Discussion: Women playing elite Australian Football have perspectives and experiences that add considerable value to injury prevention program development and implementation. Their beliefs provide insight into strategies that might enhance player program adherence. Varied experiences and knowledge reveal the need to customise program content and education for different skill and literacy levels. Our findings support engaging athletes as critical stakeholders who are well-positioned to inform injury prevention program development.

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.

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S84

Empowering the future generation of teachers to promote optimal academic outcomes through physical activity: Transform-Ed!

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Objective: The physical activity levels of children in Australia are critically low and correlate with reduced academic achievement and poor health outcomes. Schools provide an ideal setting for physical activity interventions to help children move more. However, a lack of time and teacher overload are consistently mentioned as barriers to the sustained implementation of physical activity programs by teachers in schools. We know the quality of initial or pre-service teacher education has a significant impact on learning and teaching outcomes more broadly, but little is known about the implementation and effectiveness of embedding physical activity interventions in initial teacher education. Transform- Ed! is a novel active pedagogy intervention embedded in initial teacher education. It equips future teachers with innovative strategies to promote optimal academic outcomes through meaningful physical activity in the classroom. Framed by implementation science, this research investigated the reach, effectiveness, adoption, adaption, implementation and maintenance of the Transform-Ed! program, when embedded within the first year of an Australian Bachelor of Education (Primary) degree. A further aim was to provide guidance for the scale-up of the program.

Methods: Pre/post surveys and post-program interviews and focus group discussions were conducted with key stakeholders (n = 5), lecturers (n = 6), and pre-service teachers (n = 274) involved in the 12-week Transform-Ed! program. The design, implementation, and evaluation of the study were systematically guided by all five dimensions of the RE-AIM (reach, effectiveness, adoption, implementation, and maintenance) framework. Linear mixed models, descriptive analysis and a framework approach were used to analyse the data.

Results: Significant improvements were observed in pre-service teachers' willingness, confidence, and competence to implement physically active pedagogic strategies following the intervention. Significant improvements were noted in pre-service teacher confidence and competence in the delivery of such strategies and their perceived effectiveness on student outcomes, while perceived barriers decreased. High adherence was consistently reported and the program was maintained after completion of the implementation trial. Four key themes spanning multiple dimensions and participant levels informed recommendations for program scalability: an "inter-systemic approach", a "co-design" approach, "embedded in professional practice", and "evidence of impact" on teacher practice.

Discussion: Anchored in real-world settings and tethered by implementation science, this RE-AIM evaluation suggests Transform-Ed! could have the potential to advance the teaching capability of teachers, and improve the learning experience and physical and academic outcomes of children.

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S85

Relationships between trunk morphology and strength with non-contact lower limb injuries in elite rugby league and Australian football players

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Background: Non-contact lower limb injuries (NCLLI) are common within the National Rugby League (NRL) and Australian Football League (AFL). Smaller lumbar multifidus at L5 (LM L5) cross-sectional area (CSA) and lower levels of trunk and hip extension and knee flexion strength have been associated with increased NCLLI risk in AFL players. However, such associations have not been reported in the NRL. This study aims to explore relationships between NCLLI, trunk morphology and isometric trunk and hip extension strength in NRL and AFL players.

Methods: NRL and AFL players had their LM L2-L5 and quadratus lumborum (QL) CSA (n=238), and isometric trunk and hip extension strength (n=153) measured using ultrasonography and a novel field-based test in preseason. Isometric trunk and hip extensor strength were measured using a 65s maximal voluntary isometric contraction (MVIC) protocol (5s MVIC, 5s off, 45s MVIC, 5s off, 5s MVIC). Team medical staff reported all NCLLIs sustained in the subsequent competitive season. The associations between LM and QL CSA, 5s and 45s MVIC, age, and previous injury, and prospectively occurring NCLLI were analysed using univariable and then multivariable logistic regression. Logistic regression analysis was also performed for the most sustained NCLLI (hamstring and knee).

Results: Seventy-two players sustained a NCLLI in the 2020 competitive seasons (51 NRL, 21 AFL). From univariable logistic regression previous injury increased the risk of any NCLLI in NRL (OR=2.43, 95%CI=1.16-5.09, p=0.019). Reduced 5s MVIC (OR=1.00, 95%CI=1.00-1.01, p=0.012), increased QL CSA (OR=1.55, 95% CI=1.05-2.38, p=0.033) and lower ratio between LM and QL CSA (OR=0.03, 95%CI=0.01-0.60, p=0.02) increased NCLLI risk in AFL. Pooled hamstring injuries (n=28) were most common and were associated with lower 5s MVIC (OR=0.99, 95%CI=0.99-1.00, p=0.02) and 45s MVIC (OR=0.99, 95%CI=0.99-1.00, p=0.001). Pooled knee injuries (n=21) were associated with both reduced LM CSA (OR=1.35, 95%CI=1.08-1.70, p=0.018) and LM to QL ratio (OR=3.62, 95% CI=1.41- 9.66, p=0.043).

Conclusions: Larger QL CSA and reduced levels of trunk and hip extension strength are observed in AFL players in preseason who sustain a NCLLI in the subsequent playing season. Only previous NCLLI was associated with future risk of NCLLI for NRL players. These results suggest that risk factors for NCLLI are football code specific, and prevention strategies should be tailored accordingly.

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