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Paired Samples Analysis of Isolated Gastrocnemius Contracture in Patients with Foot and Ankle Pathology

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Isolated Gastrocnemius Contracture in Patients with Foot and Ankle Pathology: a Prospective, Case-Control Study

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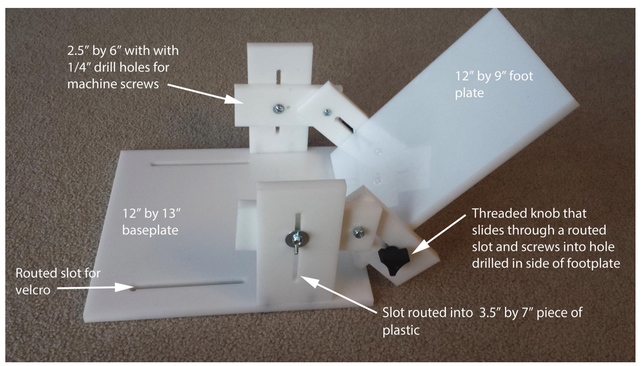
Introduction

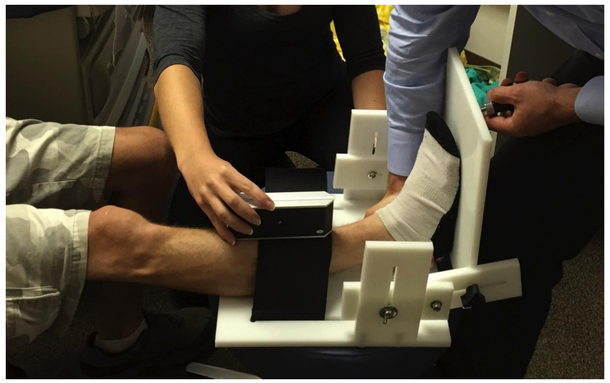
- There is an increased interest in the relationship between ankle range of motion (isolated gastrocnemius contracture) and foot or ankle pain
- Prior studies have identified a correlative relationship between foot or ankle pain and ipsilateral isolated gastrocnemius contracture
- However, the temporal relationship between foot or ankle pain and isolated gastrocnemius contracture is not well established
- The purpose of the current study was to investigate the relationship between isolated gastrocnemius contracture and foot or ankle pain in terms of a causal versus casual relation, using a validated, reliable measurement device



Kalamazoo Modified-Iowa Ankle Range of Motion device (KM-IAOM)

Methods

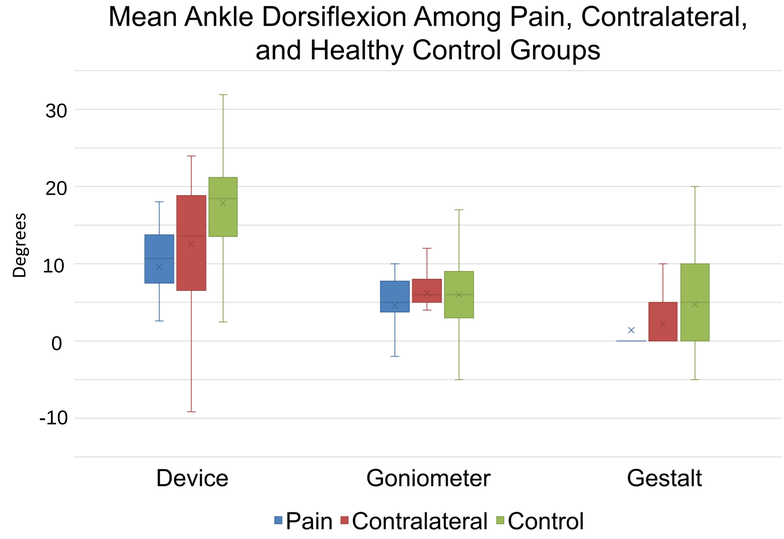
- 32 patients presenting with unilateral foot or ankle pain and no evidence of contralateral pathology on clinical examination were recruited



Study design: 25 lbs of force, 22.5 cm from center of rotation, = 25 Nm moment applied about the ankle

Results

Maximal Dorsiflexion Between Groups With Three Techniques			
	Device (deg)	Goniometer (deg)	Gestalt (deg)
A. Pain	9.6	4.5	1.4
B. Contralateral	12.5	6.3	2.2
C. Control	17.8	6.01	4.73
Paired and Independent Samples t-test Results			
	Device	Goniometer	Gestalt
A-B	*p=0.03*	*p=0.07*	*p=0.33*
A-C	*p<0.001*	*p=0.17*	*p<0.001*
B-C	*p=0.002*	*p=0.64*	*p=0.002*



Conclusions

- This is the first study to date using a paired sample to investigate the relationship between isolated gastrocnemius contracture and foot or ankle pain
- Patients with unilateral foot or ankle pain do not have symmetric ankle range of motion
- Clinically, this study provides evidence that foot or ankle pain is associated with ipsilateral and contralateral loss of range of motion when compared to healthy controls
- Further research is needed to stratify the relationship between isolated gastrocnemius contracture and foot or ankle pain

The authors have no conflicts of interest to disclose.