Decrease of leg length discrepancy and kyphotic angle in patients with acute low back pain through osteopathic treatment and myofascial release. An RCT

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Introduction

- There is ongoing interest in fascia research search, particularly as a possible cause of low back pain (LBP). 1
- Spine shape parameters, such as leg length and kyphotic or lordotic angle, are influenced by low back pain. There is also evidence that the thoracolumbar fascia (TLF) plays a role in such pathologies. 1
- Changes in spinal shape parameters and TLF biomechanical behaviour have been reported for myofascial release (MFR) techniques and osteopathic treatment (OMT). 2

Objectives

- The aim of this study was to investigate the immediate effects of a MFR on the TLF and of OMT on spinal shape parameters. Previous work testing the feasibility of this study showed promising changes in the myofascial chain system. 2

Methodology

This study was a single-blind randomized placebo-controlled trial. Seventy one subjects (43.8 ± 10.5 years) suffering from alBP were blindly assessed and randomly and blindly assigned to three groups (Table 1).

Results

- **MFR**: The group received an intervention as described by Chila and O’Connell (Figure 1). 1
- **OMT**: OMT of the structures identified as dysfunctional was carried out, individually adapted to the symptomatology.
- **Placebo (PLC)**: The group received a sham intervention similar to that of the MFR group, but the hands were applied with minimal pressure.

Spinal shape parameters (functional leg length discrepancy (fLLD), kyphotic angle, lordotic angle) were measured before and after the intervention using video raster stereography (VRS).

Discussion/Conclusion

- The treatment could stimulate mechanoreceptors in the fascial tissue in addition to altering only skin receptors.
- Adhesions between fascia layers can block muscle spindles and disrupt motor control (Figure 3).

Figures:

- Figure 1: Changes of basal and after treatment. Significant at the level *** p < 0.001, ** p < 0.01.

Table 1: Baseline characteristics

<table>
<thead>
<tr>
<th>Gender (male)</th>
<th>MFR group mean ± SD</th>
<th>OMT group mean ± SD</th>
<th>PLC group mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/12</td>
<td>1/11</td>
<td>8/15</td>
<td></td>
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</table>

Table 2: Within group changes between baseline and after treatment. ** p < 0.01.

Future work

- Examining the long-term effects of MFR and OMT, including a follow-up.
- Develop new methods to identify relationships between TLF and impaired motor control of paraspinal muscles.
- Identify stress-related changes in TLF and possible intervention methods.