### Background

**Traumatic Myositis Ossificans (MO)**

- MO can happen at any age, but the highest prevalence occurs in young active males after trauma (60-75% are traumatic).^2^  
- MO can occur from repetitive minor trauma, which is common in horseback riders who develop MO in the adductors and shooters who present with MO in their deltoid.\(^1\)  
- Patients with MO commonly present in the clinic with signs and symptoms of pain, a palpable mass, and joint stiffness.\(^1\)  
- Patients often report persistent muscle pain longer than that of a simple muscle strain or contusion.\(^1\)  
- Currently, there is a paucity of evidence in the conservative treatment of traumatic MO.

### Purpose

The purpose of this study was to investigate the therapeutic effects of ultrasound heating combined with stretching as a treatment option for traumatic Myositis Ossificans.

### Patient Description

- 15 year-old high school lacrosse player who sustained an injury to his left thigh  
- The patient had no history of MO  
  - Had no reports of comorbidities  
  - Was not taking medications  
- Pain began 3 months prior to seeking care  
- Symptoms: pain when descending stairs, running, jumping, end range flexion, decreased flexion ROM, and decreased LE strength

### Interventions

**Ultrasound Parameters (Fig. 5).**
- 0.5-1.5 W/cm²  
- Continuous  
- Frequency: 3.0 MHz  
- 10 minutes  
- 4% Hydrocortisone cream

**Stretch Protocol (Fig. 6-8).**
- Patient position: supine with or without 45º recline  
- Initial 2 min with L knee positioned ~75º knee flexion  
- Successive end range passive knee flexion in 2-min increments  
- Passive end range knee flexion for 1-min following ultrasound treatment

**Strengthening (Fig. 9).**
- Bilateral and unilateral eccentric sit to stand with a focus on a slow and controlled descent.  
  - During unilateral eccentric sit to stand the patient was instructed to stand using both LEs.

### Results

<table>
<thead>
<tr>
<th>Tests &amp; Measures</th>
<th>Initial Evaluation Results</th>
<th>Discharge Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower Extremity Functional Scale (0-80/80)</td>
<td>49/80</td>
<td>79/80</td>
</tr>
<tr>
<td>Knee ROM (degrees)</td>
<td>150 Left 105 Right 150 Left 150 Right</td>
<td></td>
</tr>
<tr>
<td>Extension</td>
<td>0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>Manual Muscle Testing (0-5/5)</td>
<td>5/5 Right 3+/5 Left 5/5 Left 5/5</td>
<td></td>
</tr>
<tr>
<td>Knee Extension</td>
<td>5/5 3/5* 5/5 5/5</td>
<td></td>
</tr>
<tr>
<td>Hip flexion</td>
<td>5/5 3/5 5/5 5/5</td>
<td></td>
</tr>
<tr>
<td>Hip Abduction</td>
<td>5/5 3/5 5/5 5/5</td>
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</tbody>
</table>

Patient reports return to activity with no pain on US and stretch protocol, and the stretch protocol without the US.

### Conclusion

- An US and stretch protocol treatment, in addition to traditional PT, may be an effective way of improving ROM, strength, pain, size of palpable mass and return to prior level of function for an individual who presents with a traumatic MO.  
- Future research may want to consider investigating a more strict protocol of solely utilizing an US and stretch protocol. Studies may also want to consider investigating the US and stretch protocol without phonomorphesis, US phonomorphesis without the stretch protocol, and the stretch protocol without the US phonomorphesis.

### References