

# Interventions for Prevention and Treatment of Disability due to Acquired Joint Contractures in Long-term Geriatric Care: 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 is 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

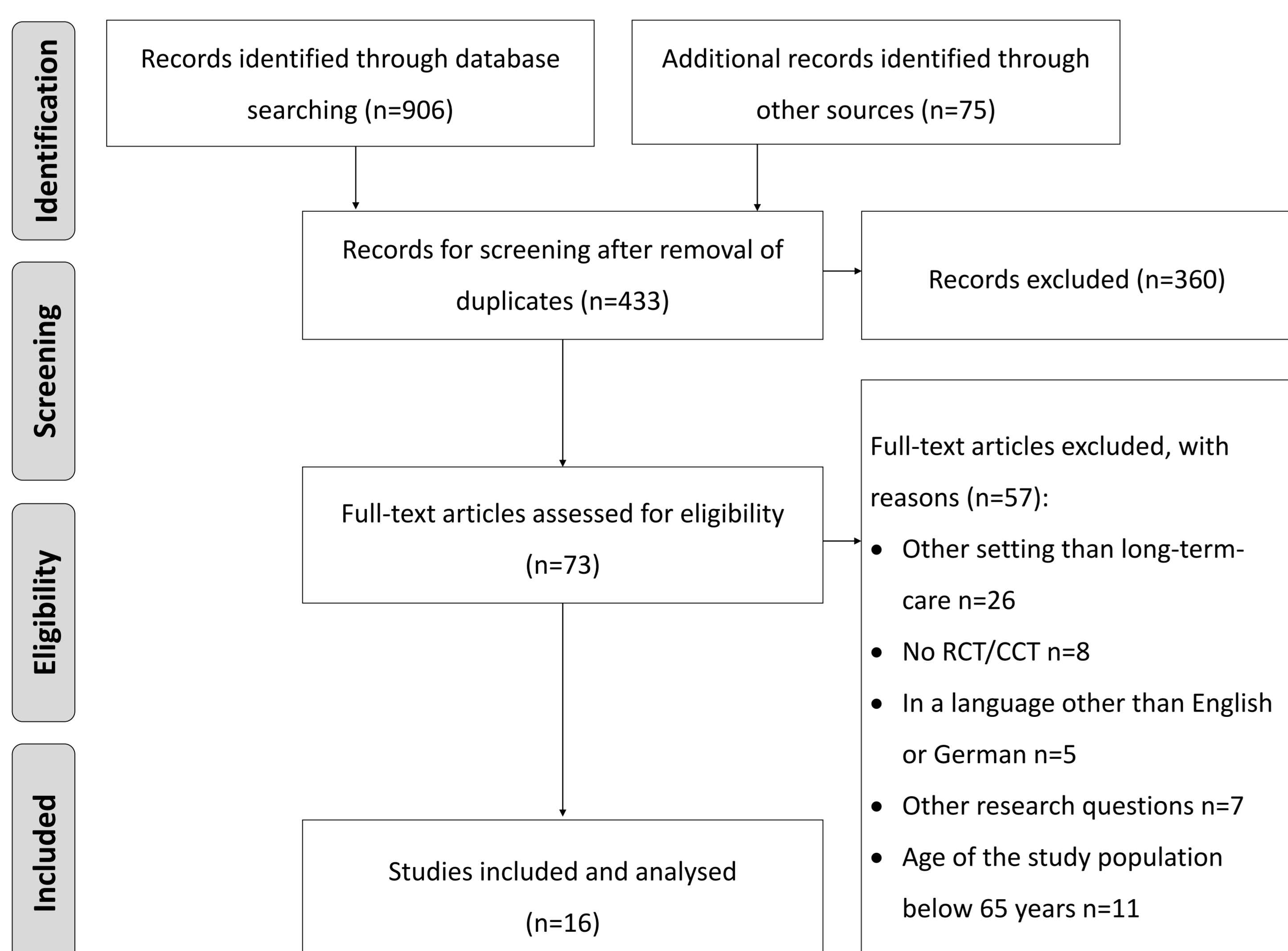
A systematic literature search was conducted (12/2014 to 2/2015) via Cochrane Library, PubMed, EMBASE, PEDro, CINAHL, the International Clinical Trials Registry Platform (ICTRP), and scientific congress pamphlets. Reference lists in the retrieved articles were reviewed for additional studies.

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

<b>Patients</b>	• Age ≥65 years
<b>Intervention</b>	• Any intervention for prevention and/or treatment of disability due to joint contractures
<b>Comparison</b>	• Another intervention or usual care or non-treated control group
<b>Outcomes</b>	• Any aspect of functioning and disability as outcome
<b>Setting</b>	• Residential care facilities or community dwelling
<b>Misc.</b>	• Design: Randomised (RCT) and non-randomised controlled study (CCT) • Language: English or German • Date of publication: No limitation
<b>Exclusion</b>	• Participants with congenital contractures, contractures due to Dupuytren, ledderhose or burn scars • Medication intervention or surgical therapy

Figure 1: Flow diagram



## Results

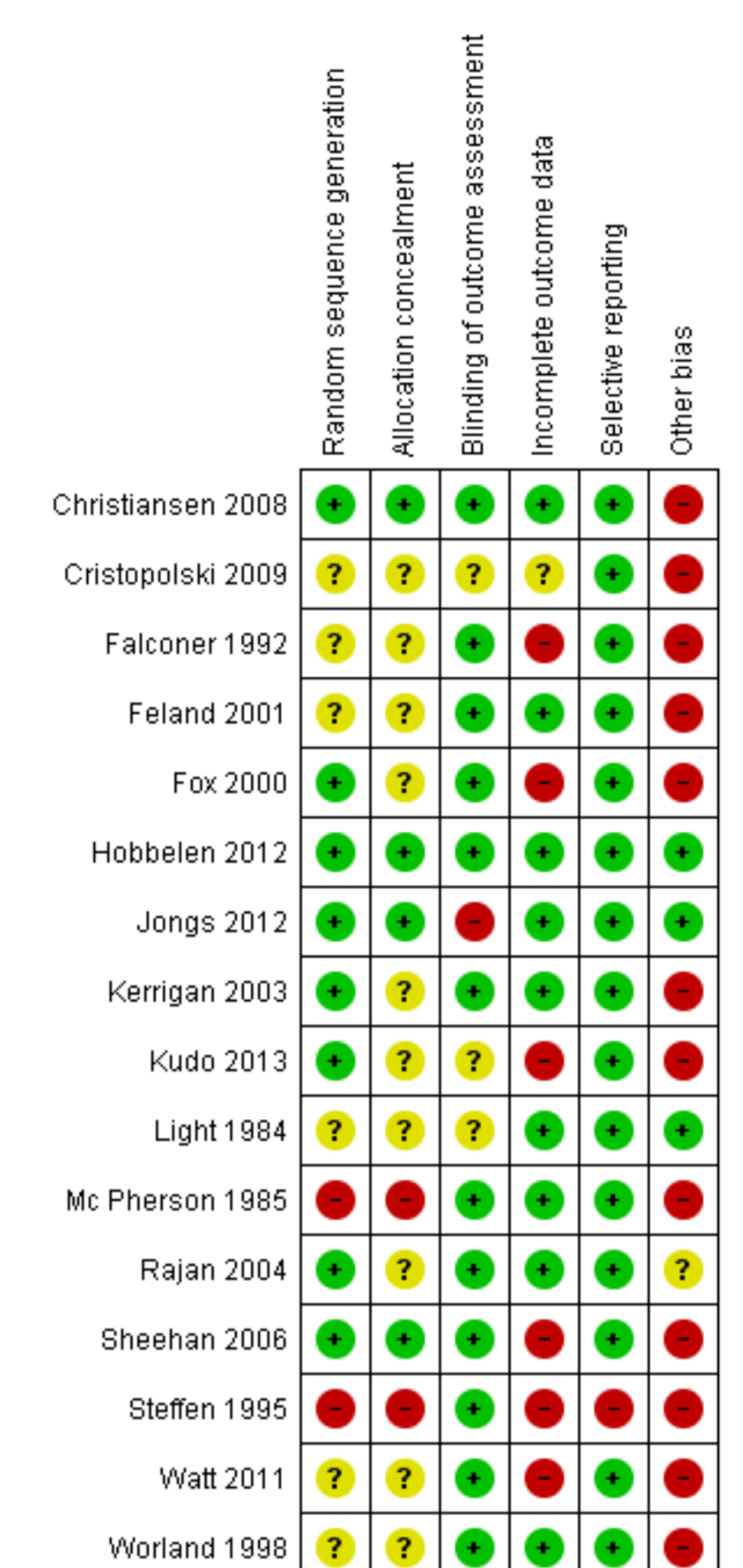
Our search revealed a total of 981 papers (Figure 1). Sixteen studies with 1001 participants met the inclusion criteria: 15 RCTs and one CCT (n=4 nursing homes, n=12 community).

Four studies reported on splints, six on active stretching exercises, and two on different types of physiotherapy. One study was identified in each of the following categories: Ultrasound, continuous passive motion machine, passive movement therapy, bed positioning programme.

The methodological quality of the studies varied (Figure 2). Harvest plots visualise the effects of the included studies (Figure 3).

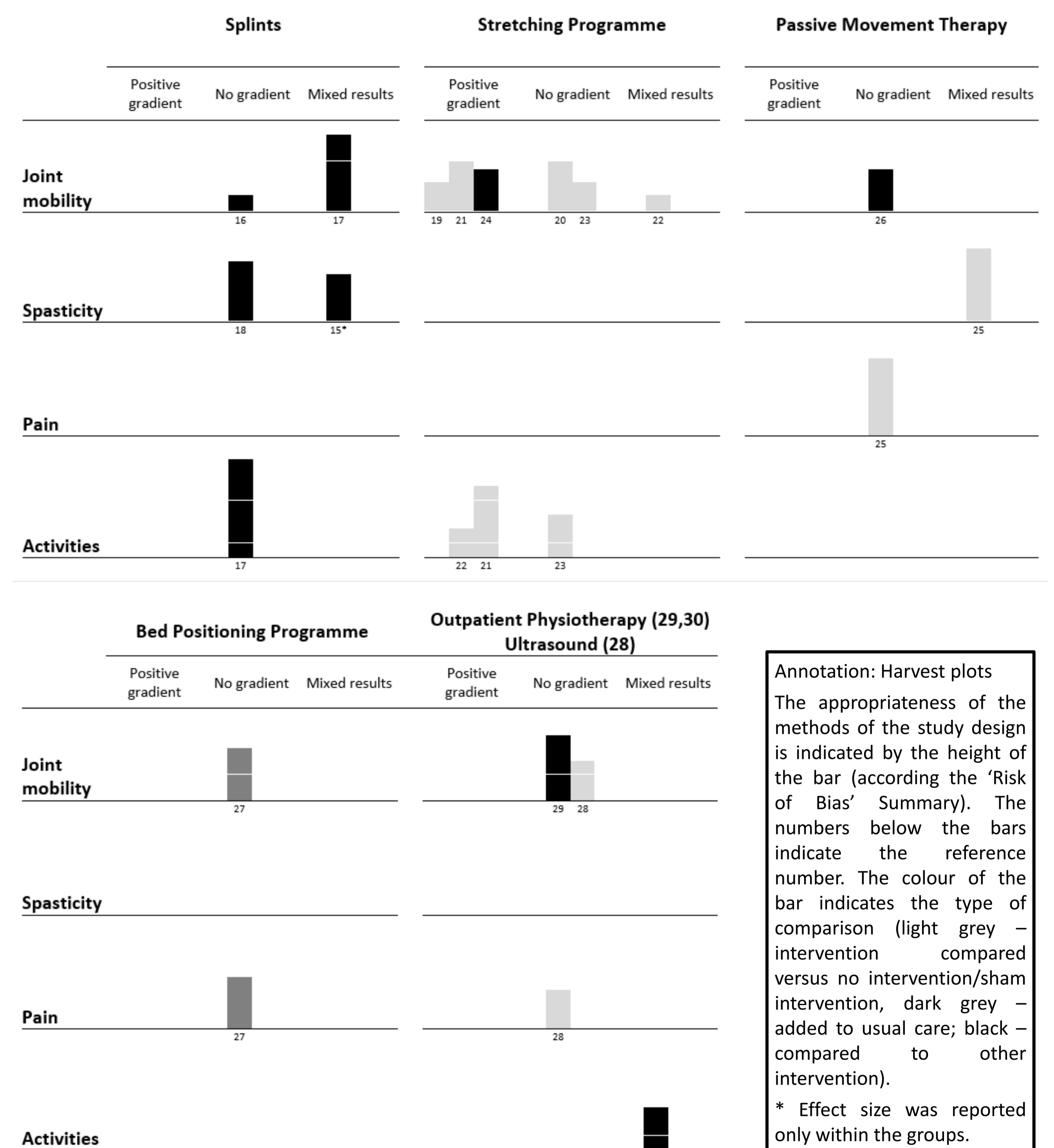
It seems that splints did not affect joint mobility. Active stretching programmes for healthy older people might work. Pain, spasticity, quality of life, activity limitations and participation restrictions were rarely assessed.

Figure 2: Risk of bias summary



Annotation: Risk of bias summary  
Other bias: Unclear sample size calculation, unclear inclusion/exclusion criteria, unequal treatment of both groups, non-defined or unclear primary/secondary outcome.

Figure 3: Harvest plots



Annotation: Harvest plots  
The appropriateness of the methods of the study design is indicated by the height of the bar (according to the 'Risk of Bias' Summary). The numbers below the bars indicate the reference number. The colour of the bar indicates the type of comparison (light grey – intervention compared versus no intervention/sham intervention, dark grey – added to usual care; black – compared to other intervention).  
\* Effect size was reported only within the groups.

## Discussion

There is weak evidence on the effectiveness of interventions for prevention and treatment of disability due to joint contractures, particularly in established nursing interventions, e.g. positioning or passive movement. Most of the identified studies focussed on outcomes related to body functions and body structures, particularly on joint mobility. Aspects of activities involving more comprehensive outcomes were rarely focussed and aspects of participation or quality of life were not addressed at all. There were only few studies on interventions addressing frail older people in nursing homes.

## Information

For further information on the project and references please follow the QR-Code or note this link: <http://bit.ly/27Zj3gP>.



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# Interventions for Prevention and Treatment of Disability due to Acquired Joint Contractures in Long-term Geriatric Care: References and risk of bias summary

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