




Keeping you active.

**CHRONIC ACHILLES RUPTURES AND FAILED ACHILLES SURGERY – WHAT ARE OUR OPTIONS?**

**CHRIS HODGKINS MD (HODGY/DODGY/DODGY HODGY)**

TAMPA FOOT AND ANKLE FELLOWS REUNION (2011-12)  
OCTOBER 26-27, 2018  
FIVE LABS, TAMPA, FLORIDA

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**DISCLOSURES**

- ARTHREX CONSULTANT
- PARAGON 28 SHAREHOLDER

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**ROADMAP:**

- RELEVANCE
- DEFINITIONS
- CLINICAL ASSESMENT
- SURGICAL OPTIONS
- FACULTY PICTURES

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**RELEVANCE:**

- ACHILLES TENDON IMPORTANT FOR NORMAL FUNCTION
- LARGEST AND STRONGEST TENDON WE HAVE
- RUPTURE IS COMMON 5.5-18 PER 100,000
- SOFT TISSUE COMPLICATIONS (UP TO 10%)
- MISSED RUPTURES HAPPEN, INCIDENCE OF 25%
- **CHRONIC/MISSED/FAILED/INFECTED CASES ARE OUT THERE**

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**DEFINITIONS:**

- CHRONIC NOT CLEARLY DEFINED
  - 4-6 WEEKS/3 MONTHS
- PRACTICALLY FOR ME:
  - CHRONIC = CANNOT BE PRIMARILY REPAIRED
    - DELAYED/NEGLECTED
    - RECURRENT
    - ELONGATED
  - SOFT TISSUE PROBLEM
  - INFECTED

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**CLINICAL ASSESMENT:**

- **HISTORY:**
  - PAIN
  - WEAKNESS (RELATIVE TO DEMANDS)
  - STIFFNESS
  - DRAINAGE
  - MEDICAL CORMORBIDITIES/SMOKING/MEDS ETC
- **EXAM:**
  - RESTING TENSION
  - SITE OF DEFICIT (MIDSUBSTANCE VS INSERTIONAL)
  - MOTION
  - STRENGTH
  - TENDON TISSUE QUALITY
  - SOFT TISSUE
  - VASCULARITY

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**CLINICAL ASSESSMENT:**

• **IMAGING:**

- **RADIOGRAPH (LATERAL ANKLE)**
  - AVULSED OSSICLES/CALCIFIC TENDINOPATHY
  - INSERTIONAL CHANGES

- **MRI:**

- TISSUE QUALITY
- PRESENCE OF TRANSFER OPTIONS (FHL)
- DEEP COLLECTIONS/FOCI OF INFECTION

- **ULTRASOUND:**

- NOT A MODLAITY I USE
- VASCULAR IMAGING

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**SURGICAL CONSIDERATIONS (IN THIS ORDER):**

- PRESENCE OF INFECTION
- SOFT TISSUE CONDITION
- GAP (AFTER DEBRIDEMENT OF SCAR)

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**INFECTION:**

- THOROUGH DEBRIDEMENT OF INFECTED MATERIAL/SUTURE
- APPROPRIATE SYSTEMIC ANTIBIOTIC THERAPY
- STAGED RECONSTRUCTION
- SOFT TISSUE SPACER
- SOFT TISSUE COVERAGE/VAC

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**VAC +/- STSG:**

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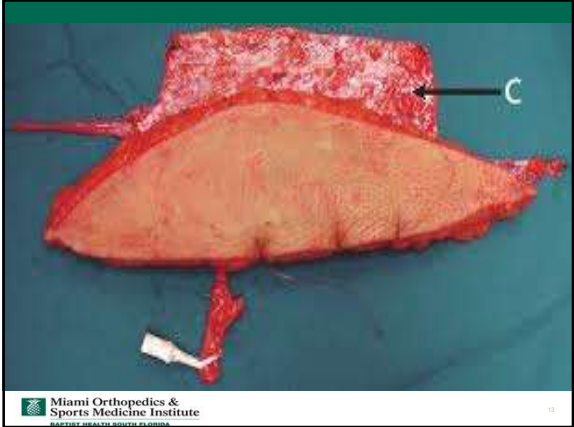
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**RECONSTRUCTION:**

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**MY SURGICAL PRINCIPLES:**

- RESTORE CONTINUITY AND STRENGTH
- KEEP IT SAFE, SIMPLE AND AUTOLOGOUS
- OPTIMIZE PRE OPERATIVE CONDITIONS
- CONSENT FOR ALL POSSIBILITIES
- SET EXPECTATIONS

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**SURGICAL CHECKLIST:**

- NON SMOKING
- CONSIDER:
  - VASCULAR SURGERY FOR INFLOW
  - PLASTIC SURGERY
    - » CLOSURE
    - » PRE OPERATIVE TISSUE EXPANSION
    - » SOFT TISSUE COVERAGE

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**PLAN & PREPARE FOR THE GAP:**

- VARIOUS OPTIONS AVAILABLE
- NO CONSENSUS/HIGH LEVEL DATA ON BEST OPTION
- MOST AGREE THAT A FASCIAL ADVANCEMENT AND AN AUTOLOGOUS TENDON TRANSFER IS THE WORKHORSE OPTION

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**PLAN & PREPARE FOR THE GAP:**

GAP:	REPAIR	RECONSTRUCTION	AUGMENTATION
0-2(3-5) CM	PRIMARY ALONE		
3-5 CM			
>5 CM			
>10 CM			

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**PLAN & PREPARE FOR THE GAP:**

GAP:	REPAIR	RECONSTRUCTION	AUGMENTATION
0-2(3-5) CM	PRIMARY ALONE		
3-5 CM	PRIMARY WITH	PROXIMAL LENGTHENING	+/- FHL AUGMENTATION

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0-2(3-5) CM	PRIMARY ALONE		
3-5 CM	PRIMARY WITH	PROXIMAL LENGTHENING	+/- FHL AUGMENTATION
>5 CM		FASCIAL TURNDOWN +/- ALLOGRAFT REINFORCEMENT	+/- FHL AUGMENTATION

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3-5 CM	PRIMARY WITH	PROXIMAL LENGTHENING	+/- FHL AUGMENTATION
>5 CM		FASCIAL TURNDOWN +/- ALLOGRAFT REINFORCEMENT	+/- FHL AUGMENTATION
>10 CM		<b>AUTOGRAFT/ ALLOGRAFT</b>	<b>+/- FHL AUGMENTATION</b>

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**SURGICAL OPTIONS: GAP < 2 CM:**

• **PRIMARY REPAIR:**

- GAP < 2CM (UP TO 5 DESCRIBED) *Porter/Yasuda*
- UP TO 6 WEEKS (UP TO 12 DESCRIBED) *Porter/Yasuda*
- NO INFECTION
- ADEQUATE SOFT TISSUE AND BLOOD SUPPLY

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**SURGICAL OPTIONS: GAP 2-5 CM:**

• **PRIMARY REPAIR AND PROXIMAL LENGTHENING:**

- V-Y PLASTY (GASTROC RECESSION)
- +/- AUGMENTATION WITH TENDON TRANSFER

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**SURGICAL OPTIONS: GAP 5-10 CM:**

- FASCIAL TURNDOWN
- FHL TRANSFER
- ALLOGRAFT TENDON
- XENOGRAFT

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**SURGICAL OPTIONS: GAP >10 CM:**

- INTERPOSITION RECONSTRUCTION
  - » AUTOGRAFT
  - » ALLOGRAFT
  - » FHL AUGMENTATION

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**PRIMARY REPAIR:**

- NERVE BLOCK/GETA/PRONE/TOURNIQUET (*not inflated*)
- EXAMINE WELL LEG PRONE PRIOR TO PREP
- PARAMEDIAL INCISION
- NO FLAPS
- PRESERVE PARATENON
- FASCIOTOMY DEEP POSTERIOR COMP (KEEP IT LATERAL)
- 2-0 FIBRELOOP LOCKED KRACKOW
- 4-0 MONOCRYL RUNNING PARATENON
- SUB Q 4-0 MONOCRYL
- 3-0 NYLON – ALLGOWER DONATI

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**PROXIMAL LENGTHENING:**

- **GASTROCNEMIUS RECESSION**
  - LESS EXPOSURE/LESS LENGTH
- **V-Y PLASTY:**
  - LIMB LENGTHS 1.5-2x THE GAP
  - DO NOT OVERLENGTHEN
  - DECREASED PLANTAR FLEXION STRENGTH

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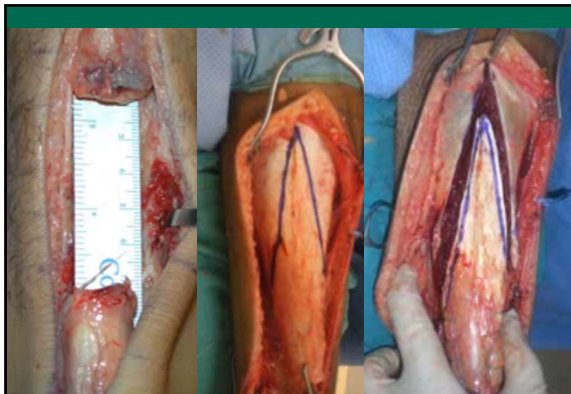
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**FHL TRANSFER:**

- **FHL**
  - CAN PROVIDE 75% STRENGTH
  - STRONGER THEN PB & FDL
  - AXIS OF PULL CLOSEST TO AT
  - FIRES IN PHASE
  - EASIER HARVEST
  - DISTAL FHL MUSCLE BELLY MAY IMPART INCREASED VASCULARITY

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**FHL TRANSFER:**

- **HARVEST (POSTERIORLY/MIDFOOT)**
  - THROUGH POSTERIOR INCISION
    - » FASCIOTOMY DEEP POST COMP
    - » DISSECT BETWEEN POST TALAR TUBERCLES
    - » CUT FROM MED – LAT WITH ANKLE AND HALLUX IN MAX PF
    - » SIZE TENDON
    - » 2-0 FIBRELOOP STRAIGHT NEEDLE
    - » LOCKED STITCH
    - » GUIDEWIRE UNDER FLUORO
    - » REAM (SAME SIZE /JUST BIGGER THAN TENDON)
    - » PASS THOUGH AND SECURE (0.5-1MM BIGGER THAN TUNNEL)
    - » NOT UNTIL IM READY TO SECURE THE REST OF CONSTRUCT

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**FHL TRANSFER:**

• **HARVEST**

- THROUGH MIDFOOT:
  - » NOT MY PREFERENCE
  - » GREATER WORKING LENGTH
    - CAN WEAVE THROUGH DISTAL STUMP OR THROUGH GAP FILLER

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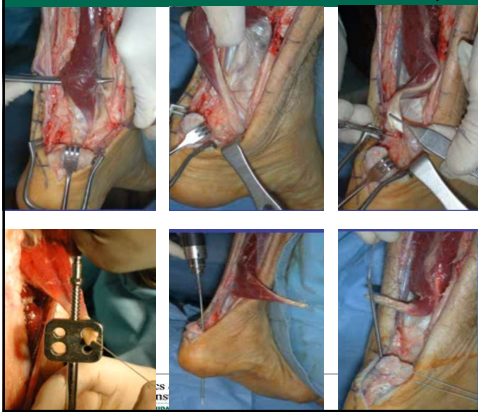
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Courtesy S Raikin, MD, Vamed, 2012



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**FASCIAL TURNDOWN:**

- UP TO 10CM GAP
- WIDTH OF FLAP (1.5-2CM)
- TENDON ONLY, LEAVE MUSCLE INTACT
- REPAIR TOP TURN CORNERS WITH STAY STITCH

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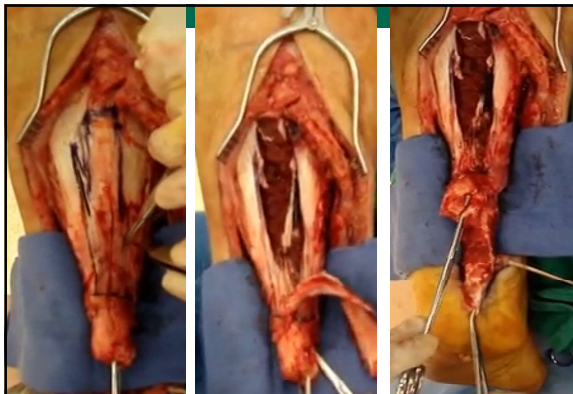
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**OTHER AUTOLOGOUS OPTIONS:**

- PERONEUS BREVIS *(perc technique Maffulli, bone joint J 2015)*
- FDL
- PLANTARIS
- POST TIB/P LONGUS (HISTORICAL)
  
- GRACILIS/SEMITENDINOUS

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**ALLOGRAFT TENDON: (+/- BONE BLOCK)**

- **ADVANTAGES:**
  - NO HARVEST MORBIDITY
  - DECREASED OR TIME
  - CHOICE OF QUALITY AND QUANTITY OF TISSUE
- **DISADVANTAGES:**
  - DISEASE TX
  - COST
  - IMMUNE REPOSNSE/REJECTION
  - HOST GRAFT INCORPORATION

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**ALLOGRAFT TENDON: (+/- BONE BLOCK)**

- **LESS COMMONLY DESCRIBED**
  
- **ACHILLES BULK ALLOGRAFT WITH DISTAL BONE BLOCK DESCRIBED**

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**SYNTHETIC OPTIONS:**

- CARBON FIBRE, MARLEX, MESH, DACRON, POLYESTER TAPE, GRAFT JACKET, ARTELON
- OBVIATE THE NEED FOR HARVEST
- CONCERN FOR LONGEVITY AND INFECTION
- MINIMAL LONG TERM DATA

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**SUMMARY:**

- ITS ALL ABOUT THE SIZE OF THE GAP
- VARIOUS CHOICES FOR RECONSTRUCTION
- MY PREFERENCE IS TO KEEP IT CLEAN, SIMPLE AND AUTOLOGOUS
- FHL TRANSFER CAN BE INVALUABLE

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**THANK YOU**

**QUESTIONS?**

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**FACULTY PICTURES:**

- **IM ALLOWED BECAUSE THERE'S PROB MORE DIRT OUT THERE ON ME THAN MOST FELLOWS**
- **MORE TO COME IF WE GET TO WATCH THE ROAST**

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**AKW STASH....**



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**AKW: ALWAYS MADE CAR LOOK GOOD...**



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**AKW... WAITING...**



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**THANKS AKW: GASPARILLA GOOD TIMES**



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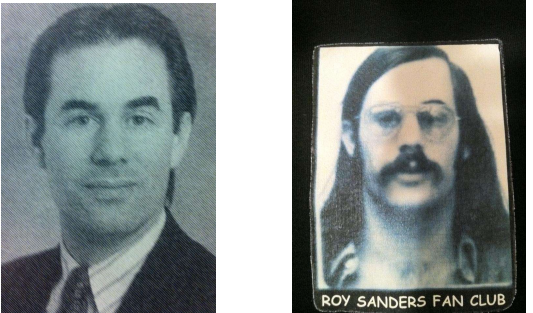
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**RS: GREAT STASH...**



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**RS... LOTS MORE BUT...**

**REST OF THE PICTURES I HAVE OF RS NOT SUITABLE FOR THIS FORUM. MAYBE LATER IF WE GET TO RERUN THE ROASTS**

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**THANKS RS:**

**FOR LETTING ME BORROW THE KEYS TO THE PORSCHE RS AND YOUR 'GIRLFRIEND' FOR THE ROAST VIDEO...**

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**THANKS MPC: ATTENTION IN CLINIC/OR**



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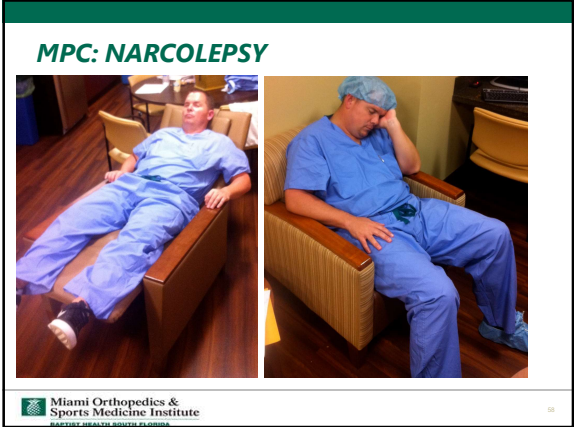
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