

# INPLASY

## Chiropractic in active military and veteran's care: a scoping review

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### ADMINISTRATIVE INFORMATION

**Support** - No funding received.

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

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY202490029

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 7 September 2024 and was last updated on 7 September 2024.

### INTRODUCTION

**Review question / Objective** The objective of this review is to map published literature describing the role and utilization of chiropractic services in the management of health conditions in veteran and active military personnel. Specifically, we aim to address the research question: What is known about the role of chiropractic for active military and veterans?

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** Healthcare for active military personnel and veterans is of paramount importance due to the unique physical and psychological demands placed on them during their service. Military personnel often operate in high-stress environments, endure rigorous physical

activity, and face the risk of injuries from combat or training exercises. Comprehensive healthcare ensures that they maintain peak physical fitness, mental resilience, and overall well-being, which are critical for the effective performance of their duties. Additionally, a robust healthcare system for veterans is essential to address the long-term effects of their service, including chronic conditions, toxic exposures, mental health issues like Post-Traumatic Stress Disorder (PTSD), and other service-related health problems. By providing targeted healthcare, the military and veterans health care systems can enhance the readiness and longevity of its personnel while honoring the sacrifices made by veterans.

The role of chiropractic care in military and veterans' healthcare is increasingly recognized for potential cost savings and benefits in managing musculoskeletal pain and enhancing overall physical function. Chiropractic care focuses on diagnosing and treating musculoskeletal disorders through manual therapy, patient education, and other non-invasive techniques. For active duty

personnel, chiropractic care can help alleviate pain from injuries sustained during training or combat, reduce downtime, and enhance mobility and physical performance. This form of care is particularly valuable as it offers a non-pharmaceutical approach to pain management, which is crucial in avoiding the potential for substance abuse and dependency issues and reducing risk of self-directed violence in active duty service members and veterans.

For veterans, chiropractic care can play a significant role in managing chronic pain and improving the quality of life. Many veterans suffer from persistent musculoskeletal disorders resulting from their military service, and chiropractic treatment may provide relief from pain, improve function, and enhance their ability to engage in daily activities. In the United States, the Department of Veterans Affairs (VA) has increasingly integrated chiropractic services into its healthcare offerings, recognizing its effectiveness in addressing common conditions such as back pain, neck pain, and headaches. By including chiropractic care as part of a comprehensive healthcare plan, the VA offers veterans a holistic approach to managing their health, addressing both immediate and long-term needs. Veteran exposure to non-pharmacological management strategies, including chiropractic care, provides alternative care options, thereby reducing opioid prescription medication.

Despite evidence of the use and outcomes of chiropractic services in the treatment of veteran and active-duty military personnel, there is no current consolidated summary of the role(s) chiropractors play in such care. This scoping review will consolidate and summarize current research on chiropractic care for active military personnel and veterans. The review will also consider qualitative and mixed methods research exploring military personnel and veteran's experiences with chiropractic care. This scoping review is unique in that it will summarize both quantitative and qualitative data, thus providing an in-depth capture of the current available literature and will highlight areas for further research.

**Rationale** Military service members and veterans can suffer from a range of associated health issues. Among these are musculoskeletal conditions and chronic pain. A synthesis of the existing literature on the role of chiropractic care for military personnel and veterans is needed to describe the role and nature of chiropractic management, identify current gaps in knowledge, highlight strategic needs for future research, and inform healthcare policy.

## METHODS

**Strategy of data synthesis** The scoping review will involve the following six steps for scoping reviews outlined by Arksey and O'Malley, along with Levac et al.:

- 1) Identifying the research question;
- 2) Identifying relevant studies;
- 3) Study selection;
- 4) Charting the data;
- 5) Collating, summarizing, and reporting the results; and
- 6) Consultation.

The following is a sample search strategy applied to MEDLINE (OVID) to June 14, 2024:

Searches Results  
 Chiropractic/ 3528  
 Manipulation, Spinal/ 1861  
 exp Musculoskeletal Manipulations/ 19119  
 Manipulation, Chiropractic/ 1127  
 Manipulation, Orthopedic/ 3997  
 chiropr\*.mp. 8323  
 ((spinal\* or spine\*) adj2 (manip\* or mobilis\* or mobiliz\* or adjust\*)).mp. 3839  
 ((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  
 (musculoskeletal\* adj2 (manip\* or mobilis\* or mobiliz\* or adjust\*)).mp. 2609  
 (manual\* adj2 (manip\* or mobilis\* or mobiliz\* or adjustment\* or therap\* or stretch\*)).mp. 5935  
 (manip\* adj (therap\* or treat\*)).mp. 2381  
 (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  
 (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  
 (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  
 (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  
 (manip\* adj3 (Maitland or Kaltenborn or Evjenth or Mulligan\* or McKenzie or Cyriax or Mills or Mennell or Stoddard)).mp. 28  
 (method\* adj3 (Maitland or Kaltenborn or Evjenth or Mulligan\* or McKenzie or Cyriax or Mills or Mennell or Stoddard)).mp. 161  
 (techniq\* adj3 (Maitland or Kaltenborn or Evjenth or Mulligan\* or McKenzie or Cyriax or Mills or Mennell or Stoddard)).mp. 80  
 (hvla\* or lvva\* or low-velocity flexion-distractio).mp. 178  
 (high velocity low amplitude\* or high-velocity low-amplitude\* or high velocity thrust\* or high-velocity thrust\*).mp. 347  
 ((active\* or audibl\* or myofascial\* or soft tissue or soft-tissue\*) adj2 releas\*).mp. 6099  
 subluxat\*.mp. 13509  
 muscle energy technique\*.mp. 152  
 (webster\* adj2 technique\*).mp. 22  
 ((craniosacral\* adj2 therap\*) or ((sacro occipital or SOT or Gonstead) adj3 techni\*) or ((sacro occipital or SOT or Gonstead) adj3 method\*)).mp. 198  
 soft tissue therap\*.mp. 145  
 or/1-26 53356  
 Military Personnel/ 45741  
 Military Medicine/ 30245  
 Military Health/ 128  
 Military Health Services/ 260  
 Military Facilities/ 249  
 Hospitals, Military/ 5408  
 Aerospace Medicine/ 15239  
 Armed Conflicts/ 1428  
 Afghan Campaign 2001-/ 3165  
 Gulf War/ 594  
 Vietnam War/ 0  
 Iraq War, 2003-2011/ 3342  
 "United States Department of Defense"/ 410  
 exp Warfare/ 38534  
 "Warfare and Armed Conflicts"/ 45  
 "United States Department of Veterans Affairs"/ 9995  
 Veterans/ 23222  
 Veterans Health/ 2078  
 Veterans Health Services/ 270  
 Hospitals, Veterans/ 6943  
 (army\* or armies\*).mp. 20602  
 (armed adj2 force\*).mp. 7731  
 (militar\* or militia\*).mp. 105631  
 (active adj2 duty).mp. 4767  
 (service adj2 member\*).mp. 5253  
 (active adj2 service).mp. 1426  
 (combat adj2 injur\*).mp. 1142  
 (armed adj2 conflic\*).mp. 3264  
 (air adj force\*).mp. 4679  
 (american adj2 force\*).mp. 246  
 (navy\* or navies\* or naval\*).mp. 15994  
 (marines\* or (marine\* adj1 corp\*)).mp. 1671  
 sailor\*.mp. 1300  
 soldier\*.mp. 13381  
 "Department of Defense".mp. 3510  
 "Department of Defence".mp. 29  
 (Defence adj1 Department).mp. 4  
 (Defense adj1 Department).mp. 69  
 (war or wars or warfighter\* or warfare\*).mp. 84766  
 peacekeep\*.mp. 488  
 (coast\* adj1 guard\*).mp. 298  
 (national adj1 guard\*).mp. 1116  
 conscript\*.mp. 2004  
 (canadian\* adj2 force\*).mp. 3000  
 (force\* adj2 (defence or defense)).mp. 1424  
 (limited-duty or limited duty).mp. 99  
 batalion\*.mp. 10  
 marching\*.mp. 1176  
 submarin\*.mp. 2945  
 veteran\*.mp. 54355  
 (reservist\* or (green adj1 beret\*)).mp. 271  
 (colonel\* or lieutenant\* or sergeant\* or brigad\* or cadet\* or infantry\* or airm#n\* or airwom#n\* or aviat\* or (basic adj2 train\*) or battle\* or captain\* or corporal\* or deployment\* or enlisted\* or ex-force\* or ex-military\* or ex-service\* or (field adj2 exercis\*) or (field adj2 train\*) or (imperial adj force\*) or pilots or officer\* or postdeploy\* or (space adj2 force\*) or (service adj2 m#n) or (service adj2 wom#n) or VA).mp. 156769  
 ((defense or defence) adj2 (medical\* or health\*)).mp. 1763  
 regiment.m.p. 925  
 (special adj2 operation\*).mp. 1015  
 (squadron\* or commando\* or paratroop\* or (force\* adj2 recon\*) or (force\* adj2 recruit\*) or fighter\* or Marine Air-Ground Task Force).mp. 3289  
 (war or wars).ti. 23183  
 or/28-84 386964  
 27 and 85 715  
 (comment or editorial or letter or clinical conference).pt. 2263037  
 86 not 87 619.

**Eligibility criteria** 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 active military personnel and Veterans;  
 3) Observational or experimental study designs, including qualitative and mixed methods designs, case series and reports, and secondary data analyses.

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) Mechanistic, cadaveric or animal studies;
- 4) Commentaries and editorials; clinical practice guidelines, policy recommendations;
- 5) Narrative, scoping, or systematic reviews.

**Source of evidence screening and selection** A search strategy will be developed to identify relevant studies in collaboration with a health sciences librarian and the research team. The following electronic databases will be searched from inception until September 1, 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. Reference checking of eligible full-text articles, along with backwards and forwards citation tracking and searching of investigator's personal libraries, will be performed to identify additional studies that may meet the inclusion criteria.

Upon execution of the search strategy, a complete list of unique citations will be uploaded to EndNote and then exported to Covidence. This will be followed by a two-phase screening protocol. The screening process will begin with a calibration exercise in which team members will independently evaluate a random sample of 10 titles and abstracts against the inclusion criteria, aiming for an agreement rate of at least 80%. If this threshold is not achieved, the calibration will be revisited after a discussion to refine the criteria. Following successful calibration, sets of two team members 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 inclusion criteria will be retrieved for a detailed review. Subsequently, full-text screening will be conducted independently by the same reviewers 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.

**Data management** Data from the included full-text articles will be extracted into a Microsoft Excel spreadsheet consisting of variables pertinent to the objective of the review. Data will be extracted by one team member, independently checked by a second member, with a third reviewer resolving any discrepancies. An initial pilot extraction will be conducted on five manuscripts to refine the process, ensure reviewer alignment, and suitability of the data extracted. The following information will be among that extracted from the included studies:

- Authors' names and year of publication
- Country/Countries of origin
- Study aim(s)
- Study methods
- Study population / health conditions under study
- Study intervention(s) and comparator(s)
- Outcome measures
- Pertinent results
- Study limitations
- Conclusions.

**Reporting results / Analysis of the evidence**

Findings from the included body of literature will be arranged and presented numerically and thematically, with additional relevant information reported when appropriate. Summary charts and tables will be constructed. Themes will be identified de novo.

Several potentially interested and affected groups will be engaged during the interpretation and reporting process, including but not limited to national and local regulatory and advocacy associations, clinicians, other researchers in the field, and relevant military and veteran health advocacy groups. Their feedback may be incorporated into a final manuscript; however, they will not be involved in finalizing the design or analysis of results.

**Presentation of the results** The presentation of results will consider the breadth of the literature on chiropractic care for military personnel and veterans. 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 search will be limited to English, and only English language manuscripts will be included in the analysis.

**Country(ies) involved** This scoping review originated in Canada and the United States.

**Other relevant information** The author group combines expertise from several different academic research and education programs, including Parker University, Canadian Memorial Chiropractic College, Ontario Tech University, Veterans Health Administration, University of Pittsburgh, and Life University.

**Keywords** Chiropractic, military, Veterans.

**Dissemination plans** The findings of this scoping review will be compiled into a manuscript and

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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 military personnel and veterans. 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 and developed the scoping review, article reviewer, data extraction and analysis, manuscript preparation.

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