Surgical Planning for FDL Tendon Transfers

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Introduction

- Pes planovalgus deformity is a complex, multi-planar deformity
- A common pathologic process involves insufficiency of the posterior tibial tendon
- Flexor digitorum longus (FDL) transfers can be part of the treatment algorithm
Purpose

- Determine FDL diameter at the Knot of Henry
- Guide pre-operative planning for FDL transfers
Methodology

- 30 fresh frozen cadavers
  - 20 males and 10 females
- FDL tendon dissected at the Knot of Henry
- Tenotomy performed
- Tendon measured with sizer
- Results recorded on a spreadsheet
Results

• 30 specimens
  – All measured 4 or 5 mm
• 20 measured 5mm
• 10 measured 4mm
• 90% of the female FDL tendons measured 4mm
  – 10% measured 5mm
• 55% of the male FDL tendons measured 4mm
  – 45% measured 5mm
Discussion

• Guyton et al. reported 91% good and excellent results for pain relief for patients undergoing FDL transfer for stage II posterior tibial tendon insufficiency.¹

• Interference screw fixation of FDL tendon transfers have shown to have excellent fixation.²

• Knowing the size of the FDL to be transferred can greatly assist in planning for tunnel placement and fixation.
Discussion

• FDL tendon transfers are done for a variety of reasons for reconstructive surgery in the foot, including adult pes planovalgus due to posterior tibial tendon insufficiency.
• When considering an FDL tendon transfer, the correct techniques need to be utilized so the patient has the optimal opportunity to heal.
• Having a good understanding of the anatomy of the FDL tendon is vitally important.
Conclusion

• We show in this anatomical study that the FDL tendon diameter at the Knot of Henry has little variation
• Females consistently have smaller FDL tendons (4mm)
• Males have tendons between 4-5 mm
• In cases where the FDL is transferred through a bone tunnel, it appears the surgeon can routinely drill a 5 mm tunnel to transfer the vast majority of FDL tendons.
References
