

mixed-methods project was to evaluate the implementation of GLA:D® via telehealth.

Methods: Evaluation Framework: Reach, Effectiveness, Adoption, Implementation, and Maintenance Qualitative Evaluation for Systematic Translation (RE-AIM QuEST). Quantitative: People with knee or hip osteoarthritis participating in GLA:D® via telehealth-only or a hybrid delivery of in-person and telehealth (≥ 3 telehealth sessions) from March 2020-October 2021. Mean differences (MD) and effect sizes (ES) from baseline to 3-month follow-up were calculated for average pain (0-100) and joint-related QoL (KOOS-QOL, HOOS-QOL sub-scales). Participants rated perceived recovery (global rating of change scale -3 to 3; 1-3=recovered) and program satisfaction (scale 1-5; 4,5=satisfied). Qualitative: 23 GLA:D® trained physiotherapists (n=12 telehealth adopters; n=11 non-adopters) from diverse (private/public practice, urban/rural) settings completed one-on-one semi-structured interviews. Interviews were transcribed and analysed using a reflexive thematic approach.

Results: Reach: 138 people (39 telehealth-only and 99 hybrid delivery; 69% female) participated in GLA:D® via telehealth. Mean (SD) age and BMI were 64 (9) years and 29.8 (5.5) kg/m², respectively. Identified barriers and enablers for reach included technology literacy and access, personal preference and perceived value of telehealth, and availability of exercise equipment. Pandemic restrictions to in-person GLA:D® was an enabler.

Effectiveness: Average pain decreased for telehealth-only (MD, 95%CI=-10, -16 to -4; ES=-0.54) and hybrid delivery (MD=-11, -16 to -6; ES=-0.43) GLA:D®. Joint-related QoL improved for telehealth-only (MD=9, 3 to 14; ES=0.51) and hybrid delivery (MD=12, 8 to 16; ES=0.65) GLA:D®. At 3-months, 81% of participants were recovered and 88% were satisfied. Most physiotherapists believed telehealth was as effective as in-person and felt patients were better able to continue exercising at home.

Adoption: 92 physiotherapists (74 health services) delivered GLA:D® via telehealth, most stating it had become a normal part of their practice. Adoption barriers included preferring, and greater confidence with providing, in-person GLA:D®.

Implementation: 70% (n=96) of participants attended both education sessions and 91% (n=125) attended >10 exercise-therapy sessions. Telehealth-delivered GLA:D® involved modifications to assessment, exercise instruction, equipment, and reduced fee structures.

Maintenance: Lack of personnel capacity, low patient demand, and a need for telehealth training and support were sustainability barriers.

Discussion: Telehealth-delivered GLA:D® in Australia during the pandemic predominantly involved hybrid delivery. Patient outcomes following telehealth-delivered GLA:D® were comparable to published in-person registry data. However, implementation was limited, impeded by low perceived value by patients and lack of confidence and training of physiotherapists.

Impact and application to the field

- Telehealth-delivered group-based education and exercise provides a viable and effective option to provide people with osteoarthritis appropriate first-line care in Australia.
- Findings highlight the need for, and can help guide, community education about the value of telehealth, alongside training to support physiotherapists delivering GLA:D® via telehealth.

My co-authors and I have no conflict of interest related to the submission of this abstract

<http://dx.doi.org/10.1016/j.jsams.2022.09.131>

(P100056)

Occupational factors associated with the development of spondylosis in physically demanding occupations: a rapid review

V. Simas^{a,b}, R. Orr^{a,b}, B. Schram^{a,b}, E. Canetti^{a,b}, P. Campbell^{a,b}, R. Pope^{b,c}

^aBond Institute of Health and Sport, Bond University, Australia

^bTactical Research Unit, Bond University, Australia

^cCharles Sturt University, Australia

Introduction: Spondylosis is a prevalent degenerative condition that can affect any spine region. Commonly associated with physically demanding activities, it is one of the most frequent causes of worker's compensation claims. However, the relationships between specific occupational exposures and the clinical diagnosis of spondylosis are not clear. Therefore, the aim of this review was to identify and review studies reporting on occupational risk factors for the development of spondylosis in physically demanding occupations.

Methods: Following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA), and methods detailed in a protocol published in advance, a search of seven databases was performed. The eligibility criteria were developed to identify factors that increase the risk of developing spondylosis in physically demanding settings. Included studies were critically appraised with specific tools for each type of study design to assess their methodological quality, and a narrative synthesis of the findings was completed.

Results: Six articles were included. Workers who carried load on the head, compared to those who did not, had higher prevalence of cervical spondylosis. Workers engaged in mentally demanding work, compared to those in 'physical-based' occupations (OR 1.65, 95% CI 1.22-2.25), male workers exposed to vibration (OR 1.60, 95% CI 1.05-2.45), and workers younger than 30 years of age who worked in the same posture for a period ranging from 1 to 2.9 hours per day (OR 12.52, 95% CI 1.60-97.85) were at increased risk of cervical spondylosis. Working for more than five years in 'heavy manual labour' was reported to increase the prevalence of thoracic spondylosis compared to individuals working in 'physically light work'. The risk of lumbar spondylosis was found to be higher in carpenters, machine drivers, workers in agricultural, forestry, and fishery industries, and in female workers who lifted weights of more than 10kg at least once a week. In tactical populations, enlisted personnel and those in the army are at increased risk of developing lumbar spondylosis.

Discussion: Findings of this review suggest that physically demanding occupations are associated with an increased risk of developing spondylosis. Specifically, occupations and occupational tasks associated with vibration, lifting weights, and maintaining the same posture for extended periods appear to increase the risk of developing spondylosis. However, these findings are mainly based on cross-sectional studies; therefore, results should be interpreted with caution. Further research is warranted to explore the topic.

Impact: Physically demanding occupations were found to be at increased risk of developing spondylosis. Additionally, vibration, lifting weights, and maintaining the same posture for extended periods appear to increase the risk of developing spondylosis.

Conflict of interest statement:

This research was funded by the Department of Veterans' Affairs.

<http://dx.doi.org/10.1016/j.jsams.2022.09.132>

(P100057)

Timing of contact and non-contact injuries across a season in amateur rugby: implications for injury prevention and return to playS. Snodgrass^{a,b}, J. Manvell^{a,c}, S. Macvean^{a,d}, R. Callister^{a,b}^a*Discipline of Physiotherapy, School of Health Sciences The University of Newcastle, Australia*^b*Active Living Research Group, Hunter Medical Research Institute, Australia*^c*Hunter New England Health Local Health District, Australia*^d*Wyong Hospital, Central Coast Local Health District, Australia*

Introduction: Injury risk may vary throughout the playing season. The rapid increase in exposure to matches or contact at the start of a season may increase injury risk; conversely, accumulation of training and match stress may increase risk towards the end of a season. The timing of injuries throughout the playing season has rarely been studied, with no identified studies on injury timing in amateur rugby players, where the majority of participation occurs. Understanding patterns in injury risk may assist in planning graded exposure, training periodisation, and injury prevention strategies. The aim of this study was to investigate the timing of contact and non-contact injuries in amateur male rugby union players.

Methods: Amateur male rugby union players participating in the highest amateur, non-representative, non-professional level from one club (four competition levels) in the Newcastle and Hunter region of NSW were followed over one season. The team physiotherapist recorded injuries according to the Rugby Injury Consensus Group guidelines, classifying injuries by body location, severity, new vs recurrent, and contact vs non-contact. For analysis, all injuries were included regardless of time-loss and the playing season was categorised into thirds: (1) pre-season and rounds 1-5, (2) rounds 6-11, and (3) rounds 12-17. Chi-square tests determined differences in the number and type of injuries occurring in each third of the playing season.

Results: Players (n=151) were aged 22.1±2.8y, height 182±6cm, weight 91±11kg, and body mass index 28.5±3.4kg.m⁻². Ninety-five (63%) players incurred 212 injuries: 187 (88%) during matches and 25 (12%) during training. The overall injury rate was 32/1000 player hours; 148/1000 player-match hours; and 5/1000 player-training hours. Injury incidence was highest in the first third of the season (n=96, 45%), declining through the season, with significantly fewer injuries in the last third (n=51, 24%; $\chi^2(2, 212)=15.0, p<0.001$). Contact injuries declined through the season: more in the first third (n=75, 54%) compared to the last third (n=19, 14%), but non-contact injuries increased: more in the last third (n=32, 44%) compared to the first third (n=21, 29%; $\chi^2(2, 212)=25.2, p<0.001$). New injuries decreased and recurrent injuries increased through the season ($\chi^2(2, 212)=22.8, p<0.001$). Body location and severity of injury did not differ ($p>.05$) across the season.

Discussion: Amateur rugby players had a high incidence of match injuries, and more injuries at the season start compared to the end. More contact injuries occurred early in the season whereas more non-contact injuries occurred towards the end of the season. These findings may inform player preparation, in-season training, controlled exposure or injury prevention programs in amateur rugby.

Impact and application to the field: High numbers of contact injuries early in the season in amateur rugby may suggest players are not prepared and may require more contact conditioning during pre-season training. Increasing numbers of non-contact and recurrent injuries later in the season may suggest that in-season training loads, playing exposures or return the play strategies could be investigated to reduce injuries.

Conflict of interest: We acknowledge we have no conflict of interest of relevance to the submission of this abstract.

<http://dx.doi.org/10.1016/j.jsams.2022.09.133>

(P100061)

Risk factors for the development of glenohumeral dislocations in tactical populations: a systematic reviewP. Campbell^a, E. Canetti^{a,b}, V. Simas^a, B. Schram^{a,b}, R. Pope^{a,c}, R. Orr^{a,b}^a*Tactical Research Unit, Australia*^b*Bond Institute of Health and Sport, Australia*^c*Charles Sturt University, Australia*

Background: Joint dislocation injuries involve the complete loss of contact between the articulating surfaces of bones or internal joint prostheses, while joint subluxations involve the partial loss of contact. These injuries are associated with considerable economic costs, healthcare utilisation, and losses in occupational performance and availability. Currently, available evidence indicates military populations experience shoulder dislocations at a rate that may be 20 times higher than that reported for the general population. However, a comprehensive review of the incidence and associated occupational risk factors in tactical personnel is lacking. The identification and synthesis of evidence regarding rates of occurrence and risk factors for dislocations and subluxations in occupational settings, may provide subsequent opportunities for development of strategies to mitigate the initial injury risk (given high risks of re-dislocation once initial injury has occurred), leading to reduced ongoing individual and organisational costs. Therefore, this review aimed to identify and synthesise findings from studies which have reported on the occurrence rates and risk factors of glenohumeral dislocations in tactical populations.

Method: This review was conducted according to the PRIMSA-P guidelines and registered on the Open Science Framework. PubMed, EBSCO, CINAHL and ProQuest databases were systematically searched using key terms derived from the following concepts: 'dislocation', 'work' and 'risk'. Key findings from the included studies were extracted, including risk factors, prevalence or incidence and risk ratios (e.g., relative risk, hazard ratios, and incidence rate ratios). Each study included in the review was critically appraised to assess its methodological quality, using the Critical Appraisal Skills Programme (CASP) and AXIS toolkits.

Results: The methodological quality score of the included studies ranged from 66% to 90%. The incidence of glenohumeral dislocations ranged from 1.69 – 3.13, and 5.4 per 1,000 person-years, respectively, in active-duty military personnel, and in military cadets undergoing training. Identified risk factors for sustaining acute primary glenohumeral dislocations include Army and Marine Corps service, enlisted rank, younger age, male sex, sporting activities and military training. Regarding relative risks for shoulder dislocations associated with specific activities, it is notable the results indicated incidence rates associated with participation in military obstacle course sessions and the U.S. Army fitness test were 4 times as high and 1.4 times as high, respectively, as the incidence associated with participation in rugby, when expressed per 10,000 exposures.

Discussion: These findings demonstrate military populations are at a higher risk of glenohumeral dislocation than civilians. Further, the review showed that members of these tactical populations who are younger, and male, are at an increased risk of sustaining glenohumeral dislocations. Additionally, the evidence suggests some military activities may be particularly high-risk for shoulder dislocation events. It is also important to note, that many of the identified risk factors in this review (e.g., enlisted rank, military training, age, male sex etc.) may be proxies for the level of overall exposure to physical-based occupational tasks.

Impact: This review provides some clear insights to prevalence and incidence rates for shoulder dislocations, as well as key intrinsic and extrinsic risk factors.