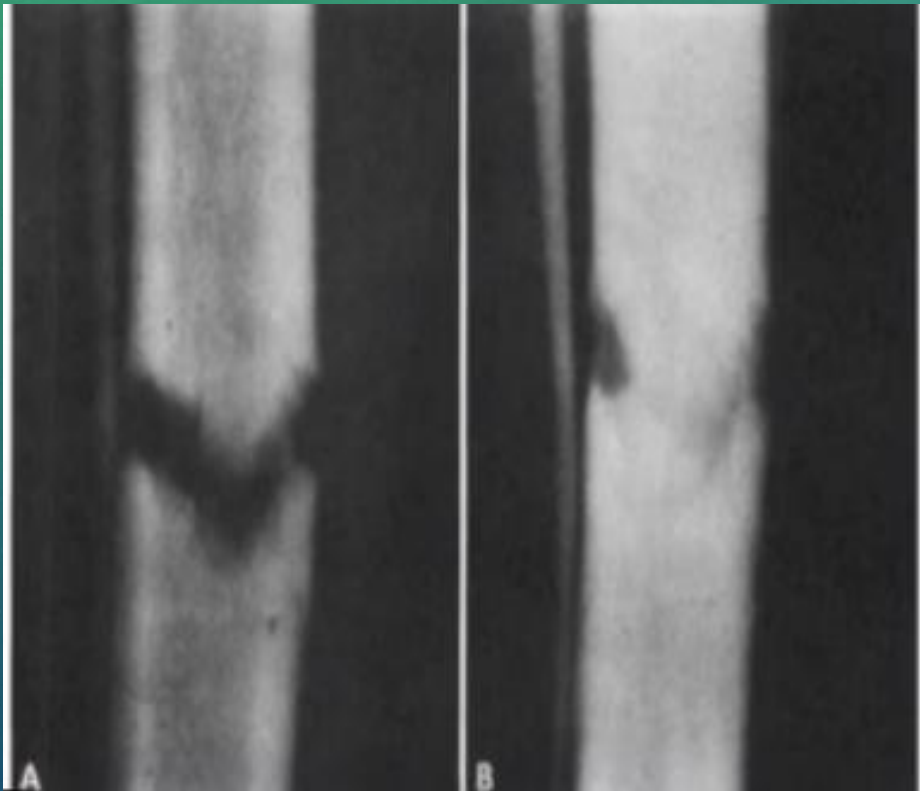
INITIAL EXPERIMENTATION & THEORY



- Ilizarov experimented on dogs to better understand “distraction osteogenesis”
- Manipulated the fixator construct to get best results



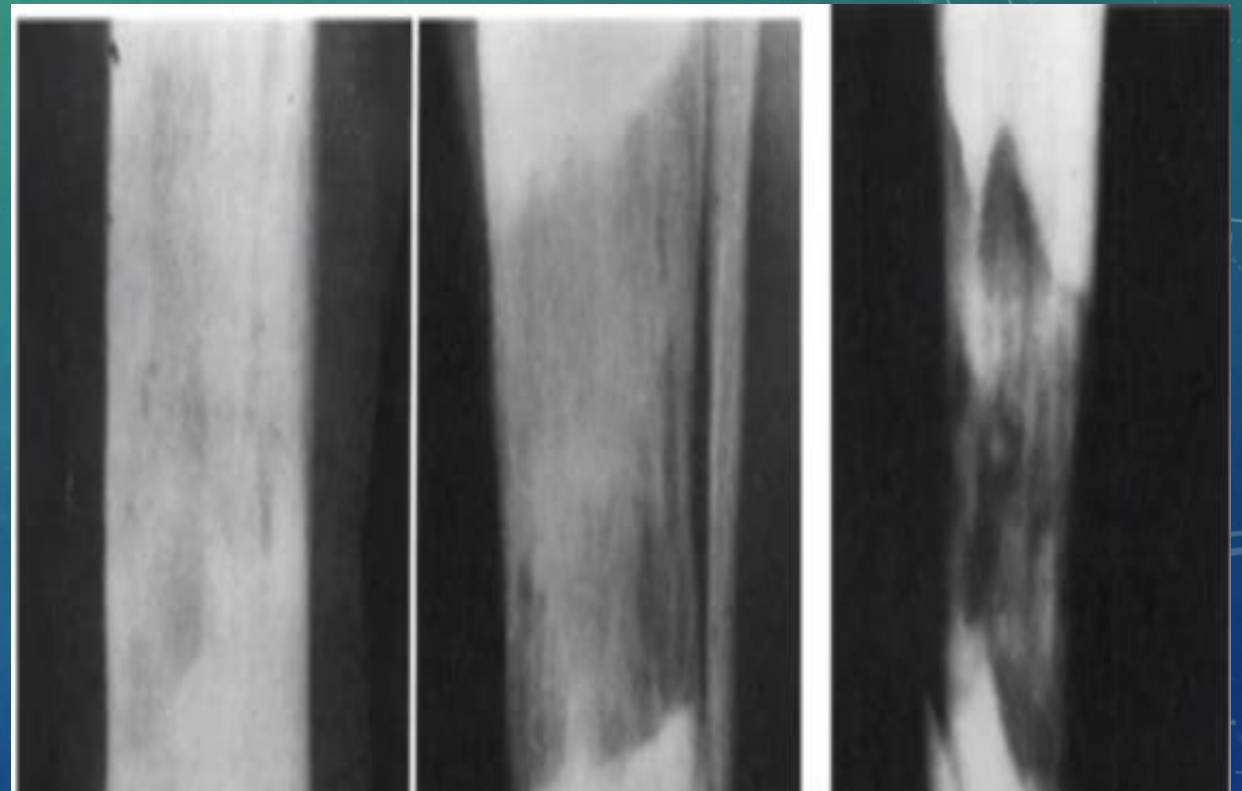
OPTIMAL RATE/FREQUENCY OF DISTRACTION



A
Too fast

B
Too slow

Rate



Continuous

4xday

1xday

Frequency

DISTRACTION OSTEOGENESIS -

Distraction osteogenesis:
A way to make a longer bone out of a shorter one

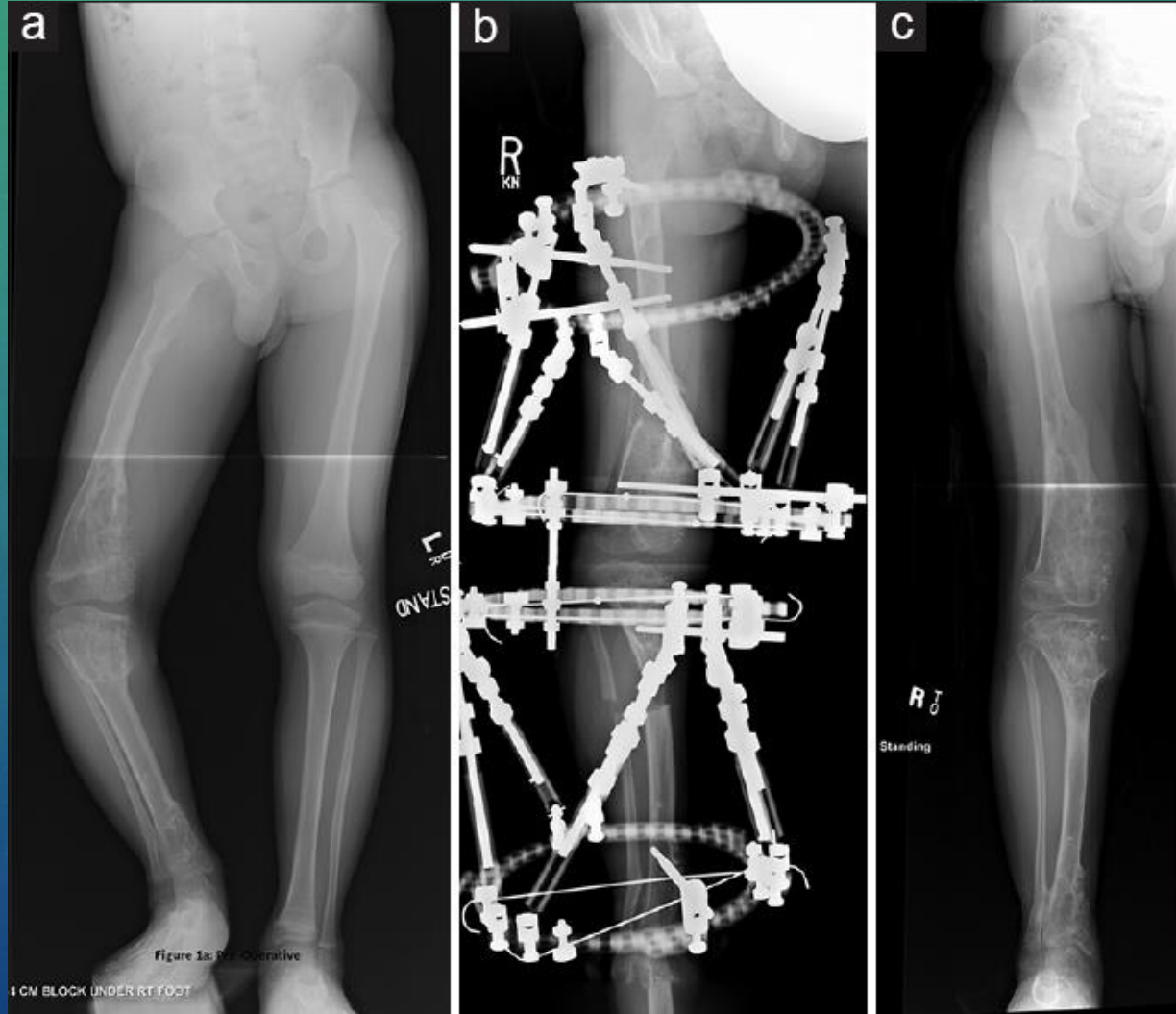
Ilizarov: "Law of tension stress"
- Regeneration of bone with fibrous type 1 collagen



Formation of bone parallel to distraction force

INDICATIONS

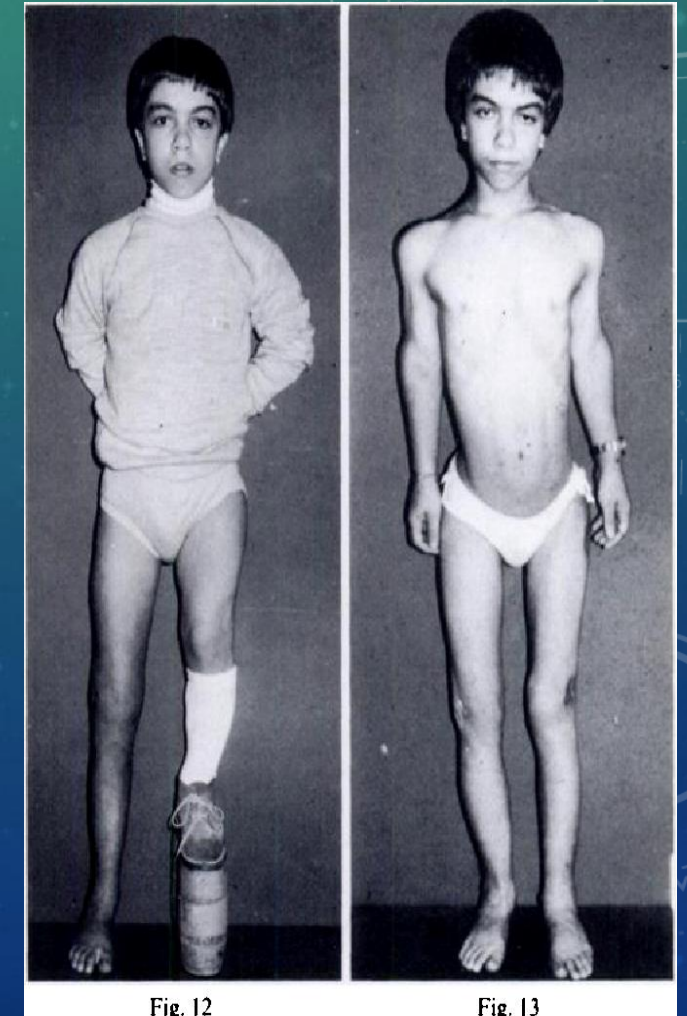
- Deformity correction
- Nonunion treatment
- Malunion
- **Limb lengthening**
- Joint contracture
- Severe soft-tissue compromise
- Mandibular distraction
- Cranial synostosis



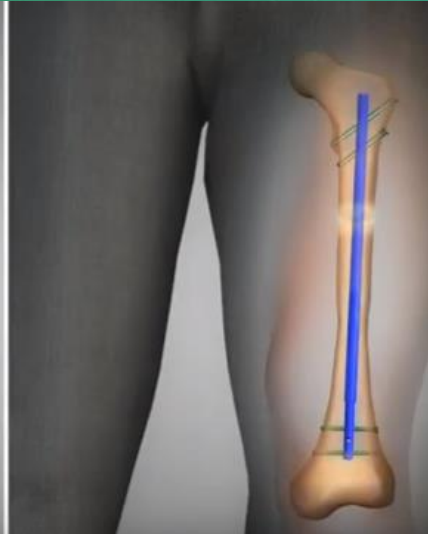
USAGE IN PEDIATRIC POPULATION FOR LIMB LENGTH DISCREPANCIES

Congenital conditions that can be treated:

- Proximal femoral focal deficiency
- Fibular hemimelia
- Developmental dysplasia
- Achondroplasia



LIMB LENGTHENING TODAY



PRECICE Intramedullary Nail by NuVasive

- Utilizes an External Remote Controller to non-invasively lengthen the femur and tibia
- Eliminates external fixation

THANK YOU!

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