INTRODUCTION

• Limited research currently exists on the most effective conservative treatment protocol for stage one and two Posterior Tibialis Tendon Dysfunction (PTTD) in active individuals.
• For inactive older adults, common non-operative conservative treatment includes immobilization, orthotics, footwear modifications, generalized ankle strengthening, and manual therapy.
• There is currently no return to running protocol in the literature for a healthy return to running in young active individuals with stage 1 or 2 PTTD.
• None of the studies on conservative treatment of PTTD include hip strengthening as part of the treatment procedures.

PATIENT HISTORY

• The patient was a 16-year-old female with activity dependent pain located on the posterior aspect of her left ankle & calf.
• Onset of pain: One day following a one-mile beach run with her cross country team.
• Primary Complaint: Immediate onset of pain in the left posterior calf and ankle region up to a 5/10 with activity.
• Prior history of bilateral Achilles tendinitis.
• Prior Level of Function: Ran 20 miles per week at a sub 8-minute mile beach run with no left extremity pain.

EXAMINATION

• Bilateral foot overpronation (L>R), calcaneal valgus bilaterally, internal rotation of the left tibia, and a positive left "too many toes sign" during static standing.
• Palpation produced tenderness along the left posterior tibialis tendon and muscle belly.
• Inability and reproduction of pain with eccentric lowering of the left during a single leg heel raise.
• Treadmill running examination at 6.0 mph
  • Greater supination upon initial contact on left compared to the right.
  • Inability to appropriate resupinate upon terminal stance (L>R).
  • Decreased bilateral hip extension on terminal stance.
  • Bilateral Trendelenburg gait.

THERAPEUTIC EXERCISE

• Ankle Strengthening
  • Generalized 4-way ankle strengthening.
  • Double leg heel raised with a ball between the heels.
• Hip stabilization
  • Single leg bridges.
  • Side steps with resistance band.
  • Sidelying hip abduction.
  • Dynamic hip stabilization exercises:
    • Lunges.
    • Single leg stance squats.
    • Single leg dead lifts.
  • Gastrocnenius and soleus stretching.

MANUAL THERAPY INTERVENTION

• Cross friction to the posterior tibialis tendon and soft tissue mobilization to the posterior tibialis muscle belly.

RETURN TO RUNNING PROTOCOL

• Discontinue running if pain increased above a 4/10.
• Allow 2 days rest interval between trainings.

RUNNING GAIT MECHANICS EDUCATION

• Video gait analysis following 2nd physical therapy treatment.
• Educated on pushing off through the 2nd and 3rd toe during push off phase of gait.
• Increasing hip extension bilaterally.
• Decreasing Trendelenburg gait bilaterally.

CLINICAL IMPLICATIONS

• This case report demonstrates that conservative physical therapy intervention may be a beneficial treatment option for active individuals with Stage 2 PTTD.
• The patient in this case report demonstrated symptomatic improvement following four weeks of physical therapy treatment with a full return to activity participation at her prior level of function.
• Future studies into conservative management of PTTD need to include healthy active individuals participating with early stage one and two PTTD to determine effectiveness in conservative treatment amongst a broader sample size of individuals.

OUTCOMES

• The patient was seen for a total of 7 visits over the course of four weeks before being discharged.
• Full return to prior level of function of running 5 miles multiple days a week at a sub 8-minute mile with no left extremity pain.
• Nonsignificant progress made in ankle dorsiflexion range of motion bilaterally following four weeks of daily stretching.
  • Progressing from 7 degrees to 10 degree in the left ankle.
• Visual observation of treadmill running mechanics at 6.0 mph with 0% incline
  • Improved left toe off.
  • Decreased Trendelenburg gait bilaterally.
  • Improved bilateral hip extension at terminal stance.
• Continued to demonstrate decreased supination of the left ankle compared to right at terminal stance.

References: See Handout with Reference List.