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Abstract #1

A Scoping Review and Best Evidence Synthesis for Treatment of Partial-Thickness Rotator Cuff Tears

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Context: Partial thickness rotator cuff tears (PTRCTs) are complicated because they are not a single entity and represent a spectrum of disease states. Although relatively few natural history and progression studies are available, there is a substantial body of low-level clinical evidence to suggest that most PTRCTs lack self-healing. Optimal treatment of PTRCTs is multifactorial and may be influenced by factors including the patient's age, symptoms, functional deficit, size of tear, tear location (e.g. bursal vs articular), nature of onset (traumatic vs atraumatic), etiology, treatment timeline, concomitant pathologies (i.e. labral tear), comorbidities (i.e. diabetes), risk factors (i.e. smoker), and vocation and avocation activities. Currently, treatment of PTRCTs remains controversial.

Methods: A systematic review was conducted to synthesize the high-quality evidence available with respect to nonoperative AND surgical interventions for treating partial-thickness rotator cuff tears.

Results: The initial title and abstract screening resulted in 3930 studies after removal of duplicates. After applying inclusion and exclusion criteria, 662 studies were selected for full-text review, of which 34 informed our best evidence synthesis.

Discussion: Nonoperative strategies reviewed in this synthesis included injections (i.e., platelet-rich plasma, corticosteroid, prolotherapy, sodium hyaluronate, anesthetic, and atelocollagen), exercise therapy, and physical agents. Operative interventions consisted of debridement, shaving of the tendon and footprint, transtendon repair, and traditional suture anchor repair techniques with and without tear completion.

Importance: This scoping review does not suggest superiority of operative over nonoperative methods. Thus, it is our opinion that nonoperative modalities be employed first. Surgery is the most invasive and costly approach, with the highest risk of complications such as infection. Therefore, we feel the simplest and least invasive should usually be considered first. However, other variables such as patient expectation, and treating practitioner bias, or preference may change which modalities are offered and in what sequence.

Abstract #2

Changes in Cervical Range of Motion in Canadian University-Level Football Athletes Throughout 1 Full Season: A Three Time-Point Longitudinal Study

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Context: Neck pain and injury being frequent in football, examining cervical range of motion (cROM) integrity across a season could help clinicians identify if changes could explain reported pain and incidence of injury. Neck musculature is known to have protective effects from repeated head impacts, but it is not yet known how cervical spine function evolves throughout a season. This study aimed to characterise cROM changes in university-level football athletes throughout one full season.

Methods: University-level male football athletes (average weight: 217 ± 39.6 lbs and average height: 182.7 ± 7.3 cm) were recruited through convenience sampling to participate in a three time-point longitudinal study (n = 22). cROM was measured in a research lab setting at baseline (i.e., pre-season), mid-season and post-season. The order of paired cROMs (i.e., flexion and extension, right and left lateral flexion, right and left rotation) was randomised to prevent bias during data collection. All measures of cROM were taken three times by the same certified athletic therapist at all three time-points using EasyAngle, a digital goniometer from Meloqdevices. The device was placed anterior to the ear when measuring flexion and extension, superior to the superior nuchal line when measuring right and left lateral flexion and superior to the ear when measuring right and left rotation. Average values of the three cROM measures were used during data analysis and one-way repeated measures ANOVA was used for all variables during statistical analysis ($p < 0.05$).

Results: Significant differences in cROM were observed post-season for extension ($p = 0.02$) and for left lateral flexion ($p = 0.001$), as well as mid-season for right rotation ($p = 0.049$). No significant changes in cROM were seen for flexion, right lateral flexion and left rotation. Throughout the season, participants lost on average 6.44° in extension (range: 26.33° to 4.67°, SD: 8.69°) and 7.50° in left lateral flexion (range: 24.67° to 4.00°, SD: 7.56°). Although statistically significant, these changes are not considered clinically meaningful as interday (i.e., between days) variability of cROM greatly varies. However, clinically meaningful results of cROM changes were seen in 18% of the sample for extension (min = 26.33°), in 18% for left lateral flexion (min = 24.67°) and in 5% for left rotation (min = 26.00°).

Conclusion: Findings suggest changes to the integrity of cROM throughout a season as a decrease in cROM was observed in extension and left lateral flexion. Possible explanations are tackling techniques or type of plays, but further video analysis of plays is warranted to gain better understanding and observe impact regions of the head that players are subjected to. Athletic therapists benefit from this study as results suggest potential added value of measuring cROM of football players at different time-points during the season as cROM integrity is important for proper cervical spine function and injury prevention.

Abstract #3

Understanding Concussion Management in a High School Setting: A Qualitative Study Using the Theoretical Domains Framework

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Context: Concussions are a significant health concern among children and youth. If not managed appropriately, concussions can lead to more severe consequences, including prolonged recovery. Managing concussions is particularly challenging in a school setting, where students face added academic pressures, teachers contend with competing demands, and concurrent challenges with mental health may arise. Over the last decade, concussion awareness and access to education and resources in Canada have improved. National initiatives, such as the Canadian Guidelines on Concussion in Sport, living concussion guidelines, Concussion Awareness Week, and educational tools like the Concussion Awareness Training tool, have been created to support proper concussion management. However, there are still documented cases where students with concussions do not receive efficient and appropriate care. This study aims to examine barriers to and facilitators of proper concussion recognition and management in a high school setting from the perspectives of students, teachers, coaches, and school administrators, contextualizing the findings within a behaviour change framework.

Methods: Using a qualitative approach, focus groups and semi-structured interviews with key school administrators, teachers, and students were conducted to identify limitations of concussion resources and barriers and facilitators of appropriate management in a school setting. Interview and focus group durations ranged from 45 minutes to 1.5 hours and were conducted in private classrooms or school offices. A total of 23 students (9 males, 14 females), 24 teacher/teacher-coaches, 5 community coaches, and 4 key informants participated. The study was guided by the Theoretical Domains Framework, focusing on understanding barriers and facilitators associated with specific concussion management behaviours performed by specific actors. Two researchers independently coded transcripts and then discussed key domains and themes.

Results: Thematic analysis revealed that stakeholders collectively recognized over 15 behaviours crucial for proper concussion management in the school setting. Barriers and facilitators were identified across key domains, such as knowledge, social/professional role, beliefs about capabilities, beliefs about consequences, and environmental context. Some specific challenges included communication gaps between parents/students and teachers regarding clinician instructions on stage-appropriate school accommodations, uncertainties around appropriate accommodations and removal from play due to inexperience, and a belief that recovering students should only be in the classroom once fully healed.

Conclusion: The study highlighted the complexity of ensuring high school students receive evidence-informed care post-concussion and smoothly transition through return-to-learn processes. Multiple stakeholders must collaborate to ensure appropriate steps are taken. The study suggests that written communication from clinicians detailing a student's recovery stage and recommended accommodations could enhance the process by providing consistent information to students, parents, and teachers/coaches. Opportunities for athletic therapists working within schools to help bridge gaps and increase the likelihood of appropriate concussion management behaviours are evident.

Abstract #4

Sport Health Care Providers Knowledge of Pain-Relieving Medications Including Opioids

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Context: Sport health care providers (SHCP) frequently field inquiries from athletes and key stakeholders regarding pain-relieving procedures, including medications. This study sought to investigate the knowledge and role of SHCPs in managing and dispensing pain-relieving medications (PRMs), including opioids, for Canadian athletes.

Method: An online survey which included Certified Athletic Therapists, Registered Sport Massage Therapists, Licensed Doctor of Chiropractic Sport Sciences, and Sport Physiotherapists. Percentage responses for each question as well Chi-squared analyses to determine potential interactions between questions were calculated.

Results: 93 subjects began the study with a response rate of 91.4% at the beginning with a completion of 80.6%. Participants were predominately ATs (70.5%) from Ontario (55.13%). In terms of years of experience, 23.1% had less than 5 years, 19.2% had 6–10 years, 20.5% had 11–15 years, 19.2% had 16–20 years of experience and 16.7% had greater than 21 years of experience. Findings revealed a significant majority of participants (80%) self-reported having a "great deal" or "some" knowledge about PRMs with approximately half (49.4%) feeling confident to address their athletes needs. Many participants indicated they lacked adequate information related to opioids. More than half of the participants did not possess formal professional education on PRMs or opioids and those who did have formal education expressed dissatisfaction with the adequacy of their education concerning PRMs and opioids. In terms of PRM knowledge sources, responses were split between personal (28.9%), professional (32.1%) and academic sources (30.8%) and 5.8% responding as 'other'. SHCP management of PRMs ran from no involvement (36.8%), storing PRMs in the clinic/medical kit (33.3%), disposal (16.2%) and dispensing (12%). A large majority (97.6%) had athletes ask about PRMs compared to 45.8% had athletes ask them about opioids. Furthermore, SHCPs who participated in the study expressed a lack of confidence in their knowledge of opioids, hindering their ability to provide comprehensive answers to athletes' questions about pain management. They stressed that having more knowledge would boost their confidence in addressing athletes inquires about pain relief.

Conclusions: This study underscores the urgent need for improved formalized education for SHCPs regarding PRMs and opioids. Although the SHCP indicated having knowledge of PRMs, most of the knowledge stemmed from sources other than formalized education calling into question where their sources of knowledge come from. Enhancing their knowledge in these areas is vital for supporting athletes and addressing their pain management needs safely and effectively. Additionally, the study emphasizes the importance of SHCPs staying updated with federal and provincial laws and regulations to ensure they remain within the boundaries of their professional scope of practice, specifically regarding dispensing, storing and proper disposal.

Abstract #5

A Pilot Study to Explore Postural Sway in University Male Hockey Players During Clinical Balance Assessments in Skates

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Context: The sport of hockey has reported high concussion incidence injury rates in Canada. Postural control deficits in individuals can be objectively assessed using clinical balance tests. Postural control testing is one of the key components to clinical diagnosis and management of concussions. Existing test protocols involve mostly static tests that manipulate the base of support and proprioceptive inputs. There is a lack of balance assessments that have specificity to sport regarding equipment conditions. Improvements in balance assessments should be designed to provide sport specificity that can challenge the visual, vestibular, and proprioceptive systems. The purpose of this study was to compare postural control variables of male hockey players across balance tests of increasing difficulty while wearing skates. We hypothesized that there would be increased values of sway velocity as the test level of difficulty increased.

Methods: Twenty-eight healthy male varsity hockey players aged (22.27 ± 1.25 years) weight (84.13 ± 8.26 kg) height (183.29 ±

7.36 cm), participated in the study. Participants performed existing clinical balance tests (BESS and COBALT) and one novel dynamic assessment that involved a semi tandem stance, compliant surface, and gaze stabilization with head rotation (TANDEM). Participants performed balance tests on force platforms while wearing their skates for repeated trials and the dependent measures were mean center of pressure sway velocity (SwayVel), anteroposterior sway velocity (SwayAP), mediolateral sway velocity (SwayML) and total center of pressure distance (COPDis). Separate group × time repeated measures MANOVAS were used to analyze the data.

Results: The multivariate analysis revealed a statistically significant difference in sway velocity measures between the clinical balance tests $F_{(3,20)} = 50.724$, $p < .001$; Wilks' $\Lambda = .062$. Pairwise comparisons revealed SwayVel, SwayAP, SwayML, and COPDis were significantly different for each balance test. For SwayVel, SwayAP, SwayML, and COPDis the BESS had the lowest values (37.36 ± 5.45, 24.08 ± 3.83, 23.42 ± 3.95, 747.13 ± 108.93) followed by COBALT (64.4 ± 16.52, 51.38 ± 14.80, 28.79 ± 6.85, 1287.96 ± 330.47) and the highest was TANDEM (112.94 ± 32.44, 92.56 ± 33.74, 47.08 ± 16.13, 2258.77 ± 648.85).

Conclusion: The results indicate that each test had different degrees of difficulty causing increased postural sway values as difficulty increased. Performing tests that involve vestibular components combined with a challenged base of support while wearing skates could be beneficial to detect postural control deficits. The reliability and validity of these balance assessments should be explored further. Balance testing in hockey equipment on force plates could aid Athletic Therapist in sideline assessments and return to play decisions.

Abstract #6

Exploration of the Effects of a Multimodal Postural Control Intervention on Male Varsity Football Athletes

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Context: Within the field of athletic therapy, neuromuscular training programs that include postural control exercises are often implemented with the aim of optimizing performance, preventing injury, or providing rehabilitation. Previous research has suggested that postural control deficits may persist beyond musculoskeletal injury and concussion recovery. Balance assessments on force platforms are key objective measures for clinicians to detect postural control deficiencies. Decreased postural control can lead to sustained performance deficits and increased injury risk. Developing evidence to support the effectiveness of rehabilitation in an athletic therapy setting is key to advancing the practice. The purpose of the study was to determine whether a multimodal postural control training intervention improves postural control in university male football athletes. It is hypothesized that the intervention group will improve postural control outcomes in all assessments.

Methods: Eight university varsity men's football athletes participated in a five-week postural control training intervention study. The participants were university aged students (20.57 ± 1.39) with an average weight of (81.39 kg ± 2.71 kg) and an average height of (179.25 cm ± 3.84 cm). Three individuals completed the intervention and there were four field position matched controls. Participants performed pre and post clinical balance tests on force platforms for repeated trials and the dependent measures were mean center of pressure sway velocity (SwayVel), anteroposterior sway velocity (SwayAP), mediolateral sway velocity (SwayML) and total center of pressure distance (COPDis). Participants performed existing clinical balance tests (BESS and COBALT) and one novel dynamic assessment. The control group performed take home cervical spine range of motion exercises. The intervention group performed a five-week progressive multimodal postural control intervention involving vestibular stimulation, proprioception, dual task, and sport specificity that was supervised by a Certified Athletic Therapist and an Athletic Therapy Student in a lab. Separate group × time repeated measures MANOVAS were used to analyze the data.

Results: There was a significant main effect of time ($F_{(3,3)} = 36.54$, $p < .001$; Wilks' $\Lambda = .0.27$) on balance performance on the COBALT test for SwayVel, SwayAP, SwayML, and COPDis ($p < 0.000$, $p = 0.012$, $p = 0.042$, $p < 0.000$) with mean values being decreased in post testing for the intervention group. There was a significant interaction between group and time ($F_{(3,3)} = 18.47$, $p < .001$; Wilks' $\Lambda = .0.51$) for SwayVel, COPDis ($p < 0.000$, $p < 0.000$) with the intervention group having decreased values and the control group having increased values at post testing.

Conclusion: The findings suggest that the intervention was effective in improving postural sway as measured during COBALT. Progressive postural control training that includes vestibular stimulation and dual task performance resulted in improved postural control. The improvements observed may result in a decreased risk of injury and an increase in performance in male football athletes.

Abstract #7

Evidence-Informed Practice in Athletic Therapy: Exploring the Knowledge and Confidence of Undergraduate Students and Their Clinical Educators

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Context: Evidence-informed practice (EIP) is a critical aspect of healthcare education as practitioners rely on the best available evidence to inform their decision-making processes. A valid and reliable tool that assesses EIP knowledge of athletic therapy undergraduate students and clinical educators (CE) is essential for identifying gaps in the teaching and learning continuum. From here, both educators within accredited programs and CEs can tailor their teaching and mentorship to help shape student knowledge using an EIP lens. The purpose of this study was to test the validity and reliability of the Evidence-Informed Practice for Health Professions Instrument (EIP-HPI) in an athletic therapy student and CE sample.

Methods: The EIP-HPI consists of 42 items that measure knowledge related to: the steps in EIP, the steps to forming a research question, confidence in both the utilization of EIP and research knowledge, and finally, understanding and use of trustworthy sources to address clinical questions. In this study, the EIP-HPI was tested within two groups: athletic therapy undergraduate students and CEs recruited across three accredited programs of the CATA. Participants were asked to complete the EIP-HPI one single time, and correct scores were calculated for each individual. Statistical analyses were then completed to explore the validity and reliability of the tool.

Results: A total of 29 students and 13 CEs consented to participated in the study. Overall, the undergraduate student scores (n = 29, M = 47.93%, SD = 18.20%) were found to be lower when compared to the scores from the CEs (n = 13, M = 70.00%, SD = 12.91%). Categorically, the biggest difference occurred in the knowledge domain where students scored an average of 4.79/10, compared to 7/10 for CEs. A Mann-Whitney U test was employed to measure the differences in the knowledge scores of students compared to CEs, and this test demonstrated a significant difference between the mean rank values (31.27 versus 17.12). To further explore the reliability of the EIP-HPI, Cronbach's alpha was calculated as a measure of internal consistency. Cronbach's alpha was found to be 0.93 for knowledge, confidence, and attitude items in students, and 0.95 for

the same domains in CEs, representing a very good level of reliability.

Conclusions: The results from this study identified a gap in EIP knowledge between students and CEs, which may signify the need to adjust pedagogical approaches of how athletic therapy educators teach their students to employ EIP in clinical practice. Future research should expand to the other accredited institutions to see if similar gaps exist across all CATA-accredited institutions. Establishing a tool like the EIP-HPI with high internal consistency reliability is promising, as educators can use it to identify knowledge gaps to inform curriculum changes within their unique contexts, which is another interesting direction for future research.

Abstract #8

Musculoskeletal Symptoms, Fatigue, and Job Risk Factors in Athletic Therapists

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Context: According to the Association of Worker's Compensation Board of Canada, rehabilitation professionals had 3495 lost time claims in 2022. This broad categorization of rehabilitation professionals prevents clear identification of musculoskeletal symptoms (MSK) and workplace risk. The purpose of this study was to understand MSK, job risk factors (JRF), coping strategies (COPE), and fatigue in athletic therapists and other rehabilitation professionals.

Methods: This descriptive cross-sectional study used online survey (Qualtrics^{XM}) of rehabilitation professionals to ascertain information about demographics, specific JRF, and COPE (Occupational Health and Practice of Physiotherapy Questionnaire). Participants completed the Nordic Musculoskeletal Questionnaire (Cronbach $\alpha = 0.81$–0.92), which asks about MSK that prevent normal work, and the Fatigue Severity Scale (FSS) (Cronbach $\alpha = 0.93$). Data were dichotomized into athletic therapists (AT) and other rehabilitation professionals (OTH - kinesiologist, physiotherapist, certified strength and conditioning specialist); demographic data were assessed through frequency analysis (Excel). JRF (rated irrelevant/minor/moderate/major) were dichotomized into not important (irrelevant/minor) and important (moderate/major) and COPE (rated never/sometimes/almost always) were dichotomized into not important (never/sometimes) and important (almost always); important JRF and COPE were analyzed to determine contribution/mitigation in MSK in AT and OTH. FSS (rated somewhat agree/agree/strongly agree) was analyzed to determine fatigue in AT and OTH. Mean FSS scores were assessed with Independent Sample t-test and Chi Square analysis (SPSS; $p < 0.05$) assessed MSK frequency between AT and OTH.

Results: 126 AT (98♀; 28♂) and 92 OTH (69♀; 23♂) from three countries (Canada [9 provinces], USA [4 states], Dominican Republic) participated in this study. The three most frequently reported painful body region areas for AT and OTH were neck (92% and 86%), low back (67% and 66%), and shoulder (60% and 53%). The three most frequently reported important JRF for AT were 'performing manual orthopedic techniques' (74% respondents), 'treating large numbers of patients/day' (73% respondents), and 'working when injured/hurt' (61% respondents) and for OTH were 'working in the same position for long periods' (68% respondents), 'treating large numbers of patients/day' (56% respondents), and 'not enough rest breaks throughout the day' (55% respondents). The most frequent COPE to mitigate injury risk were 'adjusting the plinth height' (75% AT; 64% OTH respondents) and 'modifying patient/practitioner position' (63% AT; 72% OTH respondents). The most reported FSS item was 'my motivation is lower when I am fatigued' (92% AT; 90% OTH respondents). Mean FSS scores were not different between AT and OTH (3.81 ± 1.29 vs. 3.82 ± 1.37; $p = 0.97$). AT reported significantly higher frequency of elbow (41% vs. 22%; $p = 0.001$) and wrist/hand (59% vs. 43%; $p = 0.01$) pain.

Conclusion: Similarities exist in MSK for AT and OTH; however, AT indicated significantly higher frequencies of elbow and wrist/hand pain. This may be due to AT reporting 'performing manual orthopedic techniques' as the highest frequency JRF contributing to work related discomfort. Future research should determine if additional mitigation may reduce MSK.

Abstract #9

Pre-Existing Mental Health Disorders Affect Acute Clinical Presentation and Longitudinal Recovery Trajectories in Adolescents With Concussion

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Context: Concussion and mental health disorders are common in adolescent populations. Both conditions can independently affect symptom and quality of life outcomes, but there is a need to better understand the effect of pre-existing mental health disorders on clinical presentation following pediatric concussion. Our objective was to determine the effect on pre-existing mental health conditions on acute clinical presentation and recovery outcomes in adolescents with concussion.

Methods: A secondary analysis was performed on a subset of data collected during the Predicting and Preventing Post concussive Problems in Pediatrics (5P) study. Adolescents (aged 13 to 17) diagnosed with a concussion and presenting to a pediatric emergency department (PED) within 48 hours of injury were included (n = 1245). Patient demographics, symptom checklists, and the Sports Concussion Assessment Tool– 3 were completed in the PED. Symptom and quality of life questionnaires were administered online or by phone at 1-, 2-, 4-, 8-, and 12-weeks post-enrollment. Participants were categorized into anxiety only (n = 95, 7.6%), depression only (n = 25, 2.0%), combined anxiety and depression (n = 49, 3.9%), or no anxiety or depression (n = 1076, 86.4%) groups based on self-reported medical history. ANOVAs (continuous) and Chi-Square (categorical) analyses examined differences in patient demographics and acute clinical outcomes. Mixed linear models analyzed the effect of pre-existing mental health conditions, time, and their interaction on clinical recovery trajectories. Logistic regression determined the effect of mental health group on persistent symptoms at 4-weeks post-concussion. Models were adjusted for confounding variables (i.e. age, sex, concussion history) contributing to prolonged recovery.

Results: A significant group difference was observed for symptom scores in the PED ($F_{3,1220} = 3.1$, $p = 0.025$); no other differences in acute presentation were observed. Multivariable models revealed significant main effects of mental health group ($F_{(3,22)} = 11.4$, $p = 0.0001$) and time ($F_{(1,6197)} = 248.6$, $p < 0.0001$) on symptom scores, with symptoms improving over time and the combined depression/anxiety group reporting greater overall symptom burden. Main effects of mental health group ($F_{(3,22)} = 18.5$, $p < 0.0001$) and time ($F_{(1,2627)} = 15.6$, $p < 0.0001$) were observed for quality-of-life outcomes. Quality of life generally improved over time, but all three pre-existing mental health condition groups reported worse quality of life than the control group. Overall, 41.8% of adolescents experienced persistent symptoms at 4-weeks post-injury. The combined anxiety/depression group had significantly greater odds of experiencing persistent symptoms compared to the control group (OR = 2.51, 95% CI [1.31, 4.81], $p = 0.005$) in univariable models, but this finding was not retained when controlling for confounders.

Conclusions: Adolescents with pre-existing mental health conditions experience greater acute symptom burden and slower

clinical recovery trajectories. Athletic therapists should consider pre-existing mental health conditions when managing concussion, as these patients may benefit from earlier and more active interventions to help relieve the increased symptom burden and decreased quality of life outcomes experienced by these patients.

Abstract #10

Sex Differences in High-Performance Athletes During a Series of Field-Based Movement Screening Tests

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Context: Personal trainers, strength & conditioning specialists, athletic therapists, and other stakeholders use various movement tests to assess the physical abilities and movement capabilities of athletes. Performing these tests can help determine areas of strength or weakness, imbalances, and movement deficiencies, all of which could contribute to injury. The results of these tests can also guide individualized exercise or rehabilitation program design. The purpose of this study is to determine if sex differences exist in the Functional Movement Screen (FMS), Y-Balance Test (YBT), and the Single Hop Test (SHT) and Triple Hop Tests (THT) also called the Functional Hop Tests (FHT).

Methods: In this cross-sectional study conducted in a research laboratory, convenience sampling was used to recruit 28 participants (14 males, 14 females). The target population were university aged athletes who participate in $\geq$5 times/week of moderate-to-vigorous physical activity (MVPA). Participants were aged 22.58 $\pm$ 3.75 years, weighed 90.08 $\pm$ 19.16 kgs, were 181 $\pm$ 8.05m tall, had a BMI of 27.15 $\pm$ 3.90 kg/m^2, and participated in 5.17 $\pm$ 0.83 days of MVPA. Participants were football, soccer, basketball, CrossFit, volleyball, swimming, or rugby athletes. All participants performed the movement tests in the same order (FMS, YBT, SHT, and THT) and as per previously published procedures. Data was collected and transferred to an excel spreadsheet by hand, by the first author. Independent t-tests ($p < .05$) were used to identify significant differences, if the data was non-normal a Mann-Whitney U test was used.

Results: For the FMS, females performed significantly better than males on the hurdle step (2.15 $\pm$ 0.37, 1.83 $\pm$ 0.39, $p = .046$), in-line lunge (2.61 $\pm$ 0.51, 2.08 $\pm$ 0.52, $p = .016$), and on the total FMS score (17.00 $\pm$ 1.63, 15.50 $\pm$ 1.17, $p = .015$). For the YBT, males performed better than females at left posterior-lateral reach (104.83 $\pm$ 10.73, 96.15 $\pm$ 10.60, $p = .027$), right posterior-medial reach (112.67 $\pm$ 8.77, 100.46 $\pm$ 10.72, $p = .004$), left posterior-medial reach (112.41 $\pm$ 8.77, 99.08 $\pm$ 11.96, $p = .004$), and left composite score (100.65 $\pm$ 8.40, 92.60 $\pm$ 9.19, $p = .032$). For the FHT, males performed better than females on the left THT (279.64 $\pm$ 38.89, 241.97 $\pm$ 34.62, $p = .020$). All other tests resulted in no significant differences.

Conclusions: Sex differences in the hurdle step and in-line lunge may be because of greater mobility in the ankle and hamstrings and possibly greater unilateral stability for females compared to males. Differences in YBT and THT may be attributed to training history, limb length, and sport selection. These results suggest there are sex differences in FMS, YBT, and FHT scores in high-performance athletes, these differences should be taken into consideration when designing preventative, rehabilitation, and sport-specific exercise programs programs in this population. Future research should seek to further define the sex differences in functional tests and investigate kinematic and kinetic data to further elucidate the utility of these functional movement tests.

Abstract #11

The Effect of Rehabilitative Care Provided to Individuals in an Inclusive Space Following Gender-Affirming Top Surgery

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Context: Gender-affirming top surgery is an important procedure for members of the 2SLGBTQIA+ community. While some top surgeries are government-funded, post-operative rehabilitative care is not, often resulting in no care. There are currently no standardized aftercare recommendations or data regarding patient outcomes following top surgery.

Objective: To measure patient outcomes including shoulder disability, pain, and embodiment in individuals receiving gender-affirming top surgery over an 11-week rehabilitation program in an inclusive environment.

Design: A single group case series study.

Setting: Athletic Therapy clinic.

Patients or Other Participants: Eight trans or gender diverse individuals (age = 28.8 $\pm$ 5.4) participated in the study.

Intervention: Post-operatively, all participants received one 60-minute treatment per week, for 11 weeks. The treatment provided was standard rehabilitation care, which was comprised of hands-on treatment including soft tissue work, joint mobilizations, assisted stretching and scar massage. In addition, a home program including exercises were completed as well.

Main Outcome Measures: We measured function by having the participants complete the Disabilities of the Arm, Shoulder, and Hand scale (DASH). Pain and pain interference was evaluated by the Brief Pain Inventory scale. Lastly, we measured embodiment by using the avoidance subsection of the Body Dysmorphic Disorder Symptoms scale. All measurements were taken before surgery then every two weeks during the participants rehabilitation through to program completion at week 11.

Results: The univariate ANOVA indicated a significant increase in disability from pre-surgery to post-surgery (pre-surgery 6.4 $\pm$ 7.1; post-surgery 57.8 $\pm$ 20.0; $p < 0.001$). All participants also experienced a significant improvement in disability from post-surgery to the completion of the program at week 11 (post-surgery 57.8 $\pm$ 20.0; week 11, 3.3 $\pm$ 4.6; $p < 0.001$). In addition, there was a trend toward participants experiencing a decrease in pain from post-surgery to week 11 (post-surgery 3.4 $\pm$ 2.2; week 11, 0.5 $\pm$ 1.4; $p = 0.051$). Lastly there were no significant changes in embodiment from pre-surgery to post-surgery or at completion of the program ($p = 0.410$).

Conclusion: After top surgery individuals experience significant impairment to shoulder function, similar to other invasive upper extremity surgeries. Following 11-weeks of standard rehabilitative care, preliminary results from our study indicate a significant statistical and clinical improvement in shoulder disability. While there was a trend towards decreased pain severity from post-surgery to week 11, the average 'worst pain' score was never above 3.4/10 and was not the most limiting part of the rehabilitation. While we used the avoidance section of the body dysmorphic scale to capture the change or improvement in bodily congruence the results were not significant. Preliminary results suggest the scale is not adequately capturing the embodiment experience of the participants when comparing pre to post surgery. A scale designed specifically to measure bodily congruence in trans and gender diverse individuals following gender-affirming surgical procedures is needed.

Abstract #12

Perceptions of Emergency Management in Members of Reciprocal Organizations

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Context: Reciprocal agreements allow members of both the Board of Certification and the Canadian Athletic Therapists Association to gain membership upon passing certification exams. For both, there is an initial baseline level of emergency management (EM) knowledge required. It is documented that a high level of decay among skills and knowledge occurs when not used or reviewed. Although both organizations require regular recertification, knowledge and skill decay may occur without personal practice and review. The purpose of this study was to identify a definition of EM,

as well as themes relating to perspectives on EM maintenance requirements in athletic trainers and athletic therapists, as these appears to be absent from the current research base.

Methods: This critical theory designed study investigated the definition, maintenance requirements and perception of EM in both the US and Canada. Participants were sampled based upon an a prioi criterion sampling method to include ten participants (five Canadian, five US, four men, six women, four academics, six clinical, two to 35 years of experience) with content expertise in EM. PI conducted interviews were recorded, transcribed by Zoom and checked for accuracy. Interviews were evaluated through consensual qualitative analysis, with investigators individually identifying themes and a third member checking for accuracy. This process was repeated for subthemes and quotes. Triangulation occurred with one randomly selected member from each country selected to review their transcript for accuracy. Data saturation was able to be reached by the time the tenth interview was conducted.

Results: Four main themes emerged; 1) a definition of EM, 2) the identification of EM as a foundational skill, 3) the efforts clinicians utilize to gain and maintain knowledge and skills in EM, 4) participant perceptions regarding requiring a higher-level certification in EM. One subtheme, responder mental health and crisis management emerged. All agreed that EM is considered a foundation of athletic training and therapy, with practice being the emphasis for gaining and maintaining proficiencies in EM. No consensus was reached on whether or not an additional certification in EM should be required, however all agreed that constant review and practice of skills was paramount in staying current and proficient.

Conclusions: With a consensus definition gained, and the assessment that EM is a foundational skill, this study found that additional EM certifications may not be required to maintain minimum competency and proficiency. Instead, clinicians and academics agree that frequent hands-on practice of skills is the best way to maintain best practice.

Abstract #13

Factors Influencing Readiness for Interprofessional Collaboration in Athletic Therapy Practice

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Context: Interprofessional collaboration (IPC) in health professional programs includes elements of respect, trust, shared decision making, and partnerships, as well as the development of effective interpersonal working relationships to enable optimal health outcomes. Within the CATA competency framework, one of the seven core competency roles is that of the collaborator. This role identifies 25 individual competencies that ATs need to demonstrate upon graduation from an accredited institution. Research that explores effective pedagogical strategies for developing IPC competence are currently absent in the Canadian athletic therapy context. The purpose of this study was to identify factors that impacted feelings of IPC readiness in a sample of athletic therapy students, with the intent of creating recommendations to nurture these factors in athletic therapy curricula.

Methods: We employed an interpretivist-constructivist research paradigm to conduct a mixed methods study to explore factors which influenced IPC readiness. An explanatory sequential research design was used to collect and analyze mixed methods data. Quantitative measures were collected through an online questionnaire that explored attitudes towards IPC, experiences with IPC, confidence in IPC competencies, and learning strategies that help to increase understanding of IPC. The questions were adapted from similar studies in other health professions, and field tested with three athletic therapy educators. Responses from the questionnaire were analyzed for emerging trends which were then used to design an interview schedule to further deconstruct factors that influenced readiness. Athletic therapy students were recruited from a single accredited institution of the CATA. Nine participants completed the questionnaire (40% response rate) and five participated in individual interviews.

Results: Overall, the responses from the questionnaire indicated that participants' attitudes towards interprofessional education were positive and learning about collaboration could improve working relationships with other health care professionals. All participants listed their placement experiences as being the most influential in preparing them for IPC. 89% of the sample felt that their lecturer's attitude towards IPC was very important in preparing them in this area. The main themes that influenced readiness for IPC were: structured educational opportunities such as lectures, discussions, and assignments; confusion between IPC and multidisciplinary care; lack of regular formal placement opportunities outside of the athletic therapy program; and understanding the process of referrals and continuing dialogue between different healthcare professionals.

Conclusions: The results from this study identified important themes that were thought to impact readiness for IPC in athletic therapy students. Students understood the importance of this competency area and felt that more formalized educational opportunities could be structured to gain a better understanding of IPC within real life contexts. Based on these findings, academic programs can think about how to better incorporate different pedagogical strategies and diverse practicum experiences that expose students to unique aspects of IPC.

Abstract #14

A Pilot Study Considering Pain-Relieving Medications and Opioid Knowledge and Use Among Elite Athletes

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Context and Background: Athletes are known to self-medicate to prevent and manage pain from injuries using both prescription and OTC medications. Previous research has shown that up to 53% of athletes use and potentially misuse opioids, which is alarming considering athletes tend to lack awareness of adverse events associated with opioids and other pain-relieving medications (PRMs). Unfortunately, most to all data associated with athletes' use of opioids/PRM comes from American data with little to no information on elite Canadian athletes' thoughts, attitudes, and knowledge. This pilot study is the first Canadian study to explore athletes' knowledge, attitudes, and use of PRM including opioids.

Methods: An online pilot survey was conducted with elite-level athletes from Sheridan College (Brampton, ON). The survey queried athletes on PRM, opioid use/knowledge and methods to manage injuries. A total of 64 athletes completed the survey with results presented as percentages based on participants who completed each question.

Results: More than 50% of athletes incurred injuries and believed that such injuries can prevent playing. Additionally, surveyed athletes felt that they could manage their pain either through their own knowledge or by relying on social media sources for information. About 40% of the surveyed athletes indicated that pain encourages them to play harder; cope with pain incurred before the start of the season, during the game or season, and following an injury that happened post-game. Athletes ranked management of pain in the following order: heat/cold packs, performing stretching exercises, taking non-prescription medications, using psychological techniques, and asking a therapist/health care provider for advice. Approximately 50% of athletes indicated no or neutral knowledge of opioids and among those who knew about opioids, surveyed athletes indicated opioid use for prescribed reasons and recreational use. Finally, 32% of the surveyed athletes felt their education on opioids was insufficient.

Discussion: Despite being a pilot study, our results provide interesting insight into athlete knowledge and perception of pain and treatment modalities utilized to treat pain. Athletes are worried about injury and its impact on their ability to play, yet they consider

pain as an encouragement to playing harder. Athletes indicated relying on potentially unreliable sources of knowledge for pain management. Interestingly, in addition to normal prescribed use of opioids, athletes also indicated recreational reasons as a potential use option, citing culture of the sport, pressure to play, and importance of the game as motivators for use.

Contribution to Athletic Therapy: Our results indicate a deficiency in elite athlete knowledge on the uses of opioids and PRMs, which may lead the athletes to potentially misuse medications (prescribed or non-prescribed). Most importantly, athletes may rely on self-management of injuries over seeking help from a therapist/health care provider.