Interventions for prevention and treatment of disability due to acquired joint contractures in older people: a systematic review

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Background and objective
Joint contractures are common problems of older people in geriatric settings [1,2]. They are characterised by restrictions in physiological joint mobility, and can even lead to immobility [3]. Older people with joint contractures may experience high levels of disability, limitations in mobility may lead to restricted participation [2,4]. The objective of this review was to determine positive and adverse effects of interventions for prevention and treatment of disabilities due to acquired joint contractures in long-term geriatric care settings.

Methods
A systematic literature search was conducted (12/2014 to 2/2015; update 08/2016) via Cochrane Library, PubMed, EMBASE, PEDro, CINAHL, the International Clinical Trials Registry Platform (ICTRP), and scientific congress pamphlets. Reference lists in the retrieved articles were reviewed for additional studies. A forward citation search was conducted for the references of the included studies in Google Scholar, Web of Science, and Scopus.

Two independent researchers carried out the selection of publications applying the inclusion and exclusion criteria (Table 1), data extraction and critical appraisal. Data of the included studies were extracted using the template for intervention description and replication (TIDier) and the Cochrane Handbook for Systematic Reviews of Interventions, and cross-checked for accuracy [11,12]. Disagreement was solved by discussion and consensus finding. As anticipated, included studies were heterogeneous in terms of settings, interventions and outcome measures. Therefore, a narrative synthesis was conducted, following generally accepted methods for systematic reviews [13]. Harvest Plots were used for visualisation [14].

Table 1: Inclusion and exclusion criteria

<table>
<thead>
<tr>
<th>Patients</th>
<th>Intervention</th>
<th>Comparison</th>
<th>Outcomes</th>
<th>Setting</th>
<th>Misc.</th>
<th>Exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age ≥65 years</td>
<td>Any intervention for prevention and/or treatment of disability due to joint contractures</td>
<td>Another intervention or usual care or non-treated control group</td>
<td>Joint mobility and any aspect of functioning and disability as outcome</td>
<td>Residential care facilities or community dwelling</td>
<td>Design: Randomised (RCT) and non-randomised controlled study (CCT)</td>
<td>Participants with congenital contractures, contractures due to Dupuytren, lederhose or burn scars, Medication intervention or surgical therapy</td>
</tr>
</tbody>
</table>

Results
Our search revealed a total of 1816 papers (Figure 1). Seventeen studies met the inclusion criteria: 16 RCTs and one CCT (n=4 nursing homes, n=13 community). They were published in seven countries between 1984 and 2013.

Four studies reported on splints and nine studies on stretching exercises. One study was found for each of the following interventions: ultrasound, passive movement therapy, a bed-positioning programme, and a group exercise programme. The methodological quality of the studies varied (Figure 2). Harvest plots visualise the effects of the included studies (Figure 3). It seems that splints did not affect joint mobility. Active stretching programmes for healthy older people might work. Pain, spasticity, quality of life, activity limitations and participation restrictions were rarely assessed.

Conclusion
There is weak evidence on the effectiveness of selected interventions for prevention and treatment of disability due to joint contractures, particularly in established nursing interventions, e.g. positioning or passive movement. Studies are needed for better understanding of the interventions’ application modus and other outcomes than body functions, i.e. activities and social participation.

Information
For further information on the project and references please follow the QR Code or note this link: http://bit.ly/27Zi3ig
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References