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Decreased Mobility of Cuboid Rotation as the Source of Achilles Tendinopathy--A Case Report

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PURPOSE:

Joint mobility is necessary for adequate function of musculature. Internal rotation of the cuboid functions to allow midtarsal and hindfoot pronation in weight bearing. Inability of the cuboid to internally rotate limits mid tarsal pronation, which limits contraction of the gastroc soleus on weight bearing, ultimately contributing to muscle/tendon stress. The continued stress on the contractile structure leads to a tendinopathy which results in limited functional use with pain of the gastroc/soleus. The purpose of this case report is to outline the successful treatment of a patient with this clinical presentation.

CASE DESCRIPTION:

Patient is a 44 year old female massage therapist, presenting to therapy with idiopathic onset of right Achilles pain, worsening over the past 6 months. History identifies left Achilles rupture with immobilization and full resolution of symptoms about 20 years ago. Pain level varies from 0-10; feels better in the morning and worse as the day progresses. LEFS is 37/80 with 10/10 pain level with all walking. See additional data in Table 1.

	Right (symptomatic)	Left (asymptomatic)
Passive dorsiflexion 0º knee extension	15º with pain	20º
Passive dorsiflexion 90º knee flexion	20º with pain	25º
Hamstring flexibility	Decreased	Normal
Active weight bearing	Decreased pronation/supination with pain	Normal midtarsal mobility
Plantar Flexion Strength	3-/5 (single heel raise unable)	5/5
Palpation	Tender Achilles tendon	No tenderness

Table 1: Objective data on evaluation

METHODS:

On sessions one and two, treatments consisted of: soft tissue mobility to gastroc, calcaneal glides into eversion, and self stretches. With no changes of symptoms/signs on the third session, further examination was carried out. Findings included: passive midtarsal pronation limited with no pain, tenderness to palpation of Achilles tendon and cuboid rotation limited with no pain. The third treatment consisted of cuboid manipulation (figs 1-2).

Fig 1-a Diagonal finger contacts on cuboid

Fig 1-b Diagonal finger contacts on cuboid

Fig 2. Operator rotates trunk while rotational force is delivered via finger contacts to cuboid (pictured for internal rotation)

METHODS (continued):

The manipulation was followed by pain-free, non-weight bearing muscle re-education with manual resistance for pronation and supination of midtarsal and hindfoot (fig. 3). Gait training focused on restoration of functional pronation in weight bearing. Bilateral heel raises were limited and therefore issued as HEP.

Fig 3: Supportive Treatment Patient performed active weight bearing midtarsal pronation and supination. Bilateral and unliteral heel raises were also performed (not shown).

RESULTS:

Immediate restoration of ROM and pain relief to 0/10 were achieved after manipulation. Mid-tarsal active pronation and supination in weight bearing was full and pain free. Initially the patient could not single heel raise due to weakness and apprehension. Strength gains to perform a single heel raise took several months due to noncompliance of exercising by the patient. One year later, LEFS is 66/80 with 3/10 pain with only few episodes of walking activities.

CONCLUSION/CLINICAL APPLICATION:

This case demonstrates the principle that mobility is necessary before length and strength can be utilized effectively. Previous treatments to directly treat the tendinopathy were not successful in reducing the weightbearing pain.

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