S88

Cam morphology is associated with early hip OA features in young adult football players with and without hip and groin pain

R. Agricola[b], K. Crossley[a], J. Heerey[a], J. Kemp[a], M. King[a], P. Lawrenson[d], T. Link[e], S. Majumdar[e], T. Pizzari[a], A. Smith[c], R. Souza[f], R. Srinivasan[e]

[a]*LaTrobe Sport and Exercise Medicine Research Centre, Australia*
[b]*Department of Orthopaedics, Erasmus University Medical Center, Netherlands*
[c]*School of Physiotherapy and Exercise Science, Curtain University*
[d]*The University of Queensland, Australia*
[e]*Department of Radiology and Biomedical Imaging, University of California-San Francisco, United States of America*
[f]*Department of Physical Therapy and Rehabilitation Science, University of California-San Francisco, United States of America*

Introduction: Playing football may increase a person's risk of developing hip OA in later life. This may be related to cam morphology, which is present in two thirds of football players. However, the relationship between cam morphology, symptoms and early hip OA is unknown in football players. This study had two aims: 1) examine the relationship between cam morphology and early hip OA features (cartilage defects and labral tears) in football players with and without hip/groin pain; 2) investigate if the association between cam morphology and early hip OA features is stronger in football players with hip/groin pain.

Methods: 182 semi-elite football (soccer/ Australian football) players (288 hips; 50% soccer; age:26yrs; height:1.79m; weight:78kg; 20% women) with hip/groin pain (>6 months of pain and +ve flexion-adduction-internal-rotation test) and 55 semi-elite control football players (110 control hips; 55% soccer; age:26yrs; height:1.79m; weight:79kg; 25% women) without hip/groin pain underwent AP and Dunn 45° radiographs, and 3-tesla hip MRI. Cam morphology was defined using continuous (alpha angle) and threshold (cam morphology >60° to £78°; large cam morphology >78°) values, and cartilage defects and labral tears were scored semi-quantitatively. Presence and location of cartilage defects and labral tears were determined. Logistic regression with generalised estimating equations were used to determine whether cam morphology was associated with early hip OA features. An interaction term was incorporated into all regression models to test if the relationship between cam morphology and early hip OA features was stronger in football players with symptoms.

Results: Greater alpha angle was associated with cartilage defects (OR 1.03, 95%CI 1.01,1.04) and labral tears (OR 1.02, 95%CI 1.01,1.04). Hips with cam (OR 2.12, 95%CI 1.2,3.7) and large cam (OR 2.58, 95%CI 1.5,4.6) morphology had a higher prevalence of cartilage defect than hips without. Only hips with large cam morphology (OR 2.53, 95%CI1.3,4.7) had a higher prevalence of labral tears than hips without. Greater alpha angle was associated with superolateral cartilage defects (OR 1.03, 95%CI 1.02,1.05) and superior labral tears (OR 1.03, 95%CI 1.02,1.05). The association of cam morphology with early hip OA features was no greater in football players with symptoms than in those without (P=0.127 to 0.985)

Discussion: Cam morphology was associated with early hip OA features in adult football players with and without pain. This relationship was no greater in football players with symptoms than without, suggesting a complex relationship between cam morphology, early hip OA features and hip/groin pain

Conflict of interest statement: My co-authors and I acknowledge that we have no conflict of interest of relevance to the submission of this abstract.

http://dx.doi.org/10.1016/j.jsams.2021.09.039

S92

Rehabilitation for atraumatic shoulder instability in circus arts performers: delivered via telehealth

S. Balster[c], C. Hocking[a], R. Lenssen[c], D. Meyer[a], D. Munro[b], O. Tirosh[a], S. Warby[c], L. Watson[c]

[a]*Swinburne University of Technology, Australia*
[b]*National Institute of Circus Arts, Australia*
[c]*Melbourne Shoulder Group, Australia*

Background: The Watson Instability Program (WIP1) is the highest level of evidence for the conservative management of atraumatic shoulder instability, but it is unknown if this program can be effectively delivered via teleconsultation. The aim of this study observational single cohort study was to determine the effects of the WIP1 on patient reported outcome measures, scapula position, shoulder strength and handstand stability in student circus performers with atraumatic shoulder instability, when delivered via teleconsultation.

Methods: Student circus performers aged between 15 and 35 from the National Institute of Circus Arts were recruited. A 12-week shoulder exercise program was delivered via teleconsultation during the Melbourne, Australia Covid-19 lock-down. Primary outcome measures were the Western Ontario Shoulder Index and the Melbourne Instability Shoulder Score. Secondary outcomes measures included the Orebro Musculoskeletal Pain Questionnaire, The Tampa Scale for Kinesiophobia and physical assessment measures including strength via hand-held dynamometry, scapula position using an inclinometer and handstand stability via center of pressure fluctuation. Patient reported outcomes were collected at baseline, 6-week, 12-week, 6-month and 9-month timepoints, and physical outcomes were measured at baseline and 9-month timepoints.

Results: Twenty-four student circus arts performers participated in the study. Significant improvements were found for both Western Ontario Shoulder Index, Melbourne Instability Shoulder Score ($p<0.001$) and Orebro Musculoskeletal Pain Questionnaire scores ($p<0.01$) at all follow up timepoints. The Tampa Scale for Kinesiophobia scores reached significance at 6-weeks and 3-months ($p<0.05$). Following rehabilitation, statistically significant increases in shoulder strength in all positions tested and increased scapula upward rotation measured at end of range abduction, and during loaded external rotation were found. Prior to rehabilitation, the affected arm showed greater instability compared to the unaffected arm during handstand. Post-rehabilitation, a significant intervention effect existed for the affected arm, showing greater consistency in anterior-posterior movement pattern.

Discussion: The WIP1 is an effective program for improving shoulder symptoms and physical function in individuals with atraumatic shoulder instability. Though it cannot be confirmed if outcomes are equivalent to that of face-to-face delivery.

Conflict of interest statement: My co-authors and I acknowledge that we have no conflict of interest of relevance to the submission of this abstract.

http://dx.doi.org/10.1016/j.jsams.2021.09.040

S93

Experiences of student circus arts performers undertaking a shoulder rehabilitation program via telehealth consultation during the COVID-19 pandemic

S. Barradell[a], C. Ganderton[a], S. Knowles[a], D. Munro[c], A. Rayner[b], L. Watson[d]

[a]*Swinburne University of Technology, Australia*
[b]*WA Centre for Rural Health, University of Western Australia, Australia*

[c]National Institute of Circus Arts, Australia
[d]Melbourne Shoulder Group, Australia

Background: The Coronavirus pandemic (COVID-19) has brought about significant change to athletes, with the postponement and cancellation of competitions and performances. This has created a need to proactively adapt to ensure peak mental and physical fitness. This requirement to adapt may be even more relevant for those athletes rehabilitating from injury during the pandemic. This qualitative study sought to explore the experiences of student circus arts performers with atraumatic shoulder instability undertaking a 12-week shoulder rehabilitation program during the Melbourne COVID-19 pandemic lockdown.

Method: Fourteen circus arts students from the National Institute of Circus Arts were interviewed via teleconsultation. Semi-structured interviews were recorded, transcribed and analysed using inductive thematic analysis.

Results: Five overarching themes were identified: impact (physical and mental), opportunity, developing routine, client-therapist relationship, and transformation. All participants reported positive physical changes to their shoulder including increases in strength, stability, range of motion, less pain, "clicking" and "clunking", improved posture, muscle memory as well as carry-over to functional circus activities. The pandemic's mental impact varied across the cohort, with positive and negative experiences described in relation to cognitive, social and affective factors. Most performers felt the pandemic provided an opportunity to focus on rehabilitation of their shoulder. Program effects were underpinned by positive client-therapist relationships and a progressive transformation of learning where students gained knowledge, and strategies for short and long-term management of their condition.

Discussion: The COVID-19 pandemic provides a unique opportunity for individuals to undertake injury rehabilitation during an absence of usual training and performance. Rehabilitation for atraumatic shoulder instability can be delivered effectively via teleconsultation to improve subjectively reported physical function and long-term management of atraumatic shoulder instability, facilitated by strong client-therapist relationships and a structured rehabilitation program.

Conflict of interest statement: My co-authors and I acknowledge that we have no conflict of interest of relevance to the submission of this abstract.

http://dx.doi.org/10.1016/j.jsams.2021.09.041

S99

Bridging the gap between attitudes and action: Opportunities for the cancer care workforce to support exercise counselling and referral

M. Agar[a], C. Caperchione[a], C. Harris[b,c], W. Liauw[b,c], R. Lillian[d], S. McCullough[d], J. Phillips[a], P. Sharp[a]

[a]University Of Technology Sydney, Australia
[b]Cancer Care Centre, St. George Hospital, Australia
[c]St George and Sutherland Clinical School, University of New South Wales, Australia
[d]Translational Cancer Research Network, Australia

Background: The majority of the cancer care workforce have favourable attitudes and opinions of exercise for cancer patients, and report that exercise is safe and beneficial; nevertheless, insufficient time and uncertainty of what to recommend are reported as common barriers to discussing and/or counselling their patients about exercise. The limited research about cancer care clinician's communication with their patients about exercise suggests that a timely discussion about regular exercise can be reassuring, informative and motivational for patients. This study aimed to 1) understand the factors impacting the implementation for exercise communication and referral, and 2) explore and initiate co-ordinated and integrated clinical approaches to exercise communication and referral.

Methods: Seven focus groups were conducted with cancer care clinicians and practitioners (N=53) (i.e., oncologists, haematologists specialising in cancer, oncology nurses, physiotherapists, exercise physiologists, social workers and psychologists) working with cancer patients throughout Sydney, Australia. In addition, a sub-sample of participants (n=9) attended a half-day workshop focused on identifying best practice approaches for moving forward. Thematic content analysis was utilised to analyse the data.

Results: Two overarching themes, and associated subthemes, emerged from the data: 1) Factors impacting the knowledge-to-action gap, highlights the challenges and barriers clinicians and practitioners face in implementing exercise counselling and a referral pathway; inclusive of the funding structure, current referral process (i.e., only available via general practitioner/Medicare), lack of exercise specific knowledge and education to confidently advice/counsel patients, limited access and opportunity for professional development/training specific to exercise for cancer care, and 2) Recommendations for a consistent and efficient way forward, describes an action-orientated exercise counselling and referral pathway approach; inclusive of an oncologist-initiated brief communication exchange, distribution of a variety of cancer-specific, tailored exercise resources for patients (e.g., videos, online, hard copy), access to exercise physiologists with cancer care expertise, initial exercise consultation prompted by exercise physiologist.

Discussion: This study has identified important factors influencing exercise counselling and referral by the cancer care workforce, and potential approaches for incorporating exercise into standard cancer care. A model for an exercise referral pathway is provided to guide implementation, inclusive of oncologist-initiated communication exchange, relevant resources, and access to exercise practitioners with cancer expertise. Future testing is required to determine feasibility and practicality of these approaches.

Conflict of interest statement: My co-authors and I acknowledge that we have no conflict of interest of relevance to the submission of this abstract.

http://dx.doi.org/10.1016/j.jsams.2021.09.042

S100

Influence of age on arterial stiffness responses following a short period of sitting in healthy males

C. Askew[b,c], T. Bailey[e], K. Doma[a], A. Leicht[a], M. Perissiou[d], D. Pierce[a], M. Windsor[b,c]

[a]James Cook University, Australia
[b]University of the Sunshine Coast, Australia
[c]Sunshine Coast University Hospital, Australia
[d]University of Portsmouth, United Kingdom
[e]University of Queensland, Australia

Background: Age-related increases in arterial stiffness including carotid-femoral pulse wave velocity (cf-PWV), aortic wave reflection via augmentation index (AIx) and reflection magnitude (RM) have been associated with future cardiovascular event risk. Chronic or prolonged inactivity has been reported to exacerbate the age-related increases in arterial stiffness. However, little is known about the impact of a short, period of inactivity on arterial stiffness with age potentially an influencing factor. The aim of this study was to examine the effect of age on the acute, arterial stiffness responses following a short period of sitting in healthy males.

Methods: Twenty-two young (27.1±7.3 yrs, 177.4±5.4 cm, 82.2±10.2 kg, 26.1±3.1 kg.m-2) and twenty-two older (68.8±5.3 yrs,