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

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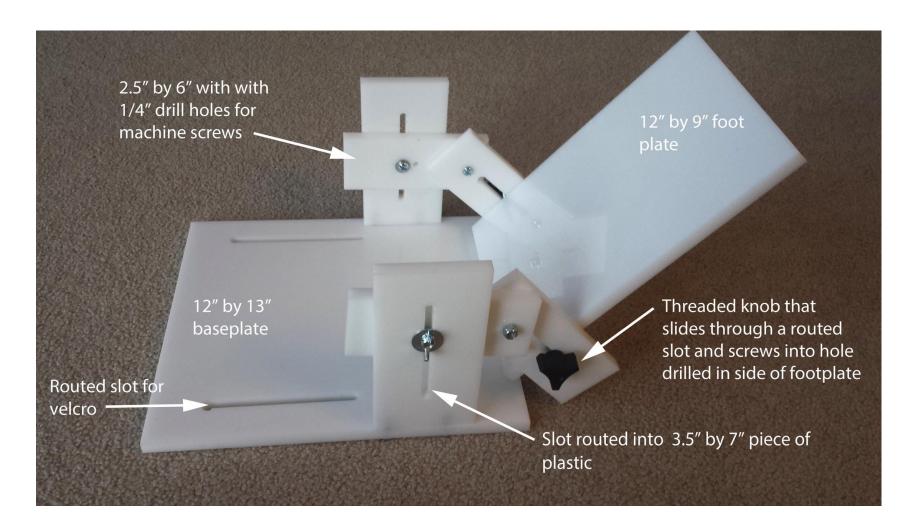
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## Introduction

- 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 reliable validated, relation, using a measurement device



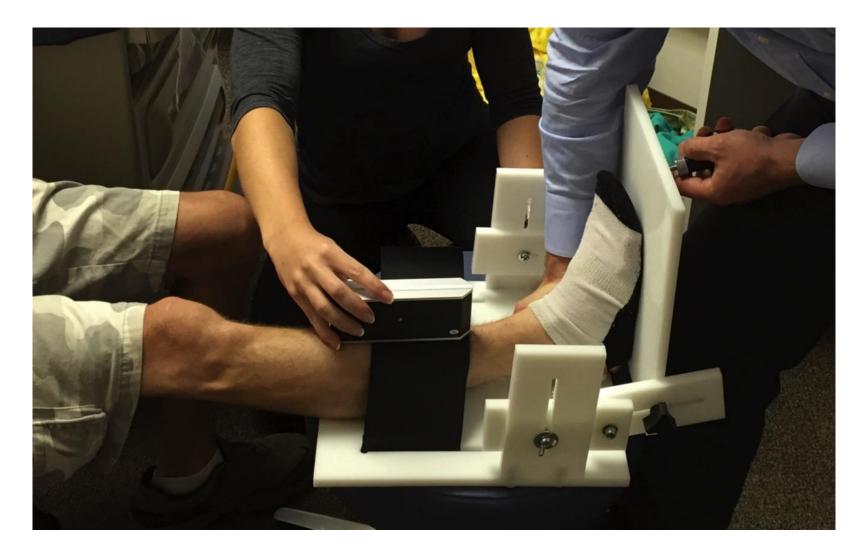
Kalamazoo Modified-Iowa Ankle Range of Motion device (KM-IAOM)

### **Isolated Gastrocnemius Contracture in Patients with Foot and Ankle** Pathology: a Prospective, Case-Control Study James R. Jastifer MD<sup>1,2</sup>, Adam Green BS<sup>3</sup>

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### Methods

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



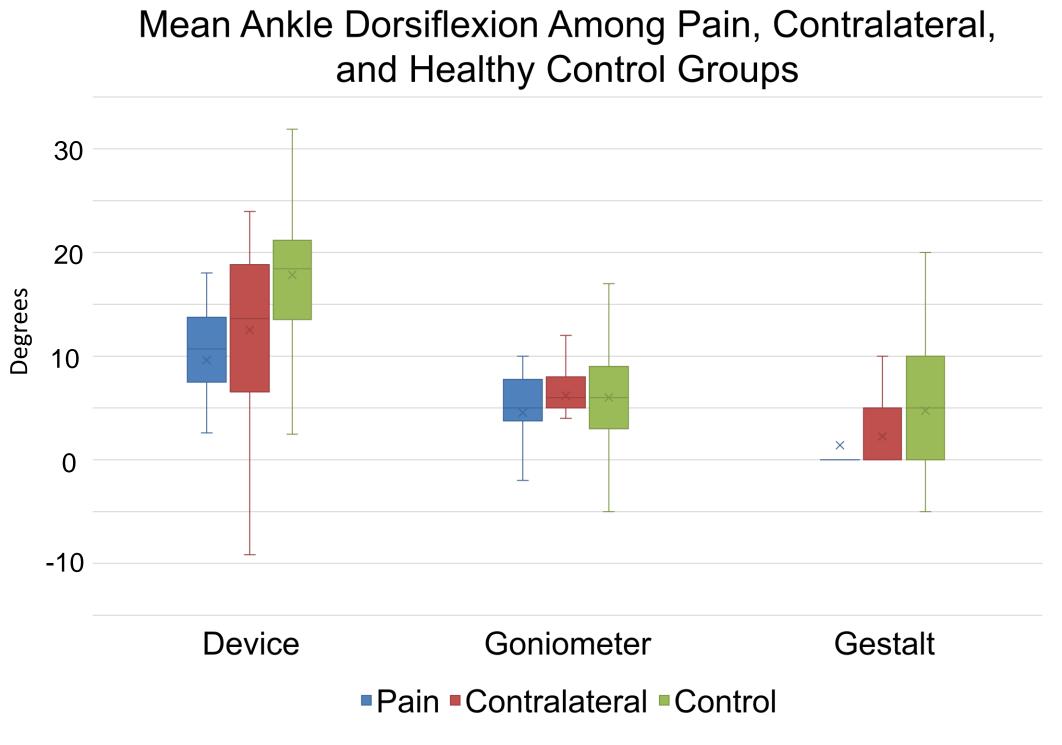
Study design: 25 lbs of force, 22.5 cm from center of rotation, = 25 Nm moment applied about the ankle

# 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	<i>p=0.07</i>	p=0.33
A-C	p<0.001	<i>p=0.17</i>	p<0.001
B-C	<i>p=0.002</i>	<i>p=0.64</i>	<i>p=0.002</i>

The authors have no conflicts of interest to disclose.





## 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