Do occupational therapists prescribe different thumb orthoses? A national survey among Brazilian health professionals

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Thumb Osteoarthritis

Dahaghin et al., 2005
Orthotics for Thumb OA

- “First line of treatment” (Wajon & Ada, 2005)

- Evidence = orthoses can significantly reduce pain

- **EULAR Guideline** – “Splints for thumb base OA and orthoses to prevent/correct lateral angulation and flexion deformity are recommended” (Zhang et al., 2007)
Is there a better orthosis?

• “There is moderate evidence that orthoses can improve hand function at long-term follow-up.”
  Bertozzi et al., 2015

• “Orthoses can reduce pain in patients with TMC joint OA (...) [however] different length, make, and material of orthoses worn for varied time periods made comparison impossible.”
  Spaans et al., 2015

• “Splints significantly reduce hand pain. (...) there is no consensus concerning the design of splints.”
  Kjeken et al., 2011

• “patients who received a splint obtained some pain relief from it. We found no evidence that one type of splint was more effective (...) than another.”
  Egan & Brousseau, 2007
Objectives

• To provide a current perspective on the use of orthotic devices, identifying the practice patterns, challenges and barriers to its implementation

• To determine the preferences in orthotic designs and selected models prescribed by health professionals for the management of OA of the CMC joint.
Methods

- Electronic questionnaire - Google Docs® platform
- 42 questions
- Questions regarding:
  - Professional formation and experience
  - Orthotic designs preferred
  - Materials used
  - Barriers
Methods – Orthotic Selection

Differences in orthotic design for thumb osteoarthritis and its impact on functional outcomes: A scoping review

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Methods - Questionnaire

Órtese dorsal para articulações CMC e MF do Polegar


Mark only one oval.

☐ Confecciono ou indicó

☐ Não confecciono nem indicó
Methods - Participants

• PTs and Ots registered in the Federal and State Councils of Physiotherapy and Occupational Therapy, and the Brazilian Hand Therapy Society

• Rheumatologists inscribed in the Brazilian Rheumatology Association

• Invitation messages sent through national and regional professional association mailing lists.
Results - Participants

- 275 participants completed the questionnaire
## Results – Orthotics Prescription

<table>
<thead>
<tr>
<th></th>
<th>OT n (%)</th>
<th>PT n (%)</th>
<th>MD n (%)</th>
<th>TOTAL n (%)</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Orthotics Use</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Prescribed orthoses</td>
<td>55 (83.3)</td>
<td>84 (54.9)</td>
<td>52 (98.1)</td>
<td>191 (69.4)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>Joints Included in Orthosis</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wrist, CMC and MCP</td>
<td>43 (22.5)</td>
<td>77 (40.3)</td>
<td>48 (25.1)</td>
<td>168 (87.9)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>CMC and MCP</td>
<td>50 (26.2)</td>
<td>67 (35.1)</td>
<td>48 (25.1)</td>
<td>165 (86.4)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>CMC</td>
<td>23 (12)</td>
<td>23 (12)</td>
<td>14 (7.3)</td>
<td>60 (31.4)</td>
<td>0.003</td>
</tr>
</tbody>
</table>
Results – Orthotics Prescription

- Forearm-based
- Hand-based
- Thumb-based
Results – Orthotics Prescription

- Forearm-based Wrist and Thumb Prefabricated Rigid
- Forearm-based Wrist and Thumb Prefabricated Soft
- Forearm-based Wrist and Thumb Custom-made Rigid
- Hand-based, dorsal CMC and MCP Custom-made Rigid
## Results – Materials of Choice

<table>
<thead>
<tr>
<th>Category</th>
<th>OT</th>
<th>PT</th>
<th>MD</th>
<th>TOTAL</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-Temp. Thermoplastics</td>
<td>46 (24.1)</td>
<td>19 (10)</td>
<td>16 (8.4)</td>
<td>81 (42.4)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Neoprene</td>
<td>13 (6.8)</td>
<td>28 (14.6)</td>
<td>21 (11)</td>
<td>62 (32.5)</td>
<td>0.172</td>
</tr>
<tr>
<td>High-Temp. Thermoplastics</td>
<td>9 (4.7)</td>
<td>31 (16.2)</td>
<td>22 (11.5)</td>
<td>62 (32.5)</td>
<td>0.008</td>
</tr>
<tr>
<td>Other Materials</td>
<td>5 (2.6)</td>
<td>21 (11)</td>
<td>6 (3.1)</td>
<td>32 (16.7)</td>
<td>0.456</td>
</tr>
<tr>
<td>I Don't Know</td>
<td>1 (0.5)</td>
<td>28 (14.6)</td>
<td>15 (7.8)</td>
<td>44 (23.7)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
Results - Barriers

Challenges and Barriers for Orthotic Interventions

- Absence of equipment: 17.10%
- Shortage of supplies: 22.20%
- Institutional policies: 36.70%
- Lack of Specific Knowledge: 60%
Discussion

- Multiple Designs
  - Possible absence of clinical reasoning (Kjeken et al. 2011);
  - Challenging positioning of the CMC joint required (Beasley, 2012)

- Use of orthotics
  - Brazil: 69.4% -- NA: 87.8% (O’Brien & McGaha, 2014)
  - Few prefabricated designs; practice not aligned to the best evidence - Political and economic features (Sneed, 2004)
Study Limitations

• Some prefabricated models could not be included, due to its unavailability to Brazilian professionals.

• Absence of consensus among participants could be influenced by the nonexistence of studies comparing different orthotic approaches

• Response rate below the expected for a national survey
Conclusion

- Significant differences in orthotic prescription between professional classes in Brazil
- Overall preference for long, forearm-based orthoses
- Orthotic devices that stabilized only CMC joint were less prescribed by all respondents
- Major barrier for orthotic intervention in CMC OA: Lack of specific knowledge.