



**Abstracts from the BASRaT Sport Rehabilitation Student Conference 2024  
March 25<sup>th</sup>, University of Hull.**

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## **A01 - ‘Awk Sure It’s Only a Wee Strain’: Investigating the Dominance of Hamstring Injuries and Prevention Awareness in Ladies Gaelic Football.**

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Ladies Gaelic Football (LGF) is an amateur team sport played across Ireland and further afield. Currently, research into LGF is limited, with only three papers previously being completed on injury surveillance and injury prevention awareness. Similar sports including Gaelic Football (GF) and Australian Rules reported hamstring injuries as the dominant injury, as a result of non-contact mechanisms of injury (MOI). Injury prevention methods (IPM) such as the “GAA15” and “Activate” are standardised warm-ups used in GF and LGF to reduce injury risk, however, research to date is limited on the players’ awareness of these interventions. The aim of this study was to identify the most common injuries that occur in LGF, and determine the players’ awareness of IPM. The study completed was an experimental study, using a questionnaire to allow participants to report their most recent injury sustained, before identifying their awareness of IPM. All participants were 18 or over, played LGF, and sustained an injury whilst playing. A multinomial logistic regression test was used to determine significant injury factors ( $P < 0.05$ ). One hundred and sixteen (116) participants completed the questionnaire with 66% of all injuries sustained being classed as lower limb and hamstring injuries accounting for 20% of all injuries. Significant factors to injury were games per week ( $P < 0.001$ ), warm-up length ( $P < 0.001$ ), dominant leg ( $P < 0.001$ ), injured side ( $P = 0.031$ ), MOI ( $P < 0.001$ ), and period of game ( $P < 0.01$ ) whilst 83% of participants were unaware of any IPM in LGF. The results suggest that hamstring injuries were most prevalent, supporting previous research. The lack of awareness in IPM is worrying, and more must be done to both improve the awareness and increase the implementation of IPM across LGF. Further research is required to identify links between IPM awareness and implementation, and injuries sustained. Additionally, further research is required to identify links between significant factors found and injury risk.

## **A02 - The effect of external audible pace feedback on 5 km running performance.**

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Feedback such as the distance covered, or heart rate are often delivered to an athlete during a race to provide information on performance. These data can be delivered through wearable devices or personal feedback. However, there are no studies examining the effect of audible feedback in an outdoor setting on running performance. This study aimed to investigate the effect of external audible pace feedback on running performance. Our alternative hypothesis (H1) was that external audible pace feedback would decrease the time to complete a 5 km time trial. Participants (N=9; four male, five female) completed two 5 km time trials 1 week apart. The first trial involved each participant running a 5 km time trial on a running track as fast as possible. No performance information was provided during the time trial, but participants were told their 5 km time afterwards. The second time trial included administering audible feedback (current and mean pace/km every 250 meters) using a series 7 Apple Watch and Bluetooth headphones. Data were analysed using a one-tailed Bayesian paired sample t-test with a Cauchy prior. Mean (SD) seconds for the no feedback and feedback conditions were 1,578 (316) and 1,541 (294), respectively. The effect size (Cohen's  $d_z$ ; 95% HDI) for the mean difference was 0.54 (0.06 to 1.25). The BF10 was 2.4 providing 'anecdotal' evidence for the alternative hypothesis. The data provide 'anecdotal' evidence for a 'medium' reduction in 5 km performance time. However, the wide credible interval for the mean difference (ranging from trivial to very large effect) means there is considerable uncertainty in this estimate. As such, it is not possible to conclude at this stage if external audible pacing feedback has a meaningful effect on running performance and additional studies with larger sample sizes must be completed.

### **A03 - The Theory of Planned Behaviour and its impact on adherence to prehabilitation activities in adolescent boxers.**

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Injuries are a common occurrence in amateur boxing, yet little planning is put into place to reduce incidence. Adolescent amateur boxers may benefit from adherence to prehabilitation plans. Studies have shown that adherence to prehabilitation activities can be increased by applying behavioural change interventions. This research aimed to investigate the effects of the Theory of Planned Behaviour (TPB) on adherence to pre-planned home exercise in adolescent amateur boxers. It explored common themes influencing adherence to prehabilitation plans. Eight adolescent amateur boxers participated in a two-week exercise plan. Three interventions were utilised based on the determinants of TPB: education attempting to influence attitudes towards prehabilitation activities, social support attempting to influence subjective norms, and self-efficacy attempting to influence perceived behavioural control. At the end of both weeks, participants completed an Exercise Adherence Rating Scale. The mean averages for adherence pre- and post-intervention were calculated and analysed, as well as the reasons why they adhered/did not adhere. A paired t-test was utilised to analyse the results. The paired t-test showed a significant difference from pre- to post-intervention ( $p=0.001$ ), with a 58.4% increase in adherence. Overall, the variance score reduced from 13.43 to 5.64. The most common reasons for non-adherence pre-intervention were tiredness and lack of enjoyment. Strong influences for adherence post-intervention were confidence, encouragement from peers, coaches, and parents/expectations to adherence, it could be suggested that these were the strongest influences based on the direct influence to change these through the applied interventions. The findings of this study suggest the two scores may be attributed to the interventions. Previous research applying similar interventions to affect adherence supports what was found in this current study, supporting its reliability and validity. From this, it can be considered that TPB can improve adherence to prehabilitation activities in adolescent boxers.

## **A04 - All the gear and no idea. An investigation into the knowledge and perception of head injury in American Footballers.**

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American football is a collision sport in which the team is split into two lines, the offensive line and the defensive line. Players must wear helmets, shoulder pads, and mouthguards when training and playing. Collisions are fundamental to the game; therefore, concussion remains a common injury in American football. Research suggests that athletes who partake in contact sports, such as rugby, and ice hockey have unsafe attitudes toward concussions. This study aimed to assess concussion knowledge and perception in American football players and if the lines influence perception of head injury within the team. This cross-sectional study included 31 male participants (mean age  $22 \pm 4.8$  years) in established American football teams within the Hull and Humberside region in the UK. Participants completed the Rosenbaum Concussion Knowledge and Attitudes Survey (RoCKAS) to evaluate concussion knowledge index (CKI), concussion attitude index (CAI) and symptom recognition. Additionally, American football-specific questions gauged perceptions of mandated equipment. Statistical analyses, including T-tests, Pearson's correlation, Chi-squared, and descriptive statistics, were employed to analyse the collected data. There was minimal evidence to suggest a relationship between the offensive line and defensive line influencing concussion perception. There was no significant correlation between CKI and CAI in American footballers ( $r = -0.147$ ,  $p = 0.430$ ). Although participants exhibited a relatively high CKI, they displayed an inclination towards an "unsafe" attitude regarding head injuries, with 48% reporting willingness to continue playing with a concussion. The RoCKAS revealed misconceptions and lesser-known concussion symptoms among participants. Collegiate American footballers understand the health risks of concussions yet choose to have an unsafe attitude towards head injury. Athletes are aware of the dangers of sustaining multiple concussions but are willing to continue playing with a concussion. Additionally, findings suggest that the mandated protective equipment may provide athletes with a false sense of security. The findings of this study assist in the triangulation of unsafe attitudes in athletes.

## **A05 - The Effect of Post-Activation Potentiation (PAP) Exercise on Swimming Performance.**

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Post-activation potentiation (PAP) is a phenomenon that occurs when a muscle is pre-loaded with a sub-maximal load before performing a sport specific movement. The immediate effect PAP has on swimming performance has not been fully investigated. Previous studies have analysed PAP of the upper and lower extremities combined but have not considered the extremities individually. Additionally, previous studies have not studied the potential impact of PAP as part of the warm-up process and subsequent effects on performance. The aim of this study was to investigate the effect of PAP exercise on swimming performance. Eight county level participants (n=5 males, n=3 females) were recruited. The study adopted of a four-week repeated measures protocol, with participant's working at 87% 1RM in the Romanian deadlift for lower extremity PAP and the lat pull down for upper body PAP. In week one, baseline 50 m front crawl sprint time was obtained. Thereafter participants completed three weeks of additional testing, with 50 m front crawl time trials preceded by one of the following interventions: upper extremity PAP (UEPAP), lower extremity PAP (LEPAP), combined upper and lower body PAP (U+LEPAP); intervention order was randomised between participants. A repeated measures ANOVA was used to determine differences within and between participants for the time taken to complete the 50 m front crawl sprint for each intervention. Seven out of eight participants improved their sprint performance time after completing the PAP interventions. The slowest mean sprint time recorded was 31.85 s (SD  $\pm$  3.27 s) for baseline and the fastest 30.88 s (SD  $\pm$  3.24 s) after U+LEPAP. The difference contrast of LEPAP – No PAP, UEPAP was not significant (P = 0.850), despite seven out of eight participants improving their baseline time after LEPAP. UEPAP - No PAP (31.21  $\pm$  3.18 s) and U+LEPAP - No PAP, UEPAP, LEPAP (30.88  $\pm$  3.24s) both resulted in significant changes (P < 0.001). All PAP interventions had a desirable effect on 50 m front crawl sprint time. The combination of U+LEPAP exercise has been most effective in this study; followed by UEPAP in isolation. Coaches should consider including PAP interventions in their athlete's pre-competition warm-up routine as this study has suggested that potentiation can be elicited in a time effective manner to benefit from during sprint performances.