

# INPLASY

## Chiropractic for older adults with spinal conditions: a scoping review protocol

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### Corresponding author:

Kent Stuber

kentstuber@parker.edu

### Author Affiliation:

Parker University.

Stuber, K; Maiers, M; de Luca, K; Olson, R.

### ADMINISTRATIVE INFORMATION

**Support** - CCRF (Canadian Chiropractic R).

**Review Stage at time of this submission** - Preliminary searches.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY202460116

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 28 June 2024 and was last updated on 28 June 2024.

## INTRODUCTION

**Review question / Objective** The objective of this review is to evaluate the literature on chiropractic care for older adults by addressing the research question: What is the scope of chiropractic care for older adults with spinal conditions? The scoping review will follow the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews) reporting guideline. The review protocol will be registered through INPLASY (International Platform of Registered Systematic Review and Meta-analysis Protocols) ([www.inplasy.com](http://www.inplasy.com)).

**Background** Spinal conditions are a significant health concern among older adults, often leading to pain and disability, which diminish quality of life and impede healthy aging. Conservative spine care, including chiropractic treatment, is indicated for nontraumatic spinal pain and disability. Yet,

contemporary spine care often deviates from clinical guidelines, resulting in greater risks such as care escalation, opioid use, and chronicity.

Chiropractors frequently see older adult patients, and there has been a recent increase in focus on chiropractic care for this population, primarily examining the effectiveness and safety of spinal manipulation. However, chiropractic care includes a range of interventions beyond spinal manipulation that can contribute to healthy aging, such as exercise prescription, lifestyle modifications, and falls prevention. A comprehensive review of the literature is necessary to further our understanding of chiropractic care's safety and effectiveness for older adults, and to inform the broader healthcare community for more effective care coordination and healthcare policy.

This scoping review will consolidate and summarize current research on chiropractic care for older adults with spinal conditions, including experimental, observational, and secondary research. The review will also consider qualitative and mixed methods research exploring older

patients' experiences with chiropractic care. This comprehensive evaluation provides insights into the existing literature and highlights areas for further research.

**Rationale** The growing global population of older adults brings with it a range of associated health issues. Spinal conditions are prevalent in this demographic, causing pain that is more likely to lead to disability and profoundly impact quality of life. In chiropractic practice, it is estimated that 16% of patients are older adults, and spinal complaints make up more than 60% of their presentations. A synthesis of the literature on the scope of chiropractic care for older adults with spinal conditions is needed to clarify the role of chiropractic management, identify themes and knowledge gaps, and highlight strategic priorities for future research.

## METHODS

### Strategy of data synthesis

#### 2) Identifying relevant studies

To identify relevant studies, a search strategy will be developed in collaboration between a health sciences librarian and the research team. The following electronic databases will be searched from inception until July, 2024: MEDLINE (OVID), EMBASE (OVID), CINAHL (EBSCO), Index to Chiropractic Literature (ICL), and Cochrane Central Register. The database search will be conducted in English only. The search strategy will combine terms related to chiropractic, spinal conditions, and older adults. Reference checking of eligible full-text articles, along with backwards and forwards citation tracking, will be performed to identify additional studies that may meet the inclusion criteria. The following is an abbreviated sample search strategy applied to MEDLINE (OVID) on June 14, 2024. The complete search strategy is available from the authors.

Search Strategy:

# Searches Results

- 1 Chiropractic/ 3528
- 2 Manipulation, Spinal/ 1861
- 3 exp Musculoskeletal Manipulations/ 19119
- 4 Manipulation, Chiropractic/ 1127
- 5 Manipulation, Orthopedic/ 3997
- 6 chiropr\*.mp. 8323
- 7 ((spinal\* or spine\*) adj2 (manip\* or mobilis\* or mobiliz\* or adjust\*)).mp. 3839
- 8 ((cervical\* or neck\* or lumbar\* or lumbo\* or low back or lower back or thoracic\*) adj2 (manip\* or mobilis\* or mobiliz\* or adjust\*)).mp. 2019
- 9 (musculoskeletal\* adj2 (manip\* or mobilis\* or mobiliz\* or adjust\*)).mp. 2609

- 10 (manual\* adj2 (manip\* or mobilis\* or mobiliz\* or adjust\* or therap\* or stretch\*)).mp. 5935
- 11 (manip\* adj (therap\* or treat\*)).mp. 2381
- 12 (manip\* adj5 (lumbar\* or musculoskeletal\* or orthopaedic or orthopedic or back or low back or low-back or lower back or lower-back or lumbopelvic\* or lumbosacr\* or pelvi\* or spinal\* or spine\* or thoracolumbar\* or thoraco-lumbar\* or vertebra\* or low-velocity\* or soft-tissue\* or soft tissue)).mp. 10983
- 13 (mobiliz\* adj5 (lumbar\* or musculoskeletal\* or orthopaedic or orthopedic or back or low back or low-back or lower back or lower-back or lumbopelvic\* or lumbosacr\* or pelvi\* or spinal\* or spine\* or thoracolumbar\* or thoraco-lumbar\* or vertebra\* or low-velocity\* or soft-tissue\* or soft tissue)).mp. 1409
- 14 (mobilis\* adj5 (lumbar\* or musculoskeletal\* or orthopaedic or orthopedic or back or low back or low-back or lower back or lower-back or lumbopelvic\* or lumbosacr\* or pelvi\* or spinal\* or spine\* or thoracolumbar\* or thoraco-lumbar\* or vertebra\* or low-velocity\* or soft-tissue\* or soft tissue)).mp. 241
- 15 (adjustment\* adj5 (lumbar\* or musculoskeletal\* or orthopaedic or orthopedic or back or low back or low-back or lower back or lower-back or lumbopelvic\* or lumbosacr\* or pelvi\* or spinal\* or spine\* or thoracolumbar\* or thoraco-lumbar\* or vertebra\* or low-velocity\*)).mp. 969
- 16 (manip\* adj3 (Maitland or Kaltenborn or Evjenth or Mulligan\* or McKenzie or Cyriax or Mills or Mennell or Stoddard)).mp. 28
- 17 (method\* adj3 (Maitland or Kaltenborn or Evjenth or Mulligan\* or McKenzie or Cyriax or Mills or Mennell or Stoddard)).mp. 161
- 18 (techniq\* adj3 (Maitland or Kaltenborn or Evjenth or Mulligan\* or McKenzie or Cyriax or Mills or Mennell or Stoddard)).mp. 80
- 19 (hvla\* or lvva\* or low-velocity flexion-distraction).mp. 178
- 20 (high velocity low amplitude\* or high-velocity low-amplitude\* or high velocity thrust\* or high-velocity thrust\*).mp. 347
- 21 ((active\* or audibl\* or myofascial\* or soft tissue or soft-tissue\*) adj2 releas\*).mp. 6099
- 22 subluxat\*.mp. 13509
- 23 muscle energy technique\*.mp. 152
- 24 (webster\* adj2 technique\*).mp. 22
- 25 ((craniosacral\* adj2 therap\*) or (((sacro\* adj2 occipital) or SOT or Gonstead) adj3 techni\*) or (((sacro\* adj2 occipital) or SOT or Gonstead) adj3 method\*)).mp. 198
- 26 soft tissue therap\*.mp. 145
- 27 or/1-26 53356
- 28 exp Spinal Diseases/ or exp Spinal Cord Diseases/ or Spinal Injuries/ or Spinal Fractures/ or Spinal Stenosis/ or Osteoarthritis, Spine/ or

Intervertebral Disc Displacement/ or Intervertebral Disc Degeneration/ or Intervertebral Disc/in or Zygapophyseal Joint/in or Radiculopathy/ or Polyradiculopathy/ or Spondylolysis/ or Synovial Cyst/ or Spinal Curvatures/ or exp Spinal Dysraphism/ or exp Neural Tube Defects/ or Cauda Equina Syndrome/ or Neck Pain/ or Neck Injuries/ or Neck Muscles/in or exp Cervical Vertebrae/in or Whiplash Injuries/ or exp Brachial Plexus Neuropathies/ or Brachial Plexus/in or Cervical Plexus/in or exp Torticollis/ or Thoracic Injuries/ or Thoracic Vertebrae/in or Low Back Pain/ or exp Back Pain/ or exp Back Injuries/ or Piriformis Muscle Syndrome/ or Sciatica/ or Lumbar Vertebrae/in or Lumbosacral region/in or exp Back Muscles/in or Coccyx/in or Lumbosacral Plexus/ in or Sacroiliac Joint/in or Pelvic Girdle Pain/ 419027

29 exp Back Muscles/in [Injuries] 55

30 Lumbar Vertebrae/in [Injuries] 5217

31 Lumbosacral Region/in [Injuries] 225

32 Lumbosacral Plexus/in [Injuries] 205

33 Sacrum/in [Injuries] 1196

34 Coccyx/in [Injuries] 106

35 Sacroiliac Joint/in [Injuries] 403

36 Thoracic Vertebrae/in [Injuries] 4336

37 Intervertebral Disc Degeneration/ 8150

38 spondylitis/ or spondylosis/ or exp spondylolysis/ 13443

39 Intervertebral Disc/in [Injuries] 531

40 ((spine\* or spinal\* or vertebr\*) adj3 (condition\* or diseas\* or pathol\* or pain\* or injur\* or fractur\* or degener\* or disabil\* or disorder\* or impair\* or instabil\* or symptom\* or syndrome\* or discomfort\* or sore\* or ach\* or dysfunction\* or dysraph\* or deform\* or tear\* or imping\* or myalg\* or complaint\* or ischem\* or infect\* or neoplasm\* or cancer\* or tumour\* or tumor\* or malignan\* or neoplast\* or metast\* or mening\* or metabol\* or congenital\* or abnormal\* or osteochond\* or osteophyt\* or osteoscleros\* or osteomyelit\* or osteitis\* or osteopenia\* or atroph\* or compress\* or idiopath\* or fistula\* or fibrosis\* or neurogen\* or arthrit\* or osteoarthritis\* or osteoarthros\* or osteoporo\* or trauma\* or developmental\* or torticollis\* or tuberculosis\* or sprain\* or strain\*).ti. 88279

41 ((disc or discs or disk\*) adj2 (pain\* or extru\* or degenerat\* or displac\* or herniat\* or prolaps\* or sequestered or slipped or protru\* or avuls\* or bulg\*).ti. 12853

42 ((discogen\* or intervertebr\* or vertebr\*) adj2 (pain\* or injur\* or ach\* or myalg\* or symptom\* or syndrome\* or discomfort\* or sore\* or impairment\* or disorder\* or disease\* or dysfunction\* or tear\* or imping\* or sprain\* or strain\* or trauma\* or extru\* or degenerat\* or displac\* or herniat\* or prolaps\* or sequestered or slipped or protru\* or avuls\* or bulg).ti. 6795

43 (stenos?s\* adj2 (spine\* or spinal\* or vertebr\* or lumbar\* or lumbo\* or (low\* adj2 back) or low-back\* or lower-back\* or intervertebr\* or sacrum\* or sacral\* or sacro-iliac\* or sacroiliac\* or neck\* or cervic\* or thorac\*).ti. 5320.

### Eligibility criteria

#### 3a) Study selection

For inclusion in the review, articles must meet each of the following inclusion criteria:

- 1) Published in English in a peer-reviewed and indexed journal;
- 2) Related to chiropractic management of older adults (aged 55 and over) with spinal conditions, including but not limited to neck pain or disability, back pain or disability, lumbar spinal stenosis, spinal osteoarthritis, and degenerative spondylolisthesis;
- 3) Experimental, exploratory and observational or study designs, including qualitative and mixed methods designs.

Studies meeting any of the following criteria will be excluded from the review:

- 1) Not published in a peer-reviewed, indexed journal;
- 2) Not published in English;
- 3) Cadaveric or animal studies;
- 4) Commentaries and editorials;
- 5) Case reports and case series;
- 6) Narrative, scoping, systematic, or other literature reviews.

### Source of evidence screening and selection

#### 3b) Study selection

Upon execution of the search strategy, citations will be uploaded to EndNote, de-duplicated, and exported to Covidence. Following that, a two-phase screening will be undertaken. The screening process will begin with a calibration exercise where researchers will independently evaluate a random sample of 10 titles and abstracts against the inclusion criteria. An a-priori agreement rate of >80% is required, otherwise the calibration will be revisited after a discussion to refine the criteria.

Following successful calibration, two researchers will independently screen the remaining titles and abstracts. Discrepancies between reviewers will be resolved through adjudication by a third reviewer. The manuscripts that meet the eligibility criteria will be retrieved for a full text review. Full-text screening will be conducted by independent researchers with a third reviewer available as an adjudicator, and articles that meet the inclusion criteria after this stage will be included in the final article pool for data extraction and analysis.

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## Data management

### 4) Charting the data

Data from the included articles will be extracted into a Microsoft Excel spreadsheet consisting of variables pertinent to the objective of the review. Data will be extracted by two researchers independently with a third reviewer resolving any discrepancies. An initial pilot extraction will be conducted on five papers to refine the process, ensure reviewer alignment, and suitability of the data extracted, with the extraction tool modified after calibration. The following information will be among that extracted from the included studies:

Title of the study, authors' names and year of publication, Country/Countries of origin, study design, study setting, Study methods

Sample size, participants demographic information,

Spinal condition definition, diagnosis and characteristics

Study intervention(s) and comparator(s) including specific aspects of chiropractic role and/or management

Outcome measures

Study results

Study limitations

Conclusions and recommendations.

## Reporting results / Analysis of the evidence

5) Collating, summarizing, and reporting the results  
Findings from the included body of literature will be arranged and presented following both a descriptive and thematic analysis, with additional relevant information reported when appropriate. Summary charts and tables will be constructed. Themes will be identified de novo, but may include a priori themes such as spinal condition, influences on older adult health, study design, experience of chiropractic care, interventions, and costs and outcomes of care.

### 6) Consultation

Several potentially interested and affected groups will be engaged during the interpretation and reporting process, including but not limited to patient and older adult advocacy groups, clinicians, national and local regulatory and advocacy associations, and other researchers in the field.

**Presentation of the results** The presentation of results will consider the breadth of the literature on chiropractic care for older adults with spinal conditions. Characterization of the patients, interventions received, the experience of care, and outcomes of care will be discussed accordingly. The volume of literature on the topic, along with

noticeable areas in need of investigation will be presented.

**Language restriction** The databased search will be conducted in English only. Only English language manuscripts will be included in the analysis.

**Country(ies) involved** Canada, United States, Australia.

**Other relevant information** The author group combines expertise from several different academic research and education programs, including Northwestern Health Sciences University, CQUniversity, Parker University, and the Canadian Memorial Chiropractic College, with contributing literature search expertise from Canada.

**Keywords** Chiropractic, ageing, geriatric, spinal pain, back pain, neck pain, spinal stenosis.

**Dissemination plans** The findings of this scoping review will be compiled into a manuscript and submitted for publication in an open-access, peer-reviewed journal. In addition to journal publication, the research will be presented at relevant scientific meetings and considered for presentations at various conferences to enhance visibility within the academic community. Upon publication, our findings will be broadly disseminated to community partners and professional associations to foster dialogue and improve chiropractic management of older adults. This outreach will include notices, and active promotion through social media channels and partner marketing initiatives, aiming to maximize impact and awareness of the research outcomes.

## Contributions of each author

Author 1 - Kent Stuber - Conceived the scoping review, article reviewer, data extraction and analysis, manuscript preparation.

Email: kentstuber@parker.edu

Author 2 - Michele Maiers - Conceived the scoping review, article reviewer, data extraction and analysis, manuscript preparation.

Email: mmaiers@nwhealth.edu

Author 3 - Katie de Luca - Conceived the scoping review, article reviewer, data extraction and analysis, manuscript preparation.

Email: k.deluca@cqu.edu.au

Author 4 - Rose Olson - Article reviewer, data extraction and analysis, manuscript preparation.

Email: rolson@parker.edu