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

- 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
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
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

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<thead>
<tr>
<th>Rate</th>
<th>Frequency</th>
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<tbody>
<tr>
<td>Too fast</td>
<td>4xday</td>
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<tr>
<td>Too slow</td>
<td>1xday</td>
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<td>Continuous</td>
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Rate and frequency options include 'Too fast', 'Too slow', 'Continuous', '4xday', and '1xday'.
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
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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