



**FOOTBALL ASSOCIATION OF WALES
CENTRE FOR FOOTBALL RESEARCH**

**ANNUAL REPORT
2023 / 2024**



The Football Association of Wales Centre for Football Research is affiliated with the Welsh Institute of Performance Science ([WIPS](#)). WIPS is a three-way partnership between Sport Wales, Wales' leading academic sport scientists and relevant industry partners that aims to produce multi-disciplinary, world-leading, applied performance science projects that enhance the performance of Welsh athletes and businesses.



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OF PERFORMANCE SCIENCE
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PERFFORMIO CYMRU

University of
South Wales
Prifysgol
De Cymru

sportwales
chwaraeon cymru



We launched the FAW High Performance Strategy in May 2021 at our annual National Coaches Conference. The strategy comprises of 4 pillars that drive key components of the performance of our Men's and Women's national teams and aim to **evolve our legacy**:

- ① **Talent Identification & Retention**
- ② **Person Centred Support Services**
- ③ **Effective Pathways for Progression**
- ④ **The Coaching System**

As part of the implementation of our strategy we have committed to drive insight-led decision making as the conduit to enable continuous progress through our Centre for Football Research. In the past two years, we have made significant progress in widening our research portfolio by instigating collaborative partnerships across all Welsh universities and through affiliation with the Welsh Institute of Performance Science (WIPS).

Alongside our Head of the Centre For Football Research, Professor Brendan Cropley, the FAW have resourced a full-time research assistant role to support our internal high performance leadership teams to better understand and further enhance our knowledge to drive high performance across our Men's and Women's national teams. Indeed, this resource has been valuable in demonstrating and disseminating our research findings, which has subsequently supported translational impact across our strategic priorities.

I would like to take this opportunity to thank all researchers and practitioners who have contributed to our Centre for Football Research and look forward to supporting the continuation of our world-leading research in the coming year.

Diolch,

Dr David Adams
Chief Football Officer
Football Association of Wales

FAW CENTRE FOR FOOTBALL RESEARCH: ABOUT

CENTRE MISSION

The FAW Centre for Football Research is affiliated with the Welsh Institute of Performance Sciences (WIPS) and is a collaborative partnership between the University of South Wales (Sport and Exercise Research and Innovation Group) and the FAW.

The mission of the Centre is to engage in high quality research and innovation, generate research funding, and to develop research collaboration that supports the FAW in the achievement of its High Performance Strategy. In doing so, the Centre aims to provide research driven solutions that facilitate the development and performance of players, coaches, and performance staff across Wales and internationally. Further, the multidisciplinary research conducted by the Centre seeks to inform best practice in player welfare, coach education, participation, and health-related factors.

CENTRE AIMS

- ① To facilitate cooperation between the FAW, WIPS, and all universities in Wales to enhance the breadth and scope of research driven insights in sport.
- ② To engage in high quality, innovative research across a range of fields, including: coaching, talent identification and development, sports science, performance, player and community health, management and leadership, officials, and the growth of the game.
- ③ To identify and foster the means by which the Centre can meet emerging research opportunities with the goal of generating funding for research activities.
- ④ To disseminate the knowledge generated by the Centre via seminars, conferences, publications, electronic media, and through the WIPS Research Steering Group.



THE YEAR IN REVIEW

Through 2023 and 2024, the FAW Centre for Football Research has continued to work collaboratively with FAW performance staff, practitioners, and researchers from UK-based institutions of Higher Education to identify and address performance driven research questions.

The projects that have been supported by the Centre have been multi-faceted, covering programme evaluations, psychological demands and performance, mitigating injury risk, injury rehabilitation and return to play, coach-analyst linguistics, physical literacy and movement skills in youth players, understanding periods of peak physical output in international football, and the cognitive impact of heading the ball.

In affiliation with WIPS and its Research Steering Group, the Centre has facilitated collaborations between the FAW and its performance staff with world-leading experts in their respective subject areas to ensure that the research insights constructed are rigorous, robust, and have a positive impact.

Those involved in these collaborations have worked hard to ensure that research findings are presented back to the FAW in a meaningful way. Additionally, in accord with the mission and aims of the Centre, research findings have been disseminated through peer-review journal publications and presented at national and international conferences. Such has been the quality of the research produced, work support by the Centre in the area of player psychological development and performance has received two awards for impact and innovation. Through the Centre’s Senior Research Assistant, findings have also been shared with WIPS and other organisations as a way of raising the Centre’s reputation.

The Centre has also been able to establish connections with a growing number of postgraduate research students. Supporting these individuals offers a sustainable and longitudinal approach to addressing a series of performance driven research problems. The Centre looks forward to supporting these students across the duration of their projects and is excited by the innovation that such work will offer the FAW.

As Head of the Centre, my aim is to ensure that we continue to provide the insights required to help the FAW work towards achieving their High Performance Strategy, and I look forward to widening our collaborative partnerships to support such research.

Professor Brendan Cropley



2023/2024 EXECUTIVE SUMMARY

- **11 research projects** supported
- Collaborations with **8 UK Universities**
- **8 PhD programmes of research** supported
- Commitment gained for a **2-year Senior Research Assistant** post
- Grant applications submitted to **UEFA funding calls** to support ongoing activity
- WIPS collaboration has provided access to an expert **Research Steering Group**
- **3 peer-review publications; 4 national/international conference presentations; and 2 research awards** achieved as part of Centre dissemination activities.

EXAMPLE PROJECTS COMPLETED OR SUPPORTED:

2023/2024

PROJECT TITLE	CONTRIBUTORS	AIMS	DISCIPLINES / UNIVERSITIES INVOLVED	PROJECT STATUS
Investigating the effect that heading the ball has on brain function in football	Sean Connelly; Dr Chris Marley	<ol style="list-style-type: none">1. To what extent does a history of heading the ball in football effect cognition?2. To what extent does an acute bout of heading a football affect cognition?3. What are the underlying mechanisms that may explain these changes in cognition?	Sport Science; Cardiff University; University of South Wales	Ongoing
Improving live communication between support staff and coaching staff during matches	Esther Wills; Dr Kieran File	<ol style="list-style-type: none">1. Explore in-game dialogue between coaches and support staff2. Identify ways to improve efficiency and effectiveness of this coach-staff dialogue	Warwick University; Performance Analysis; Linguistics & Communication	Complete
Return to play guidelines for female athletes following injury (anterior cruciate ligament)	Sean Connelly; Prof John Oliver; Dr Kate Williams; Dr Alan McKay; and Prof Brendan Cropley	<ol style="list-style-type: none">1. Develop an understanding of the female injury (ACL) rehabilitation literature2. Identify best practice regarding rehabilitation and return to play3. Construct clear guidelines on facilitating effective return to play procedures	Cardiff Metropolitan University; University of South Wales; Physiology; Sport Therapy; Injury Rehabilitation; Strength and Conditioning	Complete
An evaluation of the Huddle and McDonald's Fun Football programmes in Wales: Understanding the perceptions of programme users and service providers	Dr Alan McKay; Prof Brendan Cropley; Robyn Pinder; Lyn Jehu; Bethan Wooley	<ol style="list-style-type: none">1. Examine whether there is a need for a continuation of girls only provision within the 4–11-year age groups via Huddle or whether this should be aligned to the mixed gender provision2. Explore the perceptions of players, parents, and service providers (e.g., coaches) regarding player motivations for participating in football and of the benefits of Huddle and McDonalds Fun Football.	University of South Wales; Youth Development; Player and Community Health	Ongoing

EXAMPLE PROJECTS COMPLETED OR SUPPORTED:

2023/2024

PROJECT TITLE	CONTRIBUTORS	AIMS	DISCIPLINES / UNIVERSITIES INVOLVED	PROJECT STATUS
Understanding peak physical output periods in international football.	Dr Dan Cunningham; Dan Nisbett	<div><div>1. Understand and explore the intricate complexities associated with international game demands</div><div>2. Identify and understand the links between demands and player performance needs.</div><div>3. Investigate how these demands are influenced by various contextual factors</div><div>4. Develop best practice protocols regarding player preparation for performance</div></div>	Swansea University; Physiology	Ongoing
‘What does a world class coach educator look like?’ Exploring effective coach education within a European football context: A multi-national study	Prof Brendan Copley; Dr Alan McKay; Grant Kalahar; James Rowberry; Dr David Adams	<div><div>1. Explore what the process of effective coach education looks like</div><div>2. Examine the roles and responsibilities of coach educators within the international football environment (i.e., mentor, educator, assessor)</div><div>3. Identify the characteristics of effective coach educators</div><div>4. Consider the barriers that prevent the delivery of effective coach education</div></div>	University of South Wales; Coaching; Coach Education	Ongoing
Lower limb muscle activation during sprinting and hamstring strength training project: Mitigating hamstring injury risk in youth football players	Dr Adeline Miles; Sean Connelly; Dan Gordon	<div><div>1. Investigate muscle activation patterns in lower limbs during sprinting movements</div><div>2. Understand the differences in muscle activation in different movement activities</div><div>3. Identify the link between strength, sprint performance, and injury occurrence</div></div>	Cardiff Metropolitan University; Physiology; Sport Therapy; Injury Prevention and Rehabilitation	Ongoing

EXAMPLE CENTRE SUPPORTED PHD PROJECTS

PHD TITLE	STUDENT	AIMS	DISCIPLINES / UNIVERSITIES INVOLVED
An exploration of international game demands, focusing on intensity and further contextualisation	Daniel Nisbet	<ol style="list-style-type: none">1. Explore the peaks of game demands during international matches2. Explore the impact of these game demands on shaping the FAW' training regimen3. Explore the impact of wider contextual elements (e.g., team dynamics, gendered player pathways) on peak game demands	Physiology; Strength & Conditioning
The role of multi-disciplinary teams and operational frameworks in creating a sustainable competitive advantage underpinned by effective business strategy and decisions (FAW).	Daniel Williams	<ol style="list-style-type: none">1. Evaluate current processes and definition of high performance within the FAW2. Identify high performance factors associated with multi-disciplinary teams3. Comparatively analyse high performance strategies in various sports and industries4. Develop and validate a high-performance operating framework for the FAW5. Evaluate the impact of the high performance framework on the FAW National Teams, including the development of a decision making model supported by advanced data analytics	Coaching; Multi-Disciplinary Team Dynamics; High Performance
Exploring change of direction in international footballers	Stuart Britton	<ol style="list-style-type: none">1. Explore influence of strength measures on change of direction (COD) deficits2. Explore factors that determine effective COD3. Explore the COD strength and power gap between senior and youth international footballers4. Transfer COD assessments into a 'live' scenario5. Design and implement an intervention to improve COD coaching	Strength and Conditioning; Physiology
An evaluation of talent identification and development in Wales	Gus Williams	<ol style="list-style-type: none">1. Review the area of talent identification and development (TID) in Wales compared to other European countries2. Establish good TID practice that's fit for purpose at the FAW	Talent Identification and Development
Supporting academy football coaches to develop psychological attributes in male academy players	Dan Wixey	<ol style="list-style-type: none">1. Identify the key psychological attributes that give players the best opportunity to progress through an academy and into the senior, professional game2. Explore the coaching strategies that can be used to develop each psychological attribute3. Examine the adaptive player behaviours associated with each attribute4. Design, deliver, and evaluate a season-long coach education programme, informed by the knowledge acquired from meeting the preceding objectives.	Sport Psychology; Coaching

SPOTLIGHT ON PROJECTS

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WE MUST COMMIT TO ACCESSING AND
USING RESEARCH INFORMED
EVIDENCE TO IDENTIFY, STRUCTURE
AND SOLVE FOOTBALL'S MOST
PRESSING PROBLEMS
FIFA, 2024



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WOMEN AND GIRLS' TALENT DEVELOPMENT PATHWAY: EVALUATING THE GIRLS' ACADEMY PROGRAMME

PROJECT CONTRIBUTORS

Prof Brendan Cropley; Prof Liam Kilduff; Prof Camilla Knight; Dr Martin Longworth; Prof Jon Oliver; Lowri Roberts; Dr David Adams

INSIGHTS AND OUTCOMES

The impact of the programme on player **technical and tactical performance** was assessed using match performance trends from performance analysis data (e.g., number of possessions; entries into the final third; duels won). Generally, over time, there appeared to be a series of positive performance outcomes, such as: (1) a better balance between time spent in and out of possession; (2) increased number of in-play turn-overs (regaining possession); (3) increased duration of each possession; and (4) improved number of average shots on target per game (e.g., U14s 5.4 – 6.1 shots on target).

Player **physical development** was measured through pre- and post-season physical testing (e.g., 10m + 30m sprint; 505 change of direction; vertical jump; yo-yo IRT-2) and compared to a control group (e.g., an age matched grassroots girls' team). Positive trends were observed for all FAW Academy teams in all measures across time in comparison to the control group. This potentially indicates that Academy players are developing across physical parameters quicker (or more so) than they would if they had remained at their previous clubs.

From a **psychological and social** perspective, focus groups with the players and their parents revealed that players have, over the course of the first two seasons, become more autonomous, confident, and able to cope with the demands of the game and social issues associated with competing boys against girls. Further, players and parents indicated that they (or their child) were developing wider skills (e.g., decision making; leadership) that helped them in other aspects of their lives (e.g., school).

AIMS

The FAW developed an innovative female talent development programme in which regionally selected FAW Girls' Academy teams (U14s and U16s) have been integrated into age-appropriate male licensed Academy competitions (U13s and U14s respectively). The purpose of this was to increase the amount and level of competition talented female players experience and facilitate player progression into the senior levels of the game. To understand the impact of this programme, this project aimed to provide a holistic evaluation of player development across the first two years of its inauguration.



SPOTLIGHT ON PROJECTS: WOMEN AND GIRLS' TALENT DEVELOPMENT PATHWAY: EVALUATING THE GIRLS' ACADEMY PROGRAMME

PROJECT IMPACT

Findings have enhanced understanding of the potential benefits of improving women's and girls' talent development pathways by increasing the competitive challenge brought about by competing against boys.

There is a need to track individual player development and progression through the talent development pathway and into the senior national team.

While the findings are particularly positive, personal factors, such as growth and maturation, and logistic factors, such as quality of measurement, may have influenced the findings.

The feedback of the project to the FAW has supported the evolution of the programme, which has now adopted a professional Academy model in which players experience day-release from school to increase the amount of contact and training time.

DEVELOPING A FRAMEWORK OF MENTALLY TOUGH BEHAVIOURS IN INTERNATIONAL YOUTH FOOTBALL

PROJECT CONTRIBUTORS

Dr Alan McKay; Prof Brendan Cropley; Prof David Shearer; Prof Sheldon Hanton; Dr David Adams; and Dr Ian Mitchell

AIMS

The aim of this project was to create a behaviour-based mental toughness (MT) development framework to support the youth talent development pathway within the FAW.

INSIGHTS AND OUTCOMES

Interviews were conducted with international youth football players and coaches, and club academy coaches to explore what stressors players encountered during the club-to-international transition (CIT), and why players found them demanding. Participants highlighted a range of CIT associated performance, organisational, and personal stressors, and viewed the CIT as a fluctuating transition with no definitive outcome. Consequently, participants emphasised how players needed to develop **Mental Toughness** (MT) to navigate this ambiguous transition successfully. However, participants lacked understanding of what being mentally tough looked like or how MT could be developed.

A shared understanding of MT development was then formulated with key stakeholders. This resulted in the creation of an FAW MT development framework, which indicated that MT development was a multidimensional process, reliant on players' relationships with others. These individuals' behaviours influenced players' likelihood of engaging in and reflecting on contextually relevant mentally tough behaviours (MTbs), leading to MT understanding and development.

The behaviour-based MT development framework was implemented over three phases during an international camp.



Phase 1: pre-camp coach education. Phase 2: in-camp support for coaches to apply this behaviour-based approach. Phase 3: post-camp player and coach social validation interviews to assess intervention impact. Coaches' self-efficacy regarding MT development increased following pre-camp education. Players' MT levels significantly increased from pre- to post-camp, which players attributed to their coaches' abilities to clarify, reinforce, and review the MTbs they should display under pressure. Coaches highlighted how being checked and challenged to frame MTbs helped them to develop players' MT more effectively.



SPOTLIGHT ON PROJECTS: DEVELOPING A FRAMEWORK OF MENTALLY TOUGH BEHAVIOURS IN INTERNATIONAL YOUTH FOOTBALL

PROJECT IMPACT

Findings have enhanced understanding of the stressors players encounter along the international development pathway.

FAW stakeholders have been provided with a clear framework to effectively support players' MT development and enable them to navigate these stressors successfully.

The behaviour-based MT development framework will be integrated and evaluated across several international camps to garner a more in-depth understanding of the lived experiences of football players trying to develop their MT as they navigate the challenges and adversities associated with international youth football.

RETURN TO PLAY GUIDELINES FOR FEMALE ATHLETES FOLLOWING INJURY (ANTERIOR CRUCIATE LIGAMENT)

PROJECT CONTRIBUTORS

Sean Connelly; Prof John Oliver; Dr Kate Williams; Dr Alan McKay; and Prof Brendan Cropley

AIMS

The aim of this project was to develop a return-to-play (RTP) protocol for female players with a view of improving the success of the rehabilitation process, thus enhancing female players' chances of long-term international success in both the national age group teams and ultimately Wales Women's 1st Team.

INSIGHTS AND OUTCOMES

The current project consisted of performing a critical review of existing literature to inform the creation of a RTP report for female international players across age groups within the FAW. Specifically, an exploration of the guidelines and recommendations provided within the sport science literature for returning a player to their previous levels of functioning following an anterior cruciate ligament (ACL) injury was conducted. Moreover, we investigated the most efficacious testing strategies for monitoring and evaluating a player's return to play journey.

Through conducting this literature review, a four-stage process of ACL rehabilitation was identified.

Phase 1: Rehabilitation. This involves restoring range of movement in the knee joint, and the restoration of strength and power in surrounding muscle groups via gradually more dynamic gym-based training

Phase 2: Preparation for return to sport. This includes gym-based training and on-pitch reconditioning)

Phase 3: Return to sport. In this phase, players are supported to ensure maintenance of movement capacities under pressure and fatigue.



Phase 4: Return to performance. Here players are expected to play a full match at or above their pre-injury level of intensity.

Throughout this rehabilitation process, practitioners should regularly monitor player progress in recovery of neuromuscular and biomechanical function (e.g., between-limb symmetry) against a predefined set of criteria (e.g., <5% isometric leg extension maximum strength asymmetry during late rehabilitation) using quantitative measures (e.g., limb symmetry index).



SPOTLIGHT ON PROJECTS: RETURN TO PLAY GUIDELINES FOR FEMALE ATHLETES FOLLOWING INJURY (ANTERIOR CRUCIATE LIGAMENT)

PROJECT IMPACT

Findings have been disseminated to the FAW and will be used to inform the RTP process across female international age groups.

The RTP protocol will inform the creation of online resources, available on the FAW website, regarding effective return to play practices following ACL injury that Welsh coaches working at all levels of women's and girls' football can easily access and use.

A proposal is in preparation for an expert panel event including practitioners working across a number of women's sports to share ideas and best practices regarding injury prevention, rehabilitation, and return to sport.

PUBLICATIONS, PRESENTATIONS AND AWARDS

PUBLICATIONS

McKay, A., Cropley, B., Shearer, D., & Hanton, S. (2023). Developing a 'clarity of mind': Exploring a behaviour-based approach to mental toughness development in international youth football. *Journal of Applied Sport Psychology*.

<https://doi.org/10.1080/10413200.2023.2286951>

SCAN ME



Wixey, D., Kingston, K., & Shearer, D., Cropley, B. (2023). Coaching strategies to develop desired psychological attributes within academy soccer players. *Journal of Applied Sport Psychology*.

<https://doi.org/10.1080/10413200.2023.2286954>



Baldock, L., Cropley, B., Neil, R., & Mellalieu, S. (2023). A longitudinal examination of stress and mental ill/well-being in elite football coaches. *The Sport Psychologist*, 36, 171-182. <https://doi.org/10.1123/tsp.2021-0184>



CONFERENCE PRESENTATIONS

Cropley, B., Baldock, L., Hanton, S., Gucciardi, D., McKay, A., Neil, R., & Williams, T. (2023). A multi-study exploration of factors that optimize hardiness in sport coaches and the role of reflective practice in facilitating hardy attitudes. Research presented at Association for Applied Sport Psychology (AASP) Annual Conference, Orlando, USA.

Cropley, B., Knowles, Z., Miles, A., & Huntley, E. (2023). Well-being, performance, and effective service provision: (Re)locating reflective practice at the heart of applied sport psychology practice. Research presented at Association for Applied Sport Psychology (AASP) Annual Conference, Orlando, USA.

McKay, A. (2023). Developing life skills through grassroots football. Research presented at the Football Association of Wales Grassroots Coaching Conference, Football Association of Wales, Dragon Park, Newport, UK.

McKay, A., Cropley, B., Shearer, D., & Hanton, S. (2023). "What can you see? What can you hear?" The implementation of a behaviour-based mental toughness framework within international youth football. Research presented at the British Psychological Society Division of Sport and Exercise Psychology Conference, Edinburgh, UK.

AWARDS

McKay, A., Cropley, B., Shearer, D., & Hanton, S. (2023). McKay received an award for best presentation at the British Psychological Society Conference in Edinburgh in November 2023 for his ongoing work developing and implementing a framework of mentally tough behaviours in international youth football with the FAW.

McKay, A., Cropley, B., Shearer, D., & Hanton, S. (2022). McKay received the award for best student research project at the USW Impact and Innovation Awards in May 2022 for work conducted with the FAW on mental toughness development in youth international players..

FAW CENTRE FOR FOOTBALL RESEARCH



Thank you to all of those who have contributed to the FAW Centre for Football Research this year and to the WIPS Research Steering Group who have supported our research projects. Finally, a huge thank you to Dr Alan McKay, Senior Research Assistant, who has been at the heart of much of the Centre's activity.

If you are interested in connecting with the Centre to find out more about our research, or if you would like to get involved, please do not hesitate to contact us.

Head of Centre

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