

# OPTIONS FOR ACHILLES TENDON LENGTHENING

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## DISCLOSURES



Ø 3B: BESP, INC. (CONSULTANT)

Ø EXTREMITY MEDICAL, INC.

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## ACHILLES CONTRACTURE

Ø SOURCE/ETIOLOGY OF CONDITIONS

- Ø ATYPICAL FLATFOOT / MIDFOOT ARTHX
- Ø HYPERMOBILE 1ST RAY (HV)
- Ø INSERTIONAL ACHILLES TENDINITIS
- Ø PLANTAR FASCIITIS
- Ø METATARSALGIA
- Ø NEUROPATHIC FOREFOOT ULCERS

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### ACHILLES CONTRACTURE

- Ø DRIVING FORCE BEHIND DEFORMITY PROGRESSION
  
- Ø ADULT FLATFOOT
- Ø FOOTDROP / PERONEAL NERVE PALSY
- Ø CORONAL PLANE ANKLE ARTHRITIS
- Ø CHARCOT ANKLE / HF / MIDFOOT
- Ø HYPERMOBILE 1ST RAY / SEVERE HV

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### SILFVERSKIÖLD TEST

- Ø ANKLE DORSIFLEXION
  - Ø KNEE IN EXTENSION (GASTROC)
  - Ø KNEE IN FLEXION (SOLEUS)



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### SILFVERSKIÖLD TEST

- Ø GASTROC CONTRACTURE
  - Ø ↓ ANKLE DF WITH KNEE IN EXTENSION
  - Ø ↑ ANKLE DF WITH KNEE IN FLEXION
  
- Ø ACHILLES CONTRACTURE
  - Ø ↓ ANKLE DF WITH KNEE IN EXTENSION & WITH KNEE IN FLEXION

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### SILFVERSKIÖLD TEST

Ø HINDFOOT HELD CORRECTED

Ø ELIMINATES FALSE HINDFOOT MOTION

Ø ISOLATES GASTROC (KNEE IN EXTENSION)



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### GASTROCNEMIUS RECESSION

Ø FIRST DESCRIBED BY VULPIUS IN 1913

Ø FURTHER DEFINED BY STRAYER IN 1950

Ø COMMONLY USED IN PEDS / NM

Ø POPULARIZED BY HANSEN IN 2000

Ø MULTIPLE APPROACHES / TECHNIQUES

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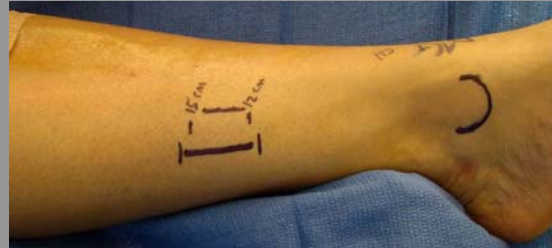
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### STRAYER PROCEDURE

Ø MEDIAL OR POSTERIOR APPROACH

Ø DISTAL TO MEDIAL HEAD OF GASTROC



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### STRAYER PROCEDURE

Ø GASTROC TENDON MOBILIZED FROM SOLEUS TENDON



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### STRAYER PROCEDURE

Ø GASTROC TENDON RELEASED +/- SOLEUS TENDON (PIE-CRUSTING) PRN



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### PROBLEMS WITH STRAYER

- Ø INCONSISTENT ANATOMY (MERGE PT)
- Ø SURAL NERVE (POSTERIOR APPROACH)
- Ø COSMETIC: FAT STRIPPED OFF TENDON
- Ø VULPIUS: ENTIRE GS TENDON RELEASED
  - Ø POTENTIAL FOR OVERLENGTHENING

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**BAUMANN PROCEDURE**

- ∅ DESCRIBED IN 1989
- ∅ ISOLATED FRACTIONAL LENGTHENING OF GASTROCNEMIUS MUSCLE
- ∅ BETTER COSMESIS
- ∅ PRESERVES MORE PUSHOFF STRENGTH

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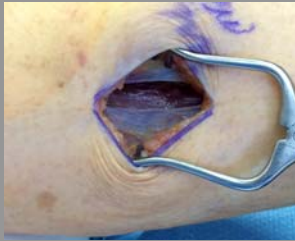
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**BAUMANN PROCEDURE**

- ∅ THUMB BREADTH POSTERIOR TO TIBIAL CREST (SAPHENOUS BUNDLE)
- ∅ OVER MEDIAL HEAD OF GASTROC
- ∅ FASCIA OF SUPERFICIAL POST CMPT



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**BAUMANN PROCEDURE**

- ∅ GASTROC MOBILIZED FROM SOLEUS



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**BAUMANN PROCEDURE**

- ∅ GASTROC TENDON RELEASED / MUSCLE PRESERVED / MUSCLE SLIDE



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**OTHER GASTROC VARIATIONS**

- ∅ ENDOSCOPIC
- ∅ VAGINAL SPECULUM
- ∅ PROXIMAL (SILFVERSKIÖLD) OFF MFC

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**OPEN TAL / POST CAPSULE**

- ∅ FIXED EQUINUS CONTRACTURES
- ∅ NO TENSION ON ACHILLES WITH DF
- ∅ PRONE OR SUPINE/ER OF LIMB

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**OPEN TAL / POST CAPSULE**

- ∅ Z-LENGTHENING IN CORONAL PLANE
- ∅ LESS PROMINENCE / MORE COSMETIC
- ∅ CONTROLLED LENGTHENING



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**OPEN TAL / POST CAPSULE**

- ∅ Z-LENGTHENING IN CORONAL PLANE
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- ∅ CONTROLLED LENGTHENING



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**OPEN TAL / POST CAPSULE**

- ∅ Z-LENGTHENING IN CORONAL PLANE
- ∅ DISTAL ANTERIOR TO PROXIMAL POSTERIOR



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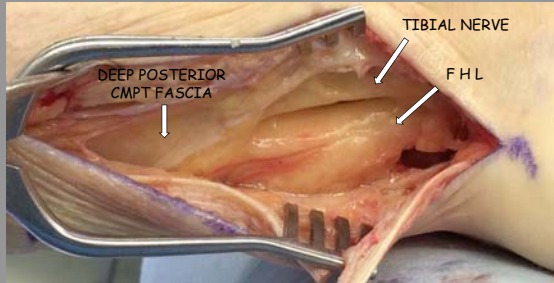
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### POSTERIOR CAPSULAR RELEASE

Ø LATERAL TO FHL / PROTECT TIBIAL N



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### POSTERIOR CAPSULAR RELEASE

Ø INDIRECT RELEASE / PASSIVE DF



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### ACHILLES REPAIR

Ø ANKLE IN ~ NEUTRAL

Ø 1-VICRYL FIGURE-OF-8

Ø 3-0 PROLENE / RUNNING / LOCKED



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PERC TAL (HOKE)

- ∅ DESCRIBED IN 1939
- ∅ NO APPROACH / INCISION
- ∅ POTENTIAL FOR OVERLENGTHENING / REQUIRES IMMOBILIZATION
- ∅ IDEAL FOR DIABETIC CONTRX

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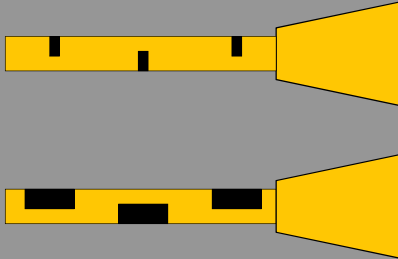
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PERC TAL (HOKE)

- ∅ TRIPLE HEMICUT: MED / LAT / MED



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SUMMARY

- ∅ BAUMANN (GASTROC RECESSION)
  - ∅ MAJORITY / WORKHORSE
- ∅ OPEN TAL / POST CAPSULAR RELEASE
  - ∅ SEVERE EQUINUS CONTRX
- ∅ PERC TAL (HOKE)
  - ∅ DIBAETIC / NEUROPATHIC CONTRX

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