Reliability of the Goutallier classification for assessing fatty degeneration of the gastrocnemius and soleus muscles

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Disclosure

- My disclosure is in the Final AOFAS Mobile App

- I have no potential conflicts with this presentation
Introduction

- Until now there is no report in the literature regarding fatty degeneration of the gastro-soleus muscle.

- Treatment of Achilles tendinopathy only address the tendon disease, without considering the muscle quality.

- The Bernageau e Goutallier classifications help to quantify the fatty degeneration of the rotator cuff muscle.
Introduction

- Based on shoulder experience of the Goutallier classification the results and prognosis of the rotator cuff tears are related with the grade of muscle fatty degeneration.

- That fatty degeneration of the gastro-soleous muscle complex could influence the results of Achilles tendinopathy treatment.
Objective

- The aim of this study was to test the reproducibility and accuracy of the Goutallier classification on MRI of the gastro-soleous muscle in patients with Achilles tendinopathy.
Methods

- MRI of 22 patients with Achilles tendinopathy

- 1.5 Tesla MRI of the leg in coronal and axial planes STIR and T1.

- 17 (77.2%) male and 5 (22.8%) female.

- Age between 28 to 61 years with mean age of 42.7 years.
Methods

• Images were analyzed independently by 3 senior radiologists.

• Grade of fatty infiltration of the gastro-soleous complex were classify using the Bernageau e Goutallier classification (Table) adapted for MRI. The contralateral leg was used as control.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Amount of Fat in Muscle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 0</td>
<td>Normal muscle</td>
</tr>
<tr>
<td>Grade 1</td>
<td>Muscle contains some fatty streaks</td>
</tr>
<tr>
<td>Grade 2</td>
<td>Fatty infiltration, but still more muscle than fat</td>
</tr>
<tr>
<td>Grade 3</td>
<td>Equal amounts of fat and muscle</td>
</tr>
<tr>
<td>Grade 4</td>
<td>More fat than muscle is present</td>
</tr>
</tbody>
</table>

• The intraobserver reliability were quantify for both legs.
Goutallier Grade 0 - Soleus
Goutallier Grade 0 - Gastrocnemius

Goutallier Grade I - Soleus
Goutallier Grade I Gastrocnemius

Goutallier Grade II - Soleus
Goutallier Grade I Gastrocnemius

Goutallier Grade III - Soleus
Goutallier Grade II Gastrocnemius
Achilles tendinopathy

Goutallier Grade I - Soleus
Goutallier Grade 0 - Gastroc

Goutallier Grade III - Soleus
Goutallier Grade II - Gastroc
Results

• Results for each radiologist:

• Affected leg: 0.95, 0.59 e 1.18.

• Control leg: 0.83, 0.31 e 0.77.

• The results were statistically significant. (p=0.02)

• The mean result for the interobserver analysis in the affected leg were 0.86, with an average of 0.72 to 0.94 (CI 95%) and For the control leg 0.75, average 0.49 a 0.88 (CI 95%).
Conclusion

Our results demonstrate that the Goutallier classification is a reliable method to quantify the fatty infiltration in the gastroc-soleous muscle.
References


• *The American Journal of Sports Medicine, Vol. 40, No. 8*

