OPTIONS FOR ACHILLES TENDON LENGTHENING

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DISCLOSURES

∅ 3B: BESPA, INC. (CONSULTANT)
∅ EXTREMITY MEDICAL, INC.

ACHILLES CONTRACTURE
∅ SOURCE/ETIOLOGY OF CONDITIONS
∅ ATYPICAL FLATFOOT / MIDFOOT ARTHX
∅ HYPERMOBILE 1ST RAY (HV)
∅ INSERTIONAL ACHILLES TENDINITIS
∅ PLANTAR FASCIITIS
∅ METATARSALGIA
∅ NEUROPATHIC FOREFOOT ULCERS
ACHILLES CONTRACTURE
- DRIVING FORCE BEHIND DEFORMITY PROGRESSION
- ADULT FLATFOOT
- FOOTDROP / PERONEAL NERVE PALSY
- CORONAL PLANE ANKLE ARTHRITIS
- CHARCOT ANKLE / HF / MIDFOOT
- HYPERMOBILE 1ST RAY / SEVERE HV

SILFVERSKIÖLD TEST
- ANKLE DORSIFLEXION
  - KNEE IN EXTENSION (GASTROC)
  - KNEE IN FLEXION (SOLEUS)

SILFVERSKIÖLD TEST
- GASTROC CONTRACTURE
  - ANKLE DF WITH KNEE IN EXTENSION
  - ANKLE DF WITH KNEE IN FLEXION
- ACHILLES CONTRACTURE
  - ANKLE DF WITH KNEE IN EXTENSION & WITH KNEE IN FLEXION
SILFVERSKIÖLD TEST
- HINDFOOT HELD CORRECTED
- ELIMINATES FALSE HINDFOOT MOTION
- ISOLATES GASTROC (KNEE IN EXTENSION)

GASTROCNEMIUS RECESSION
- FIRST DESCRIBED BY VULPIUS IN 1913
- FURTHER DEFINED BY STRAYER IN 1950
- COMMONLY USED IN PEDS / NM
- POPULARIZED BY HANSEN IN 2000
- MULTIPLE APPROACHES / TECHNIQUES

STRAYER PROCEDURE
- MEDIAL OR POSTERIOR APPROACH
- DISTAL TO MEDIAL HEAD OF GASTROC
STRAYER PROCEDURE
∅ GASTROC TENDON MOBILIZED FROM SOLEUS TENDON

STRAYER PROCEDURE
∅ GASTROC TENDON RELEASED +/- SOLEUS TENDON (PIE-CRUSTING) PRN

PROBLEMS WITH STRAYER
∅ INCONSISTENT ANATOMY (MERGE PT)
∅ SURAL NERVE (POSTERIOR APPROACH)
∅ COSMETIC: FAT STRIPPED OFF TENDON
∅ VULPIUS: ENTIRE GS TENDON RELEASED
∅ POTENTIAL FOR OVERLENGTHENING
BAUMANN PROCEDURE
Ø DESCRIBED IN 1989
Ø ISOLATED FRACTIONAL LENGTHENING OF GASTROCNEMIUS MUSCLE
Ø BETTER COSMESIS
Ø PRESERVES MORE PUSHOFF STRENGTH

BAUMANN PROCEDURE
Ø THUMB BREADTH POSTERIOR TO TIBIAL CREST (SAPHENOUS BUNDLE)
Ø OVER MEDIAL HEAD OF GASTROCNEMIUS
Ø FASCIA OF SUPERFICIAL POST CMPT

BAUMANN PROCEDURE
Ø GASTROCNEMIUS MOBILIZED FROM SOLEUS
### BAUMANN PROCEDURE
- GASTROC TENDON RELEASED / MUSCLE PRESERVED / MUSCLE SLIDE

### OTHER GASTROC VARIATIONS
- ENDOSCOPIC
- VAGINAL SPECULUM
- PROXIMAL (SILFVERSKIÖLD) OFF MFC

### OPEN TAL / POST CAPSULE
- FIXED EQUINUS CONTRACTURES
- NO TENSION ON ACHILLES WITH DF
- PRONE OR SUPINE/ER OF LIMB
OPEN TAL / POST CAPSULE

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

OPEN TAL / POST CAPSULE

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

OPEN TAL / POST CAPSULE

- Z-LENGTHENING IN CORONAL PLANE
- DISTAL ANTERIOR TO PROXIMAL POSTERIOR
POSTERIOR CAPSULAR RELEASE
∅ LATERAL TO FHL / PROTECT TIBIAL N

POSTERIOR CAPSULAR RELEASE
∅ INDIRECT RELEASE / PASSIVE DF

ACHILLES REPAIR
∅ ANKLE IN ~ NEUTRAL
∅ 1-VICRYL FIGURE-OF-8
∅ 3-0 PROLENE / RUNNING / LOCKED
PERC TAL (HOKE)

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

PERC TAL (HOKE)

- TRIPLE HEMICUT: MED / LAT / MED

SUMMARY

- BAUMANN (GASTROC RECESSION)
  - MAJORITY / WORKHORSE
- OPEN TAL / POST CAPSULAR RELEASE
  - SEVERE EQUINUS CONTRX
- PERC TAL (HOKE)
  - DIABETIC / NEUROPATHIC CONTRX
REFERENCES
Ø BAUMANN, ET AL: OP ORTH TRAUM 1, 1989
Ø PINNEY, ET AL: FAI 25, 2004
Ø HERZENBERG, ET AL: FAI 28, 2007
Ø CHEN & GREISBERG, F & A CLIN 14, 2009