2021

PESS RESEARCH COMMITTEE ANNUAL REPORT

UNIVERSITY OF LIMERICK
OLLSCOIL LUIMNIGH
Department of Physical Education and Sport Sciences

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FOREWORD

Welcome to the PESS Research Annual Report for 2021. Our second annual report provides a detailed overview and update of the diversity and quality of the extensive research activity undertaken in PESS in 2021. No one would have anticipated that in 2021 we would still be living with COVID-19 but despite the obvious challenges and constraints it placed on research activity it was still nevertheless a very successful year with a number of notable achievements. This report chronicles our overall research performance; presents our research impact highlights; outlines current research news and events; profiles researcher across PESS and presents key research metrics including PESS publications and external research awards.

Building on our notable achievements highlighted in my forward to the 2020 report, it would be remiss of me not to acknowledge the landmark achievement of PESS braking into the top 50 Sports Science Departments in the Shanghai Global University Rankings for 2021 (we are now positioned at 48th), which further consolidates the position of PESS as the highest ranked Department/School by discipline in UL. Research plays an important contribution to the collation of the world rankings and I would like to acknowledge the work of the members of the 4 research themes (Food & Health, Physical Activity for Health, Sport and Human Performance and Sport Pedagogy) as well as individual researchers in PESS for the important role they have played in achieving this notable landmark.

The establishment of the Sport and Human Performance Research Centre (SHPRC) as a priority research centre in UL was another important development for research in PESS in 2021 and something we are particularly proud of. Success does not come without a clear vision and plan, and I would therefore like to thank the PESS research committee members and research theme leads for driving the implementation of the Departments research strategy. Work commenced on our new research strategy (2022-2027) in the latter part of 2021 and it will be launched in the first half of 2022. Special thanks goes to Dr Brian Carson Chair of the PESS research committee for leading the development of the new research strategy and also the contribution of the entire PESS staff in its development - it was truly a team effort.

Thank you to everyone who has contributed to the 2021 Annual Report and in particular the editorial team of Dr Brian Carson and Rhoda Sohun who coordinated its development. We hope you enjoy reading it as much as we did putting it together.

Prof. Giles Warrington PhD, FACSM

Head of Department,
Physical Education and Sport Sciences (PESS)

Chair's Welcome

Welcome to the second edition of the Physical Education and Sport Sciences (PESS) annual research report. Once again, I am delighted to bring you this report to showcase the outstanding research achievements of my departmental colleagues over the past 12 months. As we developed the inaugural 2020 report it was unthinkable that through much of 2021 we would continue to endure the personal and collective difficulties associated with COVID-19. However, endure we did and at the time of writing it seems as though the worst is behind us, though we take nothing for granted these days.

I am proud to report that PESS researchers have managed to once again build on our excellent research publication output. This is reflected not only in quantity, but also in the quality of publications as measured by research quartiles. PESS researchers have also secured significant funding awards in 2021 which will sustain research activity and build capacity for the coming years. The future is bright and reflects on the excellent work of my colleagues as well as the supports in place for our staff.

Throughout the report you will see the real quality and impact of the department's research. This is reflected in our recent entry to the Top 50 schools in the latest Shanghai rankings (48). Our researchers are in the process of developing impact case studies to demonstrate their true real impact on societal and economic issues. It is also clear that our researchers are displaying leadership in their respective disciplines, as evidenced by the outreach and research events hosted and attended by PESS researchers documented throughout the report.
I would like to thank my colleagues on the research committee, especially the research theme leads for their contributions throughout the year. I would also like to give a special mention to Rhoda Sohun for her dedicated work in the development and curation of this report. Her contribution here was invaluable.

We are in a period of transition at UL. Indeed, in PESS we have been working on our own research strategy to align with the developing plans of UL50. This will present many new opportunities for our researchers and we hope to continue to grow our reputation along with that of the University. That said, let us take the time to reflect on the past year and celebrate the achievements of our colleagues. It is my pleasure to present the 2021 PESS annual research report. I hope you will enjoy reading about the successes of our team.

Dr. Brian Carson

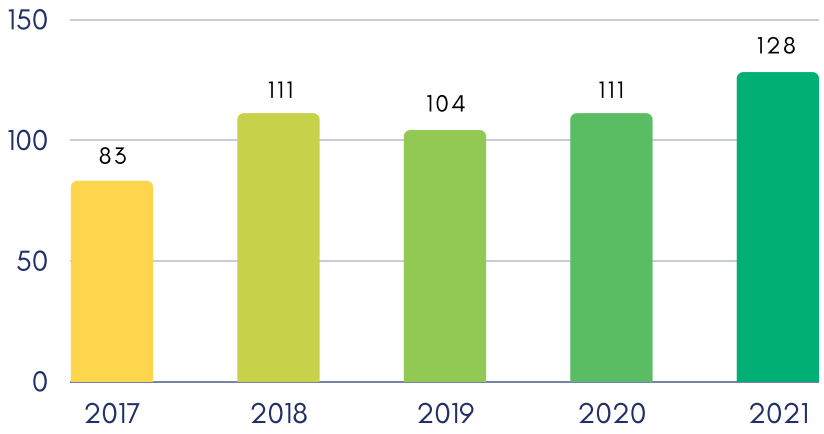
Chair of Research Committee
Physical Education and Sport Sciences (PESS)

Research Performance

Publication Data

UL Research Performance Dashboard (Web of Science)

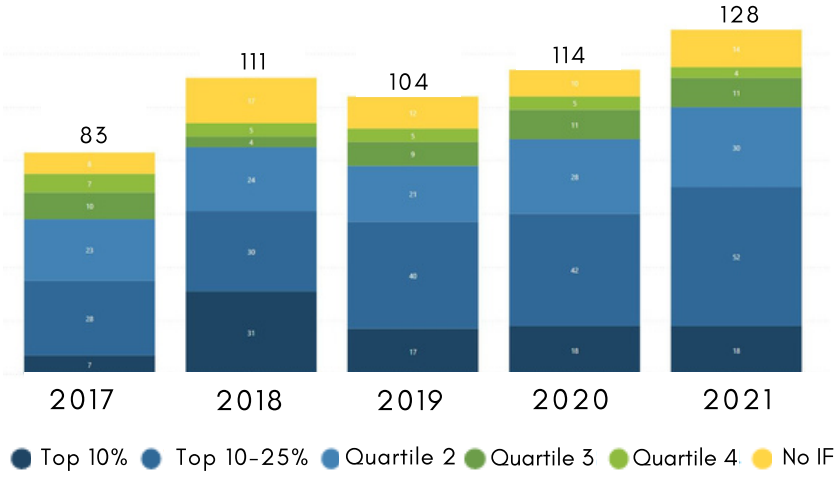
PESS Number of Publications



PESS Number of Publications by Journal Quartile

Year	Top 10%	Top 10-25%	Q2	Q3	Q4	No IF
2018	7	28	23	10	7	8
2019	31	30	24	4	5	17
2020	17	40	21	9	5	12
2020	18	41	30	9	5	8
2021	18	52	30	11	4	14

PESS Number of Publications by Journal Quartile



5 Year Comparison 2017 Vs 2021

54%
Increase in Number of Publications

157%
Increase in Top 10% Publications

Comparison 2020 Vs 2021

15%
Increase in Number of Publications

18%
Increase in Q1 Publications

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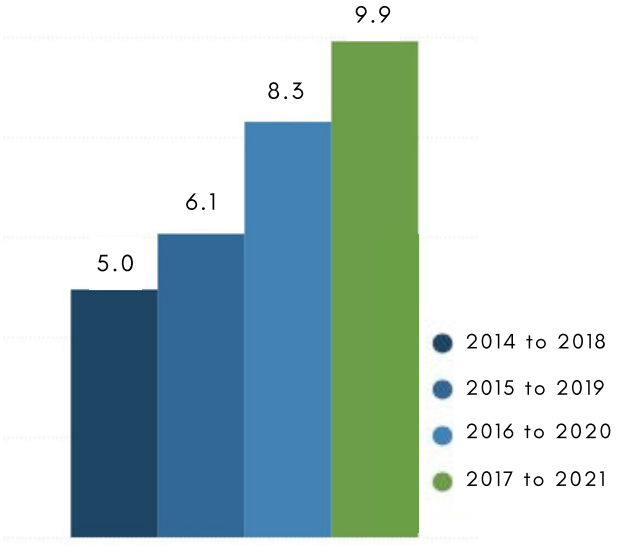
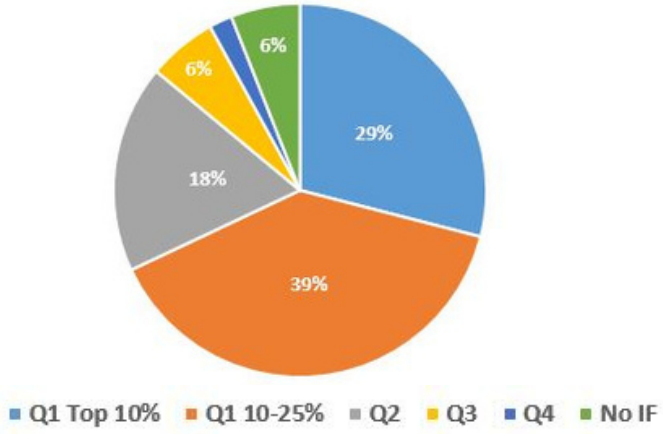
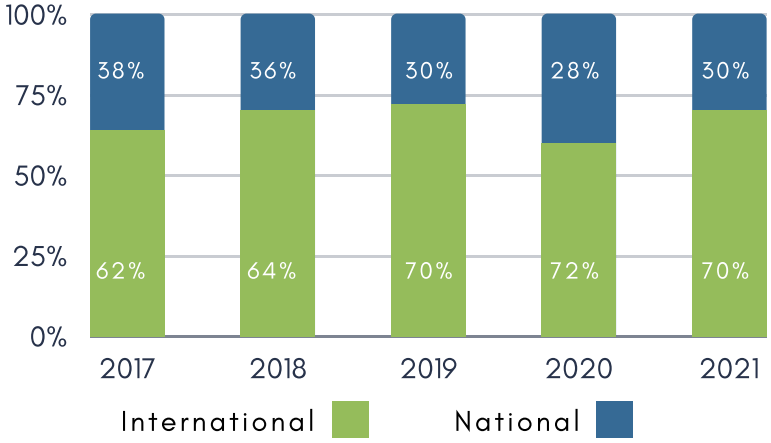
PESS 5 Year Rolling Citation Impact



PESS % Breakdown of Citations by Quartile (2017-2021)



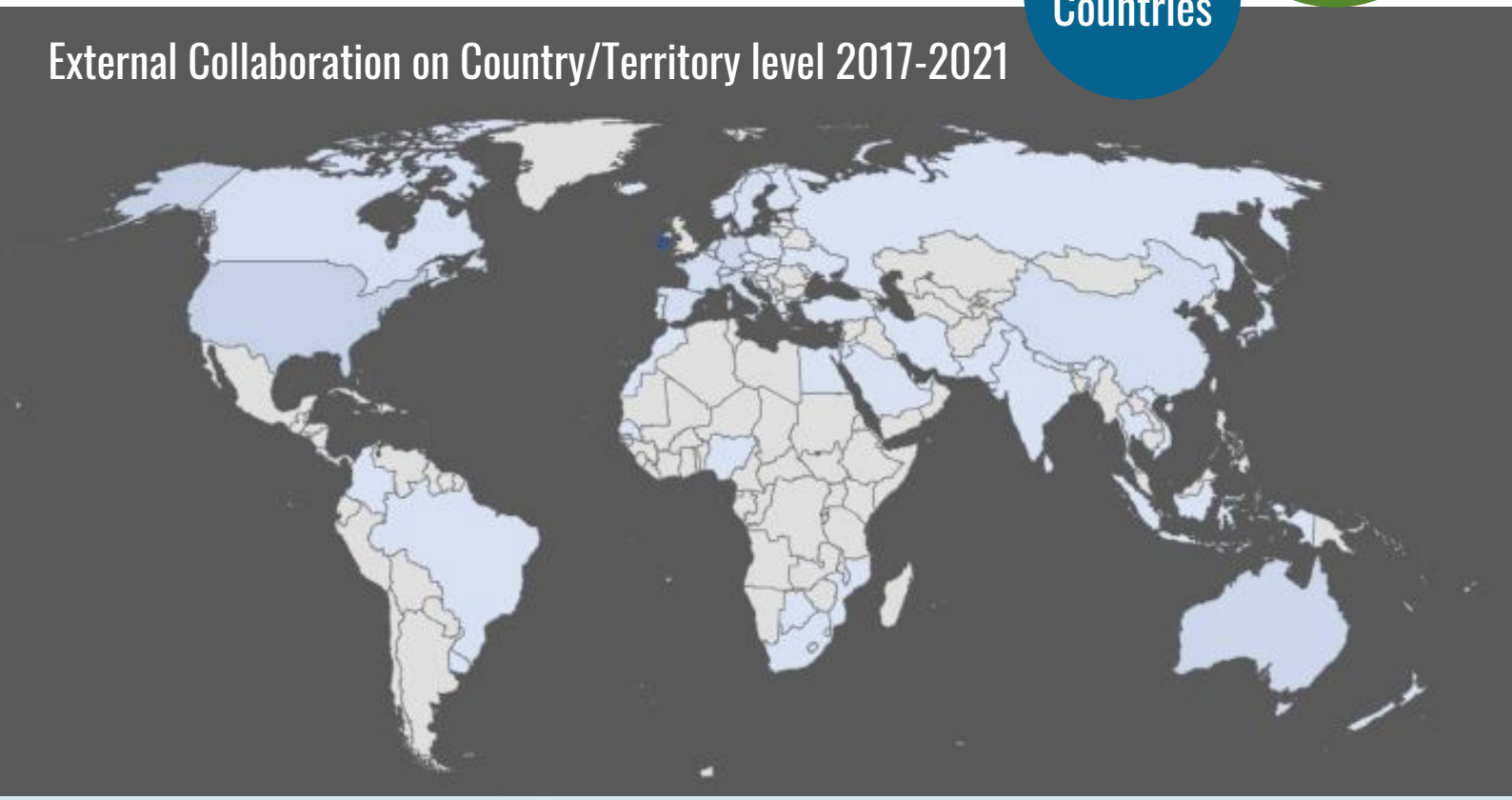
PESS % of Publications with International Co-Authors



1510 International Publications

73 Countries

External Collaboration on Country/Territory level 2017-2021



PESS External Research Awards

UL Research Office

€805,890
External Research Funding AY 2020/21

AY2020-21	€805,890
AY2019-20	€2,485,376
AY2018-19	€659,703
AY2017-18	€1,246,474
AY2016-17	€675,219

See Appendix 1 for full detail of External Research Grants Awarded to PESS

ENTERPRISE IRELAND

An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine

AN CHOMHAIRLE MHÚINTEOIREACHTA
The Teaching Council

EUROPEAN UNION

- COST Action
- Erasmus+
- H2020 MSCA Individual Fellowships

DEPARTMENT OF AGRICULTURE, FOOD AND THE MARINE

- DAERA/DAFM Competitive Research Programme

ENTERPRISE IRELAND

- Career FIT

TEACHING COUNCIL

Research Impact Highlights

Dr Mark Campbell
Director

In the past year, the ESRL has gone from strength to strength, growing its research capabilities both from a personnel and equipment standpoint. The lab was also successful in extending projects with Logitech for 3 years and amassing additional funding for a new collaborative project with NVIDIA. With publications in top tier Q1 journals in areas ranging from cognition, sensory-motor control, neurostimulation to mental health, the ESRL is now robustly demonstrating the benefits of the diverse and varied expertise of its members.

Funding Awards

1. SFI/ Logitech co-funding for Drivemaster €486k (2021-2024)
3. SFI/Loitech funding for Quantified Performance €120k (2021-2023)
5. SFI/ NVIDIA funding for Elite Human Computer Interaction €20k (2022)

Editorial Board invitations

Mark Campbell-

1. Journal of Electronic Gaming and Esports (JEGE)
2. Associate Editor Frontiers in Psychology- Cognition
3. International Journal of Esports
4. Esports Research Network Board Appointment

Adam Toth-

1. International Journal of Esports
2. Esports Research Network Board Appointment
3. Frontiers in Psychology Topic Editor

Invited talks

- Tim Smithies- Pint of Science invited presentation
- Adam Toth- Pint of Science invited presentation
- Mark Campbell- Esports Research Network Colloquium
- Magdalena Kowal- Unilever Leadership & Technology Forum
- Mark Campbell & Adam Toth- NVIDIA esports and gaming

Media Coverage

- Playing video games may help treat mental illness, University of Limerick research team finds - Independent.ie
- Could gaming help treat depression and anxiety? (irishexaminer.com)
- Commercial video games could help treat mental illness (sfi.ie)
- Shocking news: Gaming is good for your brain - Independent.ie
- Here's how 10 minutes of video gaming everyday may enhance esport skills | Health - Hindustan Times
- How exercise can make you smarter and protect your brain

Publications

1. Conroy, E., Toth, A. J., & Campbell, M. J. (2022). The effect of computer mouse mass on target acquisition performance among action video gamers. Applied Ergonomics, 99, 103637.
2. Smithies, T.D., Campbell, M.J., Ramsbottom, N. & Toth, A.J. A Random Forest approach to identify metrics that best predict match outcome and player ranking in the esport Rocket League. Scientific Reports 11, 19285 (2021). https://doi.org/10.1038/s41598-021-98879-9
3. Conroy, E., Kowal, M., Toth, A. J., & Campbell, M. J. (2021). Boosting: Rank and skill deception in esports. Entertainment Computing, 36, 100393.
4. Toth, A. J., & Campbell, M. J. (2021). Reply to:" Concerns about cognitive performance at chance level". Scientific reports, 11(1), 1-4.
5. McNeill, E., Toth, A. J., Ramsbottom, N., & Campbell, M. J. (2021). Self-modelled versus skilled-peer modelled AO+ MI effects on skilled sensorimotor performance: A stage 2 registered report. Psychology of Sport and Exercise, 54, 101910.
6. Toth, A. J., Ramsbottom, N., Constantin, C., Milliet, A., & Campbell, M. J. (2021). The effect of expertise, training and neurostimulation on sensory-motor skill in esports. Computers in Human Behavior, 121, 106782.
7. Smithies, T. D., Toth, A. J., Dunican, I. C., Caldwell, J. A., Kowal, M., & Campbell, M. J. (2021). The effect of sleep restriction on cognitive performance in elite cognitive performers: a systematic review. Sleep, 44(7), zsab008.
8. Toth, A. J., Frank, C., Putrino, D., & Campbell, M. J. (2021). Editorial- Progress in Computer Gaming and Esports: Neurocognitive and Motor Perspectives. Frontiers in Psychology, 12, 1391.
9. Kowal, M., Conroy, E., Ramsbottom, N., Smithies, T., Toth, A., & Campbell, M. (2021). Gaming Your Mental Health: A Narrative Review on Mitigating Symptoms of Depression and Anxiety Using Commercial Video Games. JMIR Serious Games, 9(2), e26575.
10. Toth, A. J., Frank, C., Putrino, D., & Campbell, M. J. (2021). Progress in Computer Gaming and Esports: Neurocognitive and Motor Perspectives. Frontiers in Psychology, 12, 1391.

Rowing Related Low Back Pain

Dr. Frank Nugent

In 2019, I was fortunate to be approached by Dr. Fiona Wilson of Trinity College Dublin about contributing to an international consensus statement on low back pain (LBP) prevention and management in rowing. Fiona had assembled a team of 14 rowing practitioners and researchers across eight nations - UK, Denmark, Australia, Canada, USA, New Zealand, Switzerland, and Ireland with a h-index of 227. The aim was to publish the first ever clinical guideline for the prevention and management of LBP in rowers. The project was supported by World Rowing.

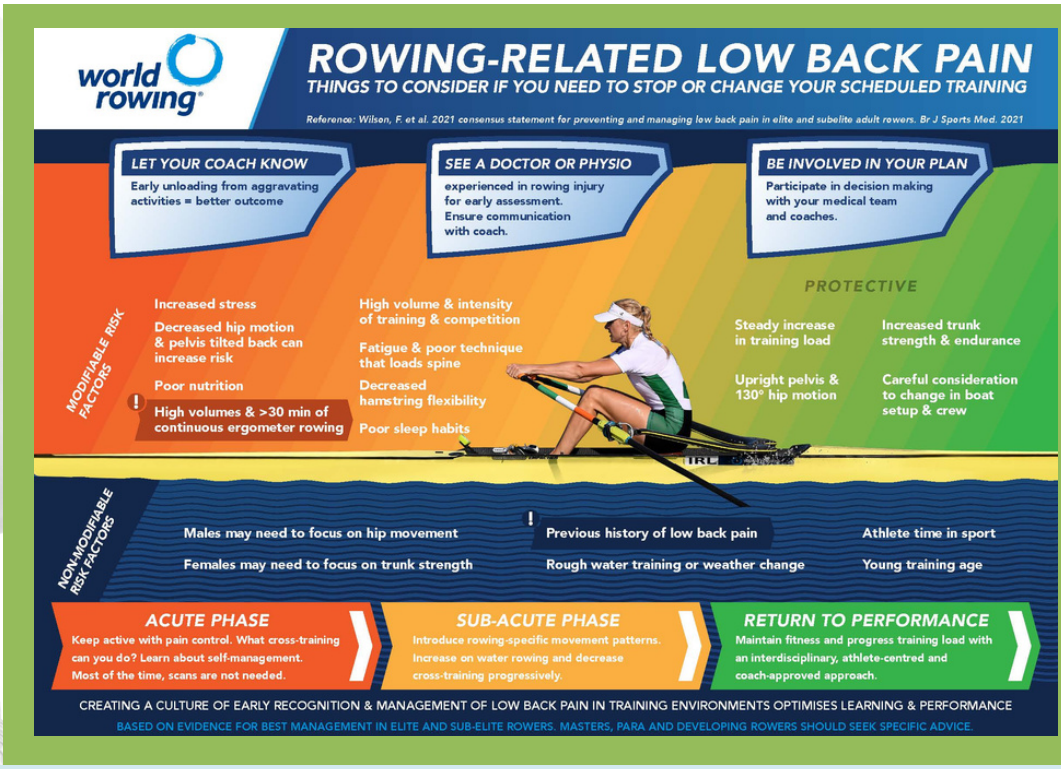
The clinical guideline was in the format of a consensus statement which was informed by 5 individual research papers. The 5 research papers that made up the consensus statement comprised of 3 systematic reviews of epidemiology, biomechanics and management of LBP, 1 qualitative study of rowers' lived experience of LBP, and a Delphi survey of rowing clinicians' opinions of treating LBP. In total there were 6 research outputs, and all published in the British Journal of Sports Medicine (Impact factor: 13.8; Quartile 1 Sports Sciences; Rank = 1/85). I was the lead author of the systematic review on LBP biomechanics.

The content of the plain language statement was informed by elite athlete and coach representatives such as Gary O'Donovan (IRL - Olympic silver medallist) and Paul Thompson (UK - 8-time Olympic coach). It is expected that the consensus statement will be utilised by practitioners, athletes, and coaches worldwide. This research was published at an exciting time for the sport of rowing in UL.

In the summer 2021, UL Rowing Club were ranked the number 1 club in the country with 10 National Championship titles, 3 Irish records, a silver medal and 4th place finish at the World Under-23 Championships. This success was heavily influenced by evidence-based practice which has been greatly informed by the numerous rowing publications across the areas of strength and conditioning (Nugent et al. 2022; Nugent et al., 2020; Nugent et al., 2019), biomechanics (Nugent et al., 2021), sports medicine (Wilson et al., 2021) and talent identification (Horan et al., 2021) from the PESS department in recent years.

Theme: Sport and Human Performance

As an ex-rower and current international coach, it was an honour to be involved. The concept of translating evidence to practice was a key theme throughout as evidenced by the production of a plain language statement which was made available by World Rowing and in an infographic format (included on the right).



Missing Training Load Data: Challenges and Practical Solutions

Dr Alan Griffin

Supervisors: Dr. Mark Lyons, Dr. Tom Comyns, Dr. Ian Kenny

My PhD programme of research from 2018 to 2021 was funded by the Irish Research Council and was conducted as part of the Irish Rugby Injury Surveillance (IRIS) project. Fundamentally, my research aimed to offer practical methods of monitoring training that may have the potential to mitigate injury risk and, in turn, benefit the health and wellbeing of team sports players.

Monitoring training load (TL) is common practice in team sports with most practitioners using the data to aid training prescription and design. Within my research, a challenge highlighted by coaches was the presence of missing TL data. To tackle this, we conducted a study that (1) focused on the impact that missing data can have on various TL metrics, and (2) provides practical and effective methods of missing value imputation (MVI) to mitigate this impact.

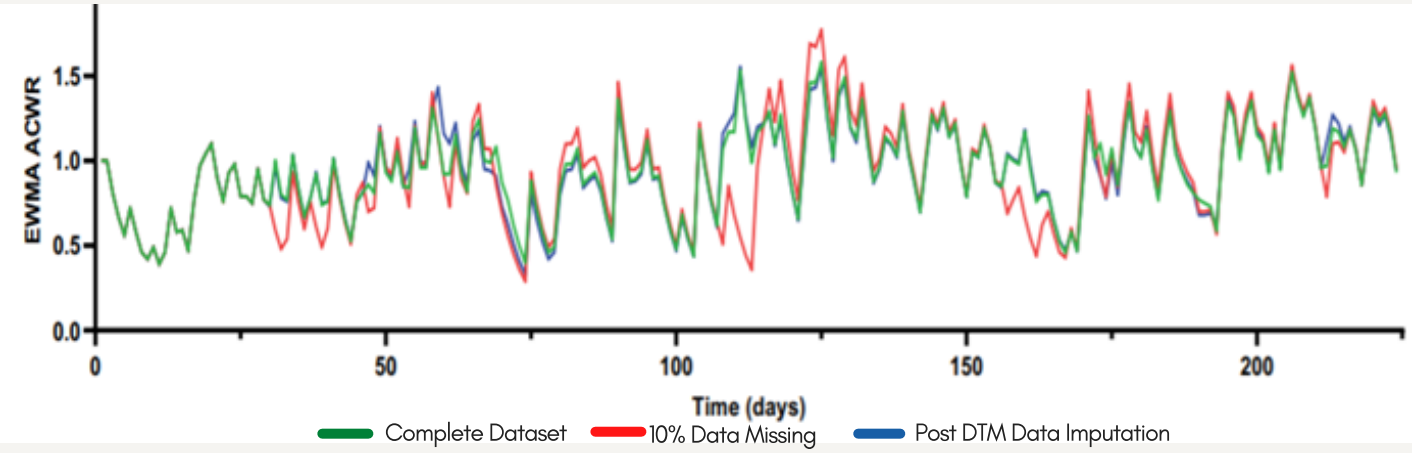


Figure 1 The effect of missing data and Daily Team Mean (DTMean) missing value imputation on the exponentially weighted moving average acute:chronic workload ratio

Session rating of perceived exertion (a subjective measure of TL) data were collected from 10 male professional soccer players over a 32-week season. Subsequently, data were randomly removed at a range of 5-50% in increments of 5% and replaced using twelve different methods of MVI. The results demonstrated the potential inaccuracy of calculating additional TL metrics when a dataset is incomplete. This may result in a causal sequence whereby practitioners prescribe inappropriate TL and consequently increase injury risk and hinder sports performance.

Figure 1. illustrates the negative effect that 10% missing TL data (red line) had on the calculation on an individual player's exponentially weighted moving average acute:chronic workload ratio (a relative measure of TL), over the season.

It is also evident that replacing missing data with the mean value of all team players for that particular session (DTMean) offers an accurate method of negating these potentially harmful effects. Furthermore, this method does not require data collection from any previous sessions, highlighting its practicality and potential to be integrated into the real-world practices. It is imperative, however, to note that our research also suggests that as the percentage of missing data increases, the accuracy of each MVI method decreases. While this is unsurprising, it does highlight the importance of keeping missing TL data to the absolute minimum.

In conclusion, missing TL data is inevitable in team sports. This research has provided justification for addressing missing TL data. As practitioners our best course of action is to keep missingness to a minimum and then address any missing data using an appropriate MVI (e.g. DTMean).

Women in Sport

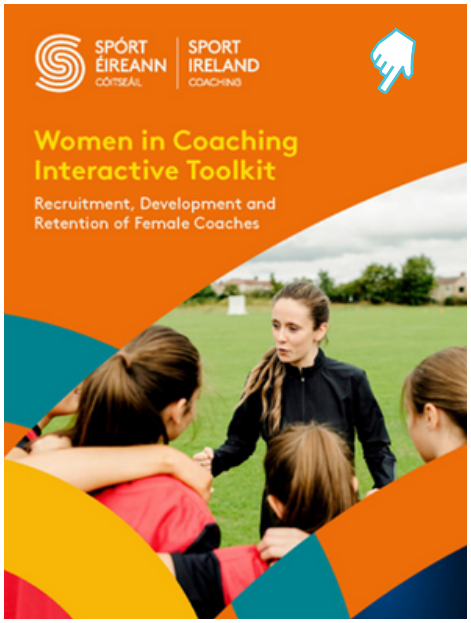
Dr Ian Sherwin

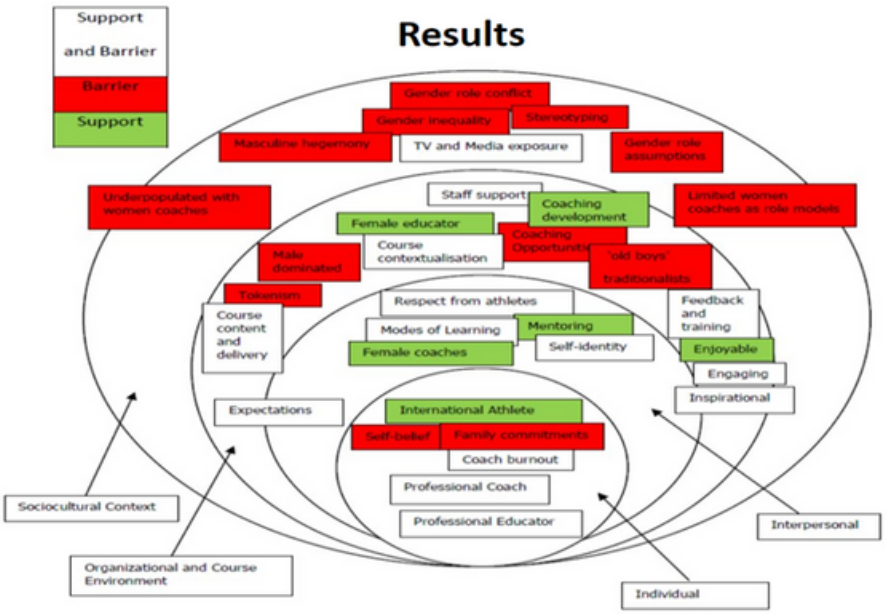
Gender equity in sport has been a long-standing issue and is evidenced by the under-representation of women in coaching and sports administration. This is an emerging area of research in Ireland, driven by the Women in Sport initiative within Sport Ireland and supported by research undertaken by the University of Limerick (UL), where findings have been used to influence the design and development of Sport Ireland's Women in Coaching Toolkit.

Our research focused on women's rugby union, one of the fastest growing team sports in the world, with the sports' governing body, World Rugby, reporting a significant increase of 28% of registered female players since 2017 (Kanemasu & Johnson, 2019). Despite the increase in playing numbers, the same narratives continue to appear: barrier and challenges that lead to an underrepresentation and decline of females in coaching positions for both female and male teams. The study investigated female coaches' lived experiences of coaching rugby and the rugby coach education pathways in the UK and Ireland with a view to understanding why this underrepresentation exists.

The findings are represented in an adapted version of the Ecological Intersectional Model (EIM: LaVoi and Dutove, 2012) which focuses on the challenges faced by women in coaching on individual, interpersonal, organisational and societal levels, outlined in the graphic below.

However, rather than repeating the narratives, the findings have been used, in conjunction with a Sport Ireland survey, to create an interactive toolkit to overcome the barriers and challenges. Aimed at national governing bodies, coaches, clubs and other organisations the toolkit will assist in the recruitment and retention of women in coaching in particular, but also sport in general. Further research in UL will examine the support systems in place for women coaches in sport in Irish Higher Education Institutes (HEIs) through the recruitment of undergraduate and postgraduate students that will help to promote the Sport Ireland Women in Coaching scholarship system in conjunction with UL.





Prof. Catherine Woods

The JPI-HDHL comprises 28 research institutes from Europe and New Zealand to form the Policy Evaluation Network (PEN; https://www.jpi-pen.eu/). PEN's vision is to provide Europe with tools to identify, evaluate and benchmark policies designed to address physical inactivity, unhealthy diets and sedentary behaviour, while accounting for existing health inequities.

PEN encompasses six work packages (WPs), and the University of Limerick lead on WP1 providing an overview of public policies with direct/indirect influence on PA. The aim is to develop a PA Environment Policy Index (PA-EPI), a tool to benchmark public sector policies and actions for improving the PA policy environment, and consequently PA. For example, policies supporting PA in schools show promise, but their impact on PA behaviour is poorly understood. PEN WP1 undertook a systematic review to ascertain the level and type of evidence reported in the scientific literature. It found evidence for nine policy areas, and 22 policy actions having direct or indirect effects on PA within school settings (Figure 1). The review's policy recommendations were:

1. Strong support was found for mandated minimum physical education time.
2. Regulation of professional licensure of physical education teachers is supported by the review and other research affirming the role of the physical education specialist as a PA ambassador.
3. Some extra-curricular sport models may exacerbate sex-based sport participation disparities due to self-segregation. Girls may be less willing to participate alongside boys.
4. Additional policy areas for opportunities to promote PA in schools include minimum break times and facilitating youth access to PA physical spaces maximising the impact of the school's physical environment.
5. Opening school facilities to local communities through 'Shared Use Agreements' resulted in greater use of these facilities outside of school hours and was positively associated with PA in under-resourced communities when supported with good-quality PA programmes.

The review concluded that evidence supports the effectiveness of PA policy actions within school settings but cautions against a 'one-size fits all' approach. However, further evaluation of policy implementation, maximising translation into practice is required, with greater clarification regarding terminology, measurement and methods of evaluation needed. Other PEN systematic reviews in transport, sport and the public education settings are under review.

Figure 1 *Policy areas and actions for physical activity in schools*

PEN WP1 UL staff: Prof. Catherine Woods, Dr. Liam Kelly (Post-doctoral Researcher), Dr. Enrique Garcia (EHS Research Fellow), Dr. Bláthín Casey and Mr Kevin Volf (PhD Candidate); all from the PAfH Cluster.

https://www.healthydietforhealthylife.eu/

References:

Volf K, Kelly L, García Bengoechea E et al. Policy Evaluation Network (PEN): Protocol for systematic literature reviews examining the evidence for impact of policies on physical activity across seven different policy domains [version 4; peer review: 3 approved]. HRB Open Res 2022, 3:62 (https://doi.org/10.12688/hrbopenres.13089.4)

Woods CB, Volf K, Kelly L, et al. The evidence for the impact of policy on physical activity outcomes within the school setting: A systematic review. J Sport Health Sci 2021;10:263_76. https://doi.org/10.1016/j.jshs.2021.01.006

Culmination of a Series of Studies into the Therapeutic Viability of Pilates Training for Mental Health Among People With Multiple Sclerosis

Karl Flemming – Postdoctoral Researcher
Dr. Matthew Herring – Senior Lecturer

In 2021, a series of studies, led by Dr. Matthew Herring's doctoral student, Karl Fleming, culminated in the strongest available evidence to support the therapeutic viability of Pilates, an understudied alternative exercise mode, for mental health, specifically anxiety, depression, and fatigue, among People with Multiple Sclerosis (PwMS). This work logically progressed from their previous meta-analysis (Fleming & Herring, Comp Ther Med, 2018;37:80-95), showing Pilates-induced improvements of ~1-1.5 standard deviations in these mental health outcomes, and their feasibility pilot trial, which showed excellent retention and compliance, and moderate-to-large improvements in mental health outcomes for home-based Pilates compared to both supervised Pilates and wait-list control (Fleming, Coote & Herring, Psychol Sport Exerc, 2019;45:101573).

A follow-up qualitative process evaluation, involving semi-structured interviews and thematic analysis, revealed the suitability of home-based Pilates for PwMS and benefits while participating, such that PwMS reported experiencing improved mood and indicated that home-based Pilates particularly reduced barriers regularly experienced in this population (Fleming, Herring, Coote & Tindall, Disabil Rehabil, 2021; doi: 10.1080/09638288.2021.1939446).

Thus, an 8-week definitive randomized controlled trial was developed (Fleming, Coote & Herring, Ment Health Phys Act, 2020;100334) and conducted among 80 PwMS (69 females) randomized to twice-weekly home-based, DVD-guided Pilates or wait-list. Home-based Pilates significantly improved anxiety, depressive, and fatigue symptoms, including moderate-to-large, clinically meaningful improvements in depressive and fatigue symptoms (Fleming, Coote & Herring, Mult Scler J, 2021;27(14):2267-2279). Findings addressed the critical need to identify innovative, low-cost, and scalable strategies to improve exercise engagement and mental health among PwMS.

Collectively, this series of studies quantitatively and qualitatively supported home-based Pilates as a safe, feasible, adaptable, and deliverable intervention to improve mental health among PwMS, including potentially clinically meaningful improvements in depression and fatigue. Findings support the potential inclusion of home-based Pilates in the recently proposed clinical toolkit of exercise options for clinicians treating PwMS.

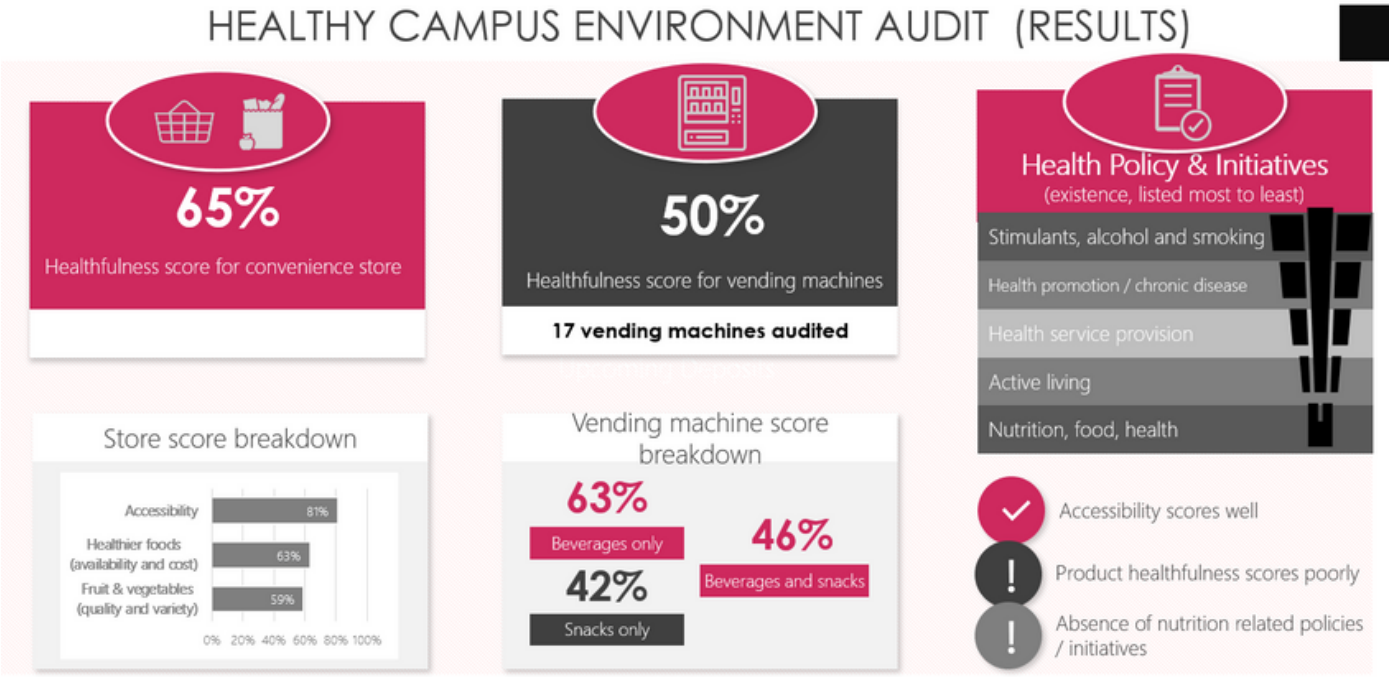
Theme: Physical Activity & Health

Healthy UL; Healthy Eating Sub-group activity

Dr. Catherine Norton

The years spent at university are a time of transition from adolescence to adulthood. Many of our first-year registrants at the University of Limerick face the challenges of adapting to changes in academic workloads, support networks and a new environment, with many being away from home for the first time. Concurrent with these changes, our students have new responsibilities, more freedom, and control over their lifestyle than perhaps previously. This transitional period could present an opportune time to establish healthy lifestyle behaviours, as health behaviours formed during young adulthood may have a sustaining impact on health across later life.

Led by Catherine Norton, the Healthy Eating sub-group of Healthy UL is auditing our campus environment to determine how supportive it is of 'making the healthy choice the easy choice'. To date, our group has conducted an extensive, validated assessment of the campus food environment (those places where we purchase or consume food), as the ubiquitous presence of unhealthy food cues is believed to contribute to the rising trends in overconsumption and associated obesity and ill health. We have completed audits of 1) institutional health related-policies and initiatives, 2) vending machine offerings and 3) convenience store accessibility and healthfulness on campus. Some impactful results are highlighted below.



Higher education institutions have opportunity to promote and encourage their students and staff to engage in healthy dietary habits by optimising the food environment. The findings presented will inform institutional strategies to improve the campus food environment, in line with the government of Ireland National Healthy Campus Framework. Optimising the food environment is central to the progression of the key tenets of this framework.

Our group is currently engaged with pilot testing an online initiative which aims to increase food engagement, cooking skills and nutrition knowledge over a four-week intervention. This involves online food skills and cooking demonstrations, hosted by registered dietitians and with a member of the UL community demonstrating their favourite dishes. We hope to report finding towards the end of this year with an intent to scale up this project in years ahead.

Promoting Physically Active School Culture

RESEARCH IMPACT

Alan Finnegan - MSc Postgraduate Student
Dr Elaine Murtagh

Creating a physically active school culture in an Irish urban post-primary school, planning for infrastructural change" is partly funded by the Teaching Council's John Coolahan Research Support Framework and the PESS Pat Duffy Teaching and Coaching Scholarship. This project by Alan Finnegan (Gaelcholáiste Luimnigh), Elaine Murtagh (PESS) and Ursula Freyne (PESS) has sought to embed a physically active school culture through the implementation of a Comprehensive School Physical Activity Programme (CSPAP).

Taking a socio-ecological approach, physical activity is promoted and supported through up to five components: physical education, physical activity before and after school, physical activity during school, staff involvement and family and community engagement. This is a novel project due to a scarcity of research in relation to the study of whole-school physical activity promotion in a post-primary context.

Data collection began in March 2021 with a student physical activity opportunities questionnaire, followed by the facilitation of focus groups with staff and students.

This formed the school's needs analysis to inform the design of the physical activity opportunities to be created and provided as part of the CSPAP. The programme is driven by a student-staff committee. The CSPAP was piloted in the school from October 2021 - December 2021; activities included a staff steps challenge and yoga programme, movement integration (also known as 'physically active learning') in classroom-based lessons and a first year lunchtime dance programme.

Initial findings and insights into the CSPAP implementation process in a post-primary context were presented by Alan Finnegan through workshops at the Teaching Council's Féilte 2021 online conference, as well as at the Physical Education Association of Ireland 2021 online conference, both taking place in October 2021.

The final findings from this research project will be presented through the completion of a thesis in fulfilment of a MSc. degree by research in June 2022.

A research-practice partnership for addressing policy challenges in Irish physical education

Dr. Jenna R. Lorusso
Prof. Ann MacPhail

Theme: Sport Pedagogy

Policy neglect is normative in physical education given the lack of preparation for policy engagement in initial teacher education, continuing professional development, and graduate programmes. Enhancing physical education stakeholders' preparedness for policy engagement is the focus of Dr. Jenna R. Lorusso's postdoctoral fellowship research, along with her supervisors Professor Ann MacPhail (EHS Assistant Dean Research and Professor in PESS) and Professor Hal A. Lawson (Professor in Educational Policy and Leadership at the University at Albany, SUNY).

To do so, this research project has engaged an interprofessional group of 10 Irish physical education stakeholders (i.e., physical education teachers, teacher educators, professional development providers, etc.) in an ongoing research-practice partnership to address policy problems of practice in Irish physical education.

The group has divided into three sub-groups and have been working since April 2021 to address:

(1) Limited interprofessional collaboration on policy initiatives by developing appreciative cases of our own and others' past and present interprofessional policy work successes

(2) Limited policy preparation across the teacher education continuum by designing a policy-focused professional development initiative for physical education stakeholders

(3) Issues in the quality of school placements by developing a research-based policy brief to form the basis of evidence-informed advocacy on the topic

The group has applied to deliver a presentation at the AIESEP 2022 World Congress (i.e., the International Association for Physical Education in Higher Education) on:

(a) How policy concepts and theories have helped the group to identify practical policy lessons that might enhance their own and others policy engagement

(b) Offer preliminary reflections on the broader experience of engaging in a policy-focused research-practice partnership, particularly which aspects helped to develop their policy preparedness and thus might usefully inform the facilitation of other such partnerships

This project is supported by funding from the Social Sciences and Humanities Research Council.

Learning to be a Teacher in Fully Online Environments:

Exploring the impact on content knowledge, pedagogical content knowledge and the quality of teaching

Dr Antonio Calderon

This is a project funded by the National Forum for the Enhancement of Teaching and Learning in Higher Education and The Higher Education Authority, as part of the Strategic Alignment of Teaching and Learning Enhancement Funding in Higher Education 2020. The PI is Dr Antonio Calderón together with Dr Mary Masterson from the School of Education. Ebru Boynuegri has been hired as research assistant. The distinctive approach to pedagogy that has emerged as a global norm in the opening months of 2020 prompted this project to explore distance education, remote teaching, and online instruction as new approaches to pedagogy and/ or curriculum design.

With this project, we aim to explore the impact that fully online pedagogies might have had on pre-service teachers' content and pedagogical content knowledge. To do so, we will examine the quality of their teaching while they are on school placement. A mixed-methods approach will gather qualitative information regarding their teaching approach through interviews and professional dialogues, but also quantitative rewarding teaching in general. We will also explore the online pedagogies followed to listen to the students' voice, related to their online learning experience, with the aim to inform policies related to online teaching and learning.

Funded from Strategic Alignment of Teaching and Learning Enhancement Funding in Higher Education 2020

For those who teach, we will provide some guidelines of the lessons learned from the student voice and the transferability from their learning to face to face (and online) teaching and learning situations. For those who learn, we will provide comprehensive insights into the content and pedagogical knowledge acquired by student teachers during the fully online teaching environment and the potential negative or positive impact on teaching quality.

The student teachers' experiences of online learning are unique and thus interesting to explore in some depth in terms of how it might impact on the success of pupils' learning. Currently, the initial findings of the project are being shared in national (Educational Studies Association of Ireland) and international (European Educational Research Association) conferences and peer reviewed journals.

Theme: Sport Pedagogy

Exploring the teaching and learning process during a pandemic

Prof. Ann MacPhail

Theme: Sport Pedagogy

As a consequence of COVID-19, there continues to be an interest in the extent to which the school student (remote) learning experience was experienced as well as how teachers transitioned to remote instruction. The influence of technology/digital learning and pedagogy are two areas of interest in determining how we might re-imagine the role of the school given what has been learned in addressing how best to engage with, and continue, meaningful learning, throughout COVID-19.

This study aims to examine the unique impacts of COVID-19 on teaching and learning and specifically:

1. How students have and are experiencing school and how this may influence their learning
2. Changes that teachers have made in their school teaching practices

A total of eight focus groups have been completed with year 3 (four focus groups) and year 6 (four focus groups) students in a county Limerick post-primary community school. Focus groups have focused on two main themes. The **teaching and learning theme** explores teaching and learning experiences and reactions during the online teaching and learning period, the main differences in learning online and learning face-to-face, the benefits and challenges to learning online and recommendations on how teachers might improve their teaching online. The **student voice theme** explores how students express their opinions in the school (specifically with respect to decisions around teaching and learning) and structures that in place for them to express their voice.

Focus groups with teachers from the same school are pending and will look to capture teacher experiences of teaching and learning online, benefits and challenges, supports available to them, and the extent to which teaching and learning during COVID-19 impacted their relationship with students.

The project team includes Goretti Brady (HRI), Prof. Ann MacPhail, Dr. Jason Power (UL), Dr. Dylan Scanlon (DCU) and Dr. Deborah Tannehill (Emeritus UL).

Physical Activity and Health

Theme Lead: Dr. Matthew Herring

Though 2021 continued to present challenges to research, including difficulties with school-based research, delayed health assessments for large-scale population-based studies (e.g., TILDA), and delayed laboratory-based exercise studies, the Physical Activity & Health research theme continued to thrive in research funding, output, and impact. Theme members' research focused on surveillance/measurement of activity behaviours, correlates and determinants of activity behaviours, physical activity intervention design, development, implementation, evaluation, and translation to policy, associations of activity behaviours and their interrelations with cardiometabolic and mental health, exercise as medicine for physical and mental health, and the biopsychosocial mechanisms which may underpin dynamic relationships of activity and exercise with physical and mental health.

Theme members generated more than €3mil in research funding, including large-scale funding from the Joint Programme Initiative, Sport Ireland, the HRB, and the HSE, along with significant funding for networking, postgraduate and postdoctoral training, and dissemination. The theme publication profile remained prolific with 50+ articles across the fields of exercise and sport sciences, medicine, psychology, psychiatry, and public health. Over 50% were quartile one publications. These publications included critical review of the prophylactic benefits of physical activity for depression, the first definitive randomized controlled trial of home-based Pilates for mental health, one of the few trials of the anxiolytic benefits of resistance exercise training, additional critical evidence regarding the role of sitting time on cardiometabolic and mental health, and novel evidence regarding plausible mechanisms/determinants of activity behaviours and their relationships with physical and mental health across the age and health continuums.

Theme members engaged in critical leadership within national and international physical activity and health initiatives and organizations, including Exercise is Medicine®, the Policy Evaluation Network, and the Irish Physical Activity Research Consortium. These leadership activities yielded a significant number of national and international research-based webinars, workshops, conferences, and other key dissemination events.

€3 million Funding

Joint Programme Initiative
Sport Ireland
HRB
HSE

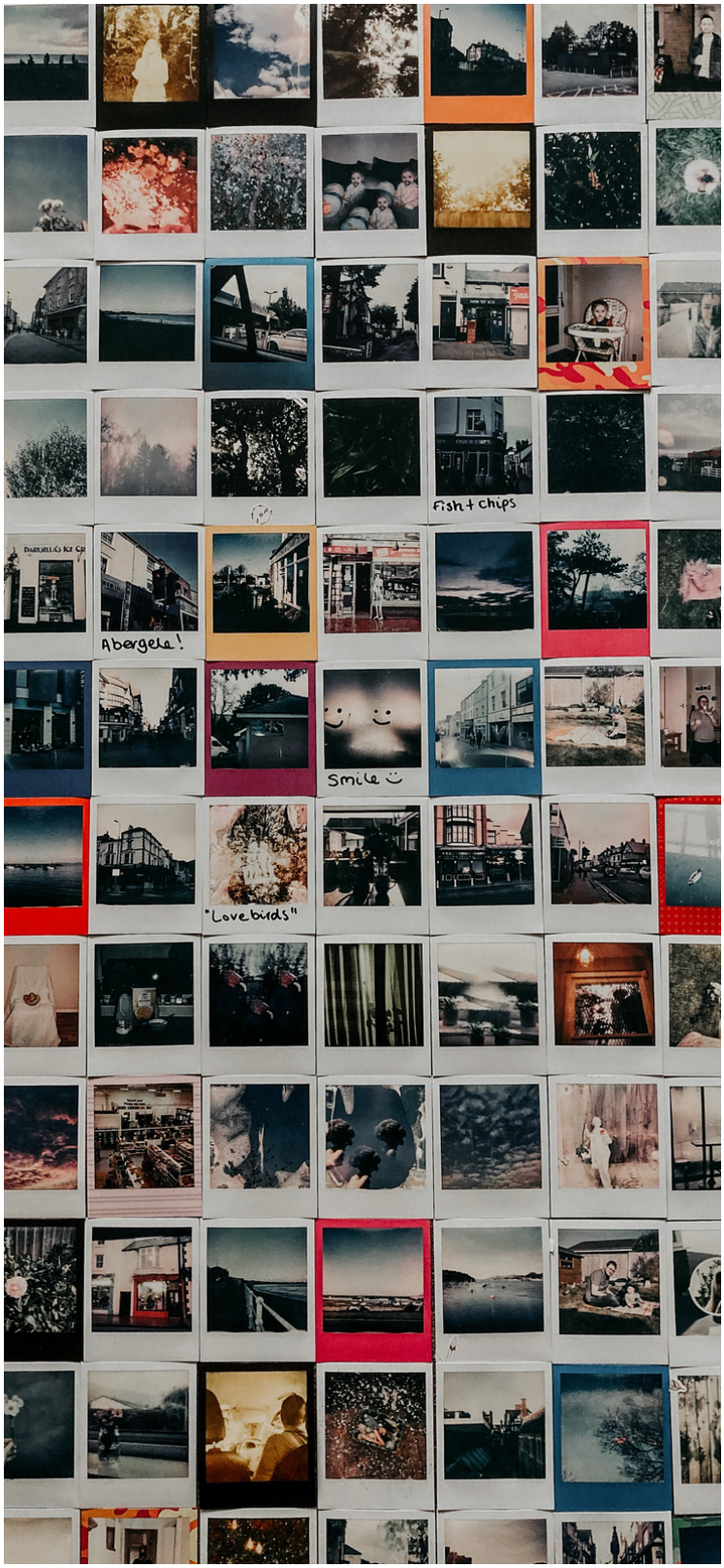
50+ Publications

50% Q1

Research News

Learning about social justice pedagogies for teacher educators through an ongoing community of learners

Brigitte Moody



There is limited research available on the process of individual or collective identity formation of teacher educators in becoming teacher educators of/for social justice. Eighteen months ago, a group of Physical Education Teacher Educators, which includes Antonio Calderón, Ann MacPhail, Brigitte Moody, Elaine Murtagh and Claire Walsh from PESS and Dylan Scanlon from DCU, formed a community of learners to investigate their pedagogical practices that can enhance and limit socially just teacher education.

Conscious of the need to address inclusive and equitable quality physical education with and for pre-service teachers, we began a journey towards developing our practice of teaching. Engaging in individual and collaborative self-study we are exploring identities and biographies through critical incidents that positioned us in a particular manner to social justice. Learning from this exploration, we progressed the research to enactment, investigating the realities of teaching through and about social justice and through sharing our findings may support other teacher educators as they embark on a similar journey towards enacting social justice pedagogies and teaching about social justice.

In this time, the group has been quite productive and the initial findings from this research has been presented in some of the most important educational research conferences such as the Australian Association of Research in Education (AARE) and the submission accepted for the American Educational Research Association.

The Erasmus + 'Promoting Physical Activity in Secondary Schools for Health' (2PASS 4Health) project
Caera Grady - PhD candidate in Adolescent Physical Activity and Health

Photo features the members of the project team who attended the first project face-to-face project team meeting at the University of Porto in November 2021 (University of Zaragoza, Spain partners absent from picture). The Physical Education and Sports Sciences department at University of Limerick was represented by all UL team members.

The meeting took place over two days in which the partners got the opportunity to network and work together to advance the various intellectual outputs for the project that is due to finish in 2023.

The Erasmus+ 'Promoting Physical Activity in Secondary Schools for Health' (2PASS 4 Health) project, funded by the Erasmus+ Collaborative Partnerships, was launched on the 1st of January 2021. This collaborative project is led by University of Pau and Pays de l'Adour (France) and involves academic colleagues from Ireland (University of Limerick), Spain (University of Zaragoza), Portugal (University of Porto), Belgium (University of Ghent) and France (City of Tarbes). See PESS blog post (New Erasmus+ project examines school-based physical activity promotion initiatives across Europe: Dr. Elaine Murtagh).

The purpose of the 2PASS 4Health project is to collaborate between partner countries to allow networking, effective exchange and transfer of good practices. The project aims to identify examples of good practices likely to improve the quality and sustainability of interventions designed to promote PA in adolescents in order to implement and evaluate a school-based multilevel intervention, and to make it accessible to the research community as well as concerned professionals.

Prof Catherine Woods, Dr Elaine Murtagh, Dr Enrique Gacía Bengoechea and Caera Grady worked together in 2021 to gather expert insight on best practice to promote physical activity in secondary schools. This collaborative conceptual thinking will be presented in a position paper that aims to draw greater attention to key issues needed to realise the full potential of schools and ideal PA for health promotion setting. This publication will make specific recommendations to advance research and practice. Furthermore, the UL partners will lead in compiling resources for a practical toolkit that school staff can use to support initiatives to increase PA in their schools. The project is due to finish in January 2023 and will be concluded with a final dissemination event in December 2022 that will take place in Tarbes, France. This will feature both theoretical and applied sessions to disseminate our research findings.

Post-Primary Active School Flag Research Project

Dr Kwok Ng

The post-primary Active School Flag (ASFPP) research project is led by Professor Catherine Woods and her research team including Dr Kwok Ng, Fiona Mc Hale, Joanna Clifford, Maeve Conneely and Caera Grady. The ASFPP research study underwent a significant transition in 2021.

In September 2018, the first cohort of pilot feasibility schools (n=3) joined the programme at the 'certificate' stage with the aim of progressing to get the 'flag' in the year starting 2019. After some updates between 2018 and 2019, a second cohort of schools (n=3) joined the pilot feasibility study. The academic years 2019/2020 and 2020/2021 were greatly impacted by COVID-19 thus, evaluation of the programmes feasibility was limited. Nonetheless, the research team made numerous key findings and recommendations to improve the programme for its next iteration.

In September 2021, new schools (n=17) were recruited to take part in a pilot study where schools enter at the 'try it out' or the readiness stage to get a taste of ASFPP to prepare the school environment for the certificate and flag stages of the programme. Two internal reports for the national steering committee were published in 2021.

The first report, in May 2021 provided key findings and recommendations from the ASFPP implementation evaluation and preliminary evidence of promise findings. The implementation evaluation by McHale et al (2021) is available as a pre-print article (available here) and results were presented at the International Society for PA and Health 2021 congress. Findings from the first COVID-19 lockdown (Spring 2020) on the key influencers providing PA information to adolescents were presented at the International Society for Behavioural Nutrition and PA X-Change 2021 congress.

In September 2021, a whole school survey was distributed among the new cohort of ASFPP schools. Personalised reports of the survey results were produced for each school which were used as part of the ASFPP action plans. The second report summarised the data to provide a baseline PA profile of the new ASFPP schools and compared with CSPPA 2018 data were possible. Constant monitoring against national norms could be a useful indicator and driver to improve PA levels as we wait to see how the ASFPP pilot study goes.

IRIS: Irish Rugby Injury Surveillance Eight Year Funding Secured to 2030

Dr Ian Kenny & Dr Tom Comyns

UL's Irish Rugby Injury Surveillance (IRIS) Project led by PI's Dr Tom Comyns and Dr Ian Kenny (PESS) have secured an eight year extension to their successful research collaboration with the Irish Rugby Football Union. Commenced in 2016, the programme will now run until 2030. IRIS conduct research on the incidence, severity and nature of injuries and associated rugby science in schools and in male and female amateur rugby in Ireland. The IRFU's funding of €319,573 will be used to support three additional PhD scholarships and the running of the national rugby injury surveillance project.

Twelve UL academics and 8 researchers from disciplines of sport science, physiotherapy, medicine, and mathematics and statistics, contribute to the management and development of this project. This includes:

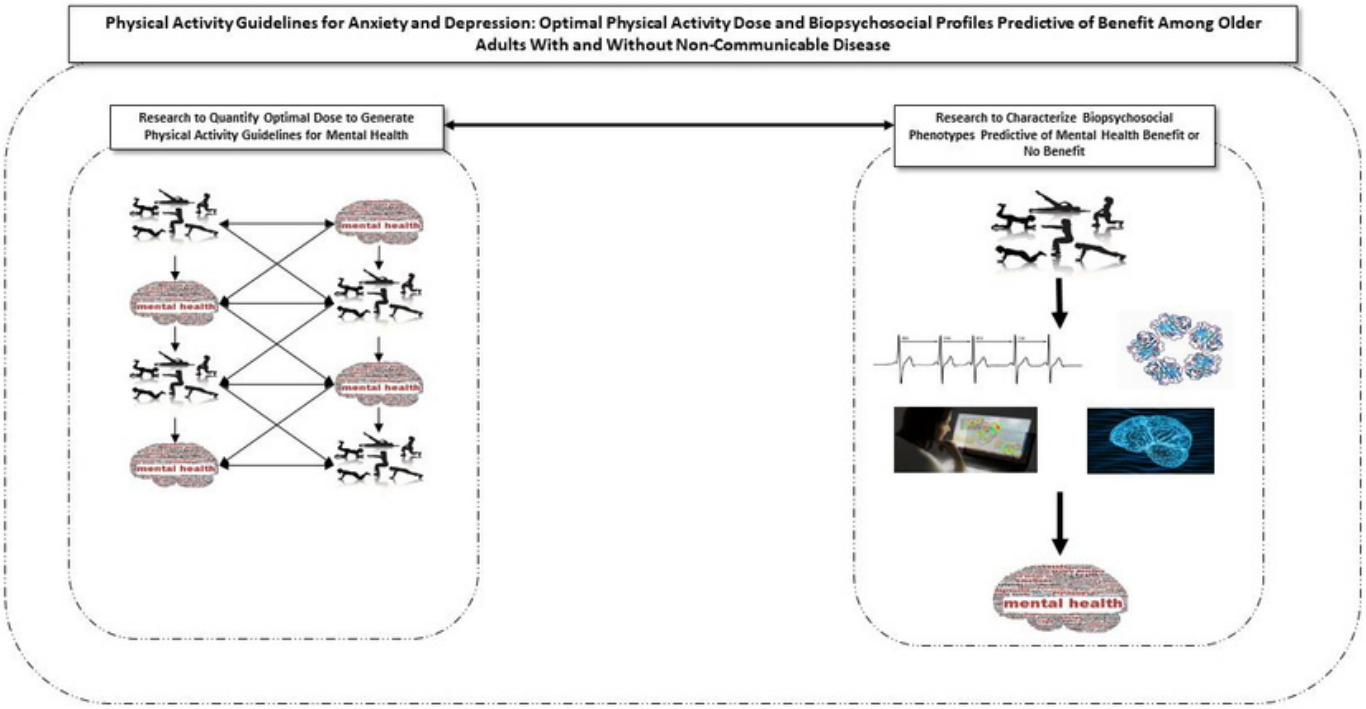
Professor Giles Warrington (PESS)
Dr Roisin Cahalan (School of Allied Health)
Dr Helen Purtill (Mathematics and Statistics)
Dr Mark Lyons (PESS)
Dr Mark Campbell (PESS)
Dr John Mulvihill (School of Engineering)
Professor Drew Harrison (PESS)
Professor Liam Glynn (School of Medicine)
Dr Kieran O'Sullivan (School of Allied Health)
Ms Therese Leahy (PESS)
Mr Patrick Dolan (PESS)
Ms Lauren Guilfoyle (PESS)

Herring and Team Secure Successful Health Research Board Secondary Data Analysis Project Grant

Dr. Matthew P. Herring, Project Lead, and PESS Co-Investigators, Prof. Catherine Woods and Dr. Ciaran Mac Donncha, were awarded a 24-month Health Research Board Secondary Data Analysis Project grant of ˜€248,000. This project, entitled "Physical Activity Guidelines for Anxiety and Depression: Optimal Physical Activity Dose and Biopsychosocial Profiles Predictive of Benefit Among Older Adults With and Without Non-Communicable Disease," was one of eight awarded nationally, and one of two successful applications from UL. The project, which began December 2021, will use data from The Irish Longitudinal Study on Ageing (TILDA) to establish the most effective physical activity prescription to prevent and treat anxiety and depression among older adults with and without long-term illness. This research will also examine how this physical activity prescription might change depending on an individual's characteristics, including their lifestyle, age, gender, physical health, or other psychobiological factors, and will allow the development of evidence-based physical activity guidelines for mental health among older adults.

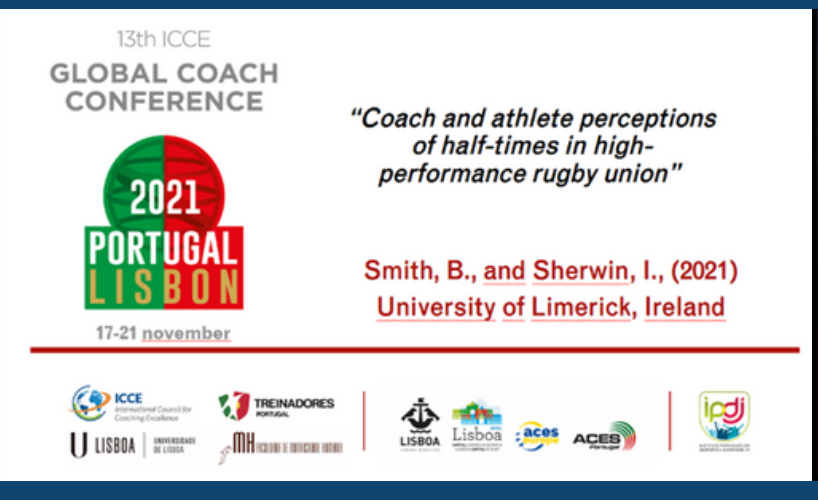
These guidelines will then be translated into policy briefs for the Department of Health and the Health Services Executive. Finally, training programs will be developed for and delivered to healthcare professionals and exercise professionals, focusing on how guidelines can be used in their practice as part of standard care. This project is underpinned by strong existing collaborations between Dr. Herring and his research team, TILDA management and personnel, and the HSE's Older Person's Services, particularly the 'Get Up, Get Dressed, Get Moving Initiative and Network, and will be supported by a full-time, 24-month post-doctoral researcher, a short-term, six-month biostatistician, and a strong applicant team that also includes Professor Cathal Walsh.

The grant application, submission, rebuttals, budget negotiations, and contracts were facilitated by strong support from Dr. Imelda Doolan, Dr. Cillian McDowell, and the PAfH Research Cluster.



The first research projects from the MSc Applied Sports Coaching reach national and international audiences

Dr Ian Sherwin



The first cohort of the MSc Applied Sports Coaching completed their studies in 2021, and their research is already shaping practice. **Barry Smith**'s research on coach and athlete perceptions of half-times in high-performance rugby union was presented at the International Council for Coaching Excellence conference in Lisbon in November, while **Aaron O'Connell**'s research on how coaches can help players develop life skills was recently featured on the Ladies Gaelic Football Association's research pod - an initiative to disseminate high quality research relevant to Gaelic football coaches.

Half time (HT) is a complex, unique time during competition, when coaches have the potential to positively influence the course of a game via their brief interactions with players. Barry's findings revealed coach and player preferences for tactical and technical information. The creation of a calm environment, facilitated by an emotionally-controlled coach, was highlighted by all as a prerequisite to effective HTs. Numerous strategies for the effective transmission of messages during HT were identified. A novel finding was the strikingly collaborative nature of HT interactions in high performance rugby union, with all participants strongly advocating coach-facilitated, collaborative HT planning and decision making. In addition to the conference presentation, Barry's work is currently under consideration by the journal Sports Coaching Review.

Aaron investigated the life skills that coaches of 12-18 year-old athletes are developing and the strategies they use to develop them. Semi-structured interviews with eighteen coaches revealed 38 life skills that were deemed important. However, there was a disconnect between the value coaches placed on life skills and coaches' failure to plan and allocate sufficient time to the teaching of these skills. In particular, the project revealed a need to upskill coaches on how to help players transfer life skills beyond the sports setting. Aaron's work has recently been accepted for publication with Sport Coach America.

The primary aim of the MSc Applied Sports Coaching is to enhance the practice of coaches on the programme. However, through their research projects, coaches also have the potential to have a broader influence the quality of coaching within Ireland and internationally.

PESS PhD Graduations 2021

Dr Julieanne McAuliffe
Thesis: The role of psychological skills and characteristics in optimising talent development in a rugby union academy
Supervisors: Dr Mark Campbell and PESS Adjunct Professor David Lavallee

Dr Arthur Lynch
The Use of an Isometric Squat Test as a Measure of Lower Body Maximal Strength
Supervisors: Dr Brian Carson / Dr Robert Davies / Dr Joanna Allardyce

Dr Eoghan McNeill
Thesis: Watch, Imagine, and Perform? The Effect of Motor Simulation Interventions on Sensorimotor Task Performance
Supervisors: Dr Mark Campbell / Prof. Drew Harrison

Dr Dylan Scanlon
The Construction and Enactment of Curriculum Policy in Irish School Curriculum Reform: A Case Study of Leaving Certificate Physical Education
Supervisors: Prof. Ann MacPhail / Dr Antonio Calderon

Dr Marta Kozior
Thesis: Peri-Exercise Nutrition: An Innovative Approach to Dietary Assessment in Trained Populations
Supervisors: Dr Catherine Norton / Prof. Phil Jakeman

Dr. Cathal Óg O'Sullivan
Thesis: The Exploration of Student Voice in the Development of Fundamental Movement Skills with Post-Primary Students and Teachers
Supervisors: Dr Tom Comyns / Dr Melissa Parker

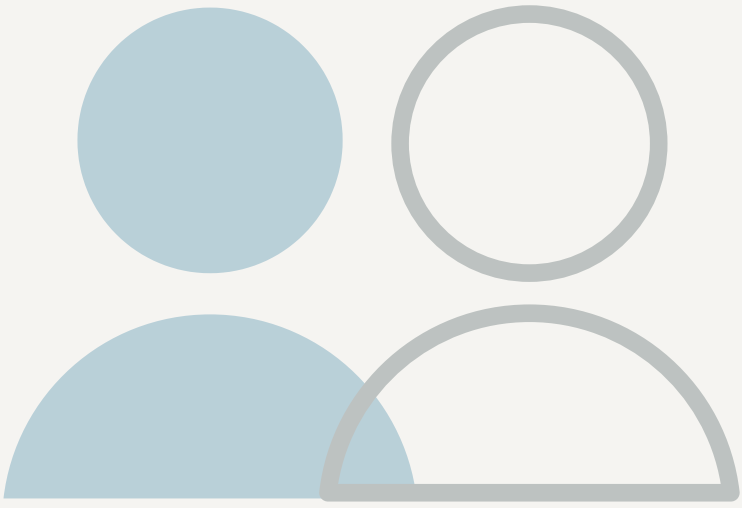
Dr Gráinne Hayes
Thesis: Physical Activity, Sedentary Behaviour and Cardiometabolic Health in Children, Adolescent and Young Adults
Supervisors: Prof. Alan Donnelly/Dr Ciarán MacDonncha

Plant-Based Proteins & Musculoskeletal Health

Dr Síle Griffin

Previous research conducted by the Jakeman Research Group, in collaboration with Marigot Ltd., investigated the bio-efficacy of ATURA plant protein isolates (https://aturaproteins.com/) to stimulate human skeletal muscle protein synthesis (funded by Enterprise Ireland in 2019). Dr Síle Griffins' current Marie Skłodowska Curie Career-FIT Fellowship aims to extend this work to substantiate the role of ATURA protein-based nutrition in support of the gut-bone axis and bone health. Indeed, optimizing bone health with a sustainable dietary supplement fits with the ambitious European Food 2030 promotion of sourcing and developing new protein alternatives. In addition, Síle travelled to California with Marigot Ltd. to present at the Stauber Innovation Day which took place on 09/03/2022, an event hosted by a nutritional ingredient distributor in the United States (https://www.stauberusa.com/). With the plant-based food market on the rise, manufacturers need to deliver innovative and clinically proven products to meet consumer needs. Thus, Síle will present a "Review of ATURA Protein Plant-Based Science: Past, Present and Future", with a focus on musculoskeletal health.

Research Events



I-PARC INAUGURAL CONFERENCE

The I-PARC inaugural conference titled "Collaborative Action for Physical activity promotion: opportunities presented by COVID-19" took place online from 11-14th January 2021. The event was funded by the Health Research Board and was co-hosted by the I-PARC team and the Physical Activity for Health Research Cluster at UL. The conference opened with a warm welcome from the principal investigators of I-PARC, Dr Fiona Mansergh (Dept Health) and Prof Catherine Woods (PAfH). The work of I-PARC was endorsed by Ministers Jack Chambers and Frank Feighan (Dept. TGACSM and Dept. Health respectively) who provided warm speeches during the conference.

The event had 23 national and international keynote and optional breakout session speakers. Topics included physical activity and infectious diseases, physical activity and mental health, PA messaging, the impact of COVID-19 on: (a) PA and sports participation in Ireland, (b) adolescents PA engagement, collaborative efforts to promote PA, infrastructure and climate change. There were various sectors represented among attendees including education, sport, health, transport, charities, children/young people, academia and others.

A total of 407 people registered to attend the conference with an average of 180 daily visits. Throughout the conference the I-PARC website and social media saw huge engagement and a significant increase in its impact/reach over a one-year period. For example, members increased from 47 in 2020 to 607 in 2021, website visitors increased from 75 individuals (6 countries) in 2020 to 542 individuals (26 countries) in 2021. After the conference I-PARC's following increased to 600 members on the website and 1245 followers on twitter.

Feedback from the conference was positive, although people look forward to a hybrid or face-to-face event in the future. Recordings and slideshows from the conference are available on the website for our members click here to find out more. (https://i-parc.ie/?page_id=1153).

I-PARC

Fostering insight, intelligence and innovation to enable more people in Ireland to be more active, more often

Physical Activity for Health Webinar Series: Dr Bláthín Casey

PAfH
Physical Activity *for* Health
HRI Research Cluster
University of Limerick

The Physical Activity for Health (PAfH) research cluster webinar series returned in 2021 after its successful kick-off in 2020. A total of 8 international and collaborative webinars were held and this year's webinars saw registrations ranging from 100 up to 400+ people online. The success of these webinars has increased the profile and visibility of the PAfH research cluster and PESS, as seen by increased Twitter followers and interest in joining our mailing list.

PAfH webinars in 2021 had a clear focus on collaboration with the following groups joining forces to run these events. These groups included:

- Exercise is Medicine National Centre Ireland (EIM Ireland)
- European Network for Health Enhancing Physical Activity (HEPA)
- The International Society For Physical Activity And Health (ISPAH)

A list of the 2021 webinars can be viewed below. We hope to continue to deliver high quality, international, collaborative webinars in 2022. We also hope to develop a hybrid model and have some events face:face! If you have any questions about the PAfH webinar series, please don't hesitate to contact the PAfH Programme Manager, Dr Bláthín Casey, Blathin.Casey@ul.ie.

- Jan 20th 2021- Dr. Mark Stoutenberg- "Exercise is Medicine - A Global Health Initiative", in collaboration with EIM Ireland director and co-director, Dr Matthew Herring and Dr Brian Carson.
- Feb 17th 2021 - Prof. Kathryn H. Schmitz- "Exercise is Medicine in Advanced Cancer Patients: Very Much Alive (Results from the ENACT trial)", in collaboration with EIM Ireland director and co-director, Dr Matthew Herring and Dr Brian Carson.
- March 23rd 2021 - Dr Noel McCaffrey- "ExWell Medical: Community-Based Chronic Illness Rehabilitation in Practice: Challenges and Opportunities", in collaboration with EIM Ireland director and co-director, Dr Matthew Herring and Dr Brian Carson.
- April 7th 2021 - Prof Lauren Sherar and Prof Bjorge Herman-Hansen- "Using the International Children's Accelerometry Database (ICAD) to better understand physical activity and health in young people", moderated by PAfH member Dr Elaine Murtagh, in collaboration with HEPA and ISPAH.
- October 18th 2021- Associate Professor Aurélie Van Hoye- "Health Promoting Sports Clubs: From Theory to Real World Application", moderated by PAfH member Prof Catherine Woods.
- November 8th 2021- Associate Professor Lykke Sylow- "Exercise- A panacea of Metabolic Dysregulation in Cancer: Physiological and Molecular Insights", moderated by PAfH member Dr Brian Carson.
- December 6th 2021- Dr Kieran O'Sullivan- "Back pain- what activities are safe and helpful", moderated by PAfH member Dr Roisin Cahalan.
- December 10th 2021- Benny Cullen, Prof Simon Shibli and Prof Girish Ramchandaniis-"Researching the Health and Economic Value of Sport in Ireland", in collaboration with EIM Ireland director and co-director, Dr Matthew Herring and Dr Brian Carson.

Faculty of Sports and Exercise Medicine (FSEM) 17th ANNUAL SCIENTIFIC CONFERENCE in partnership with Exercise is Medicine®Ireland

Dr Brian Carson

This year the Exercise is Medicine® Ireland National Centre partnered with the Faculty of Sports and Exercise Medicine (FSEM) to host their 17th Annual Scientific Conference. The meeting included an excellent panel of transdisciplinary national and nine international speakers focusing on a diverse range of topics within the overall theme of Exercise is Medicine. Speakers highlighted the importance of exercise for population health, exercise as treatment for cardiometabolic conditions, vascular health, and cancer across the lifespan and in important subsamples of the population, and the role of exercise in brain health and the management of pain. The meeting was endorsed by the British Journal of Sports Medicine as a quality international education activity with CPD credits awarded to attendees.

Dr. Matthew Herring, Director of Exercise is Medicine® Ireland National Centre, co-chaired the event with Dr Wilby Williamson (TCD) and led the Exercise is Medicine focus of the meeting. Dr Brian Carson, deputy director of Exercise is Medicine® was a member of the organizing committee and chaired the session on Exercise, obesity and metabolic health, along with other Exercise is Medicine® advisory board members Professor Suzanne McDonough (RCSI) and Dr. Grainne O'Donoghue (UCD).

This meeting developed a partnership between FSEM and EIM Ireland which is critically important to galvanising EIM-related activities across Ireland to improve population health through recognising, assessing, and implementing physical activity as a vital sign for health.

School-based Research Forum

Dr Brendan O'Keeffe
Dr Elaine Murtagh

The goal of the PESS School-based Research Forum is to share experiences of school-based research and establish opportunities for collaboration among faculty members across all PESS Research Themes. The current group comprises of faculty staff, postgraduate researchers, including those that are practicing teachers, who meet regularly to share ideas and examine the potential for future research. PESS has as long-standing tradition of high-quality school-based research across all of four of the Department's primary Research Themes, not least Sport Pedagogy for which the PESS Department was named as the top outstanding University in the field in 2017 (Dong et al., 2017).

Themes for the forums held in 2021 included:

- An overview of school-based research occurring in the Sport Pedagogy, Physical Activity and Health, and Sport and Human Performance research groups.

  At this event, representatives from each of the research groups gave a presentation of ongoing school-based research. Antonio Calderón, Kwok Ng, Caera Grady and Tom Comyns presented at the event.

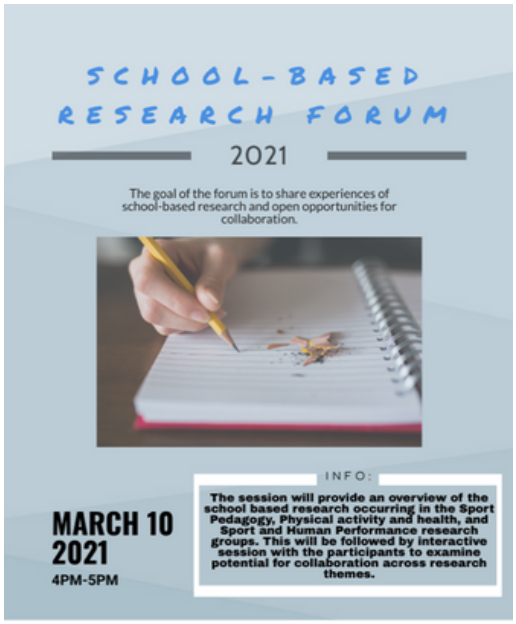
- Exploration of 'integrated learning experiences' in Leaving Certificate Physical Education

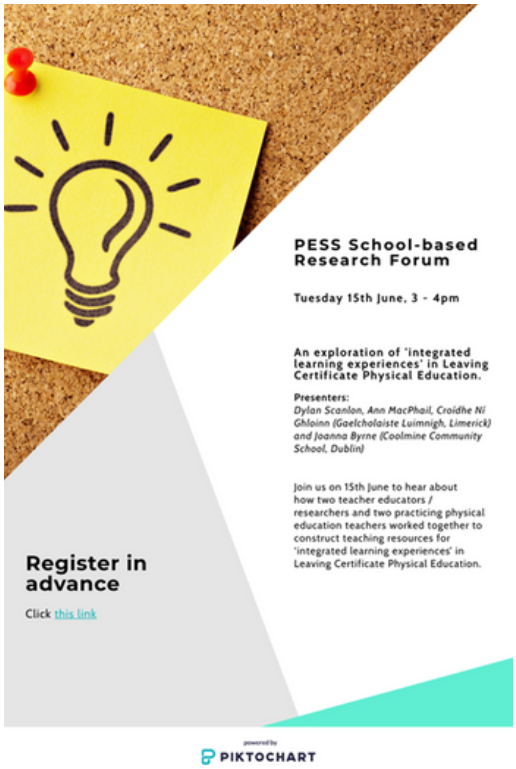
  PESS Researchers, Ann MacPhail and Dylan Scanlon, were joined by teachers, Croídhe Ní Ghloinn (Gaelcholaiste Luimnigh, Limerick) and Joanna Byrne (Coolmine Community School, Dublin), to present their ongoing research to inform the development of teaching resources for integrated learning experiences in Leaving Certificate Physical Education.

- Creating Our Future brainstorm session

  The focus of this session was to develop and subsequently submit ideas to the national 'Creating Our Future' brainstorm initiative (https://creatingourfuture.ie/). Priority collaborative research ideas that the group wishes to pursue were discussed.

The forum has proved to be a fruitful space for dialogue and generating research ideas. Future initiatives will include the development of several collaborative research projects, drawing on the experience and expertise of those involved in school-based research across the department.

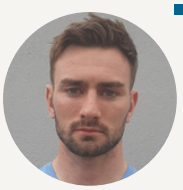




Researchers Spotlight

Dr Brendan O'Keeffe

LBB in Physical Education



I joined the PESS Department as a lecturer in Physical Education in August 2021. My research interests span a broad range of health and fitness related themes among youth, including: the pedagogy of health-related fitness; scalable school-based health promotion interventions; resistance exercise in school settings; and barriers and supports to physical activity participation, particularly among marginalised youth.

My doctoral studies, entitled 'The Youth-Fit Project', involved the development, delivery, and evaluation of a pedagogically sound and scientifically rigorous approach to monitoring health-related fitness in school settings among a randomised sample of 1215 adolescents in the mid and south-west region of Ireland. This project has led to multiple publications (available here) as well as collaborations with service providers including the PDST and Department of Education and Skills.

I am a member of the Steering Committee of the latest iteration of the Children Sport Participation and Physical Activity study (CSPPA) 2022. I am the Principal Investigator on the Erasmus+ funded BEFORE project focusing on 'Anti-bullying Education for Sports Coaches', a collaboration led by colleagues in the Anti-Bullying Research Institute at DCU, as well as four other European partners. I am also a member of the pan-European FitBack consortium whose mandate is to provide tools that will allow examination of population health trends and interventions on child health at the regional, national, and European level.

I am currently co-supervising one PhD student who is examining the impact of Physical Education provision on physical activity, health, and wellbeing. I have served on the executive board of the Physical Education Association of Ireland for the past seven years. I am a firm believer in the importance of practice-based evidence informing evidence-based practice.

I am committed to the design and dissemination of pioneering school-based research that makes a difference to students and school communities, with the practitioner (teacher) at the heart of my teaching and research.

For more on Brendan's research on his ResearchGate profile

Dr. Síle Griffin

Postdoctoral Researcher

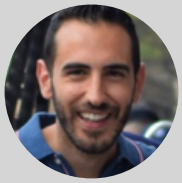
Marie Skłodowska Curie Career-FIT Fellowship

I received a BSc in Neuroscience from the University College Cork, Ireland in 2009, MSc in Stem Cells and Regeneration from the University of Bristol, United Kingdom in 2010, and PhD in Neuroscience from Keele University, United Kingdom in 2015. My PhD work sought to discover bioactive nutrients that govern normal brain development during early life, and focused on determining the timing, duration, and dose of the vitamin B3 metabolite for optimal neural development. Following my academic studies, I took the opportunity to join the Cambridge Clinical Trials Unit where I worked closely with clinical trialists and researchers across Cambridge Biomedical Campus and learnt about the scientific, pragmatic and patient-specific considerations that make trials feasible and successful. When the opportunity arose to join DuPont's clinical research team in the field of the microbiome and brain health, joining my education in neuroscience and clinical trial experience together, the decision to move to Finland for such a role was very simple. For three years, I was involved in initiating and completing one pre-clinical study and four clinical trials, focusing on the role of probiotics in modulating the microbiota-gut-brain axis.

In 2021, I was awarded a Marie Skłodowska Curie Career-FIT Fellowship (Jakeman Research Group, PESS) to develop a nutritional strategy using a plant (https://aturaproteins.com/) and marine-based (https://aquamin.com/) supplement to target the interactions between the gut microbiome and bone health. Thus, building on from my PhD and global industrial experience, my current research aim is to provide scientific clinical evidence on Marigot's product range that can be translated to the global food market to enhance health and wellbeing.

More on Síle's research on her ResearchGate profile

Karl Cortis



Doctoral Researcher

Sport Pedagogy

Karl joined the University of Limerick as a PhD part time student under the supervision of Dr Antonio Calderón and Prof Ann MacPhail. His area of research is cooperative learning and the use of digital technologies in Physical Education. As a Lecturer for Physical Education and Sport at the University of Malta (UOM) Junior College, he is responsible for delivering lectures in Physical Education at the intermediate level and study units within the Institute for Physical Education and Sport at the University of Malta.

Graduating as a teacher of Physical Education from the University of Malta, Karl spent nine years teaching at the Archbishop's Seminary School. In 2010 he was awarded the Annabelle Vassallo award for the most committed coach with SportMalta. Karl graduated as a teacher mentor in 2018, mentoring trainee teachers and newly qualified teachers. In 2019 Karl graduated with a Master of Science from the University of Birmingham, School of Sport and Exercise Rehabilitation Sciences, with a dissertation on Physical Education Assessment in Maltese Secondary Schools.

During the past years, Karl has worked in various sports fields, including a masseur with the Pieta F.C. U-17 team. Karl also spent four years as Head Coach with SportMalta at different venues, coordinating various events. He was also responsible for delivering Outdoor Education units with the education institute. In addition, Karl is a visiting lecturer within the Institute of Physical Education and Sport and with the Faculty of Education at his local university.

More on Karl's profile on his LinkedIn profile

Dr Catherine Norton

Lecturer in Sport & Performance Nutrition & Course Director MSc Sports Performance

With over 20 years' experience across the breadth and scope of dietetic practice, I started in my position as a lecturer in Sport & Performance Nutrition at UL in 2016. My research is applied in nature and aims to bridge the gap between research and practice in nutrition for health and performance. There is application for the core tenets of nutrition for athletic populations, to other groups. For this reason, healthy aging is another research interest of mine as there are many transferable applications across these different populations.

Specific to performance, colleagues in the School of Allied Health and I are currently investigating injury surveillance in ladies Gaelic football. We are interested in the associations between body composition and injury incidence, as well as learning more about the logistics of injury surveillance in this cohort. I have previously researched dietary and sport supplement use among male and female Gaelic games players, as well as reviewing consensus statement on nutrition for team sports to determine their application for Gaelic games. Performance nutrition is a relatively new discipline, and it is an exciting time to be involved.

Reflective of the work environment from which I have come, I enjoy the multidisciplinary nature of the work that I do. I am currently involved with a large team of food scientists, physiologists, exercise scientists and nutritionists, as well as under and post- graduate students. We are working collaboratively to investigate the use of marine based protein, in combination with resistance training, to attenuate age-related muscle mass losses. This work builds on my previous doctoral studies, which carried out similar work but using dairy proteins as the intervention.

A new area of research interest is the concept of the food environment (location specific food availability / accessibility and consequent ability to prepare, store and consume same). This interest has application in many areas; there is an obvious influence of the food environment on the attainment of dietary guidelines for athletes.

A good example here might be an educated, committed rower, from a nutrition perspective, will encounter barriers to meeting dietary adequacy by virtue of where they train and compete - on the water! Influencing the food environment can support behaviour change and ultimately improve adherence with nutrition strategies in support of performance.

The work that I do for Healthy UL also assess the food environment, however in this context, our research group is investigating how the campus food environment can influence food behaviours and ultimately the health of the campus community.

More on Catherine's research on her ResearchGate profile

Appendix 1

External Research Awards 2021

External Research Awards

Source: UL Research Office

External Research Awards for PESS based on Cost Centres opened at December 2021

	AY2016-17	AY2017-18	AY2018-19	AY2019-20	AY2020-21	TOTAL
ENTERPRISE IRELAND	232,980	19,721	12,804	233,067	243,450	**742,023**
ENVIRONMENTAL PROTECTION AGENCY	3,000		2,885			**5,885**
EUROPEAN UNION	121,168	109,523	63,590	1,699,213	417,078	**2,410,572**
HEALTH RESEARCH BOARD		237,694	282,677	6,100		**526,471**
INDUSTRY	222,413			164,543		**386,956**
IRISH RESEARCH COUNCIL	94,650	120,000	240,000	324,888		**779,538**
DEPT OF AGRICULTURE, FOOD & THE MARINE					140,483	**140,483**
OTHER	1,008	759,536	57,747	57,564	4,879	**880,734**
GRAND TOTAL	**678,219**	**1,246,474**	**659,703**	**2,485,376**	**805,890**	**5,872,662**

Note AY2020-21 is 3 Months (October to December 2021)

External Research Awards for PESS AY2020-21 based on Cost Centres opened at December 2021

FUNDING BODY	PROGRAMME	PROJECT LEADER	AWARD
OTHER	TEACHING COUNCIL	PROF ANN MACPHAIL	**4,879**
EUROPEAN UNION	EU-ERASMUS+	PROF CATHERINE WOODS	**58,750**
EUROPEAN UNION	EU - COST ACTION	DR CIARAN MAC DONNCHA	**67,000**
EUROPEAN UNION	EU ERASMUS+	DR CIARAN MAC DONNCHA	**94,737**
DEPARTMENT OF AGRICULTURE, FOOD AND THE MARINE	DAFM - DAERA/DAFM COMPETITIVE RESEARCH PROGRAMME	DR BRIAN CARSON	**386,956**
EUROPEAN UNION	EU-H2020 MSCA INDIVIDUAL FELLOWSHIPS	PROF CATHERINE WOODS	**196,591**
ENTERPRISE IRELAND	EI-CAREER FIT	PROF PHIL JAKEMAN	**234,350**

Total: 805,890

Appendix 2

PESS Publications 2021 (Web of Science)

- Aird, T.P., Farquharson, A.J., Bermingham, K.M., O'Sulllivan, A., Drew, J.E. and Carson, B.P., 2021. Divergent serum metabolomic, skeletal muscle signaling, transcriptomic, and performance adaptations to fasted versus whey protein-fed sprint interval training. American Journal of Physiology-Endocrinology and Metabolism, 321(6), pp.E802-E820. DOI: 10.1152/ajpendo.00265.2021 **Q1**

- Aird, T.P., Farquharson, A.J., Drew, J.E. and Carson, B.P., 2021. Development of a multiplex assay to determine the expression of mitochondrial genes in human skeletal muscle. Experimental Physiology, 106(8), pp.1659-1670. DOI: 10.1113/EP089557 **Q2**

- Amara, S., Crowley, E., Sammoud, S., Negra, Y., Hammami, R., Chortane, O.G., Khalifa, R., Chortane, S.G. and van den Tillaar, R., 2021. What Is the Optimal Strength Training Load to Improve Swimming Performance? A Randomized Trial of Male Competitive Swimmers. International Journal of Environmental Research and Public Health, 18(22), p.11770. DOI: 10.3390/ijerph182211770 **Q1**

- Andonian, C., Freilinger, S., Achenbach, S., Ewert, P., Gundlach, U., Kaemmerer, H., Nagdyman, N., Neidenbach, R.C., Pieper, L., Schelling, J. and Weyand, M., 2021. Quality of life in patients with Marfan syndrome: a cross-sectional study of 102 adult patients. Cardiovascular Diagnosis and Therapy, 11(2), p.602. DOI: 10.21037/cdt-20-692 **Q2**

- Andonian, C.S., Freilinger, S., Achenbach, S., Ewert, P., Gundlach, U., Hoerer, J., Kaemmerer, H., Pieper, L., Weyand, M., Neidenbach, R.C. and Beckmann, J., 2021. 'Well-being paradox'revisited: a cross-sectional study of quality of life in over 4000 adults with congenital heart disease. BMJ open, 11(6), p.e049531. DOI:10.1136/bmjopen-2021-049531 **Q2**

- Baba, T., Joyce, M., Boibluche, S., Hu, X., McGrath, D., Dubois, R., Nicolas, G. and Prioux, J., 2021. Aerobic fitness and isokinetic knee strength of semi-professional rugby union players: a comparison between backs and forwards. The Journal of Sports Medicine and Physical Fitness. DOI: 10.23736/S0022-4707.21.11235-6 **Q4**

- Barbu-Roth, M., Siekerman, K., Anderson, D.I., Donnelly, A., Huet, V., Goffinet, F. and Teulier, C., 2021. Can Optic Flow Further Stimulate Treadmill-Elicited Stepping in Newborns?. Frontiers in Psychology, 12. DOI: 10.3389/fpsyg.2021.665306 **Q2**

- Barrett, E., Casey, B., Dollard, M., McCarthy, B. and Casey, D., 2021. Effectiveness of Functionally based Physical Activity Programs on Physical, Psychological, Cognitive, and Adverse Outcomes in Older Adults Living in Nursing Homes: Systematic Review. Activities, Adaptation & Aging, 45(4), pp.306-347. DOI: 10.1080/01924788.2020.1794352

- Barry, L., Lyons, M., McCreesh, K., Powell, C. and Comyns, T., 2021. The relationship between training load and pain, injury and illness in competitive swimming: A systematic review. Physical Therapy in Sport, 48, pp.154-168. DOI: 10.1016/j.ptsp.2021.01.002 **Q2**

- Beckmann, J., Ehmann, M., Kossak, T.N., Perl, B. and Hähl, W., 2021. Volition in sports. Zeitschrift für Sportpsychologie. DOI: 10.1026/1612-5010/a000321 **Q4**

- **Bengoechea, E**.G., Clifford, A.M., Gallagher, S., O'Regan, A., O'Sullivan, N., Casey, M., Glynn, L., Macken, P., Sweeney, J., Donnelly, A. and Murphy, A., 2021. Juggling with theory, evidence, practice, and real-world circumstances: Development of a complex community intervention to increase physical activity in inactive adults aged 50 years and older-The Move for Life Study. Evaluation and Program Planning, 89, p.101983. DOI: 10.1016/j.evalprogplan.2021.101983 **Q2**

- Buckland, N.J., Swinnerton, L.F., Ng, K., Price, M., Wilkinson, L.L., Myers, A. and Dalton, M., 2021. Susceptibility to increased high energy dense sweet and savoury food intake in response to the COVID-19 lockdown: The role of craving control and acceptance coping strategies. Appetite, 158, p.105017. DOI:10.1016/j.appet.2020.105017 **Q1**

- Buffey, A.J., Onambélé-Pearson, G.L., Erskine, R.M. and Tomlinson, D.J., 2021. The validity and reliability of the Achilles tendon moment arm assessed with dual-energy X-ray absorptiometry, relative to MRI and ultrasound assessments. Journal of Biomechanics, 116, p.110204. DOI: 10.1016/j.jbiomech.2020.110204

- Burke, L.M., Hall, R., Heikura, I.A., Ross, M.L., Tee, N., Kent, G.L., Whitfield, J., Forbes, S.F., Sharma, A.P., Jones, A.M. and Peeling, P., 2021. Neither beetroot juice supplementation nor increased carbohydrate oxidation enhance economy of prolonged exercise in elite race walkers. Nutrients, 13(8), p.2767. DOI: 10.3390/nu13082767

- Calderón, A., Scanlon, D., MacPhail, A. and Moody, B., 2021. An integrated blended learning approach for physical education teacher education programmes: teacher educators' and pre-service teachers' experiences. Physical Education and Sport Pedagogy, 26(6), pp.562-577. DOI: 10.1080/17408989.2020.1823961 **Q1 Top10%**

- Calderón, A. and Tannehill, D., 2021. Enacting a new curriculum models-based framework supported by digital technology within a learning community. European physical education review, 27(3), pp.473-492.DOI: 10.1177/1356336X20962126 **Q1**

- Cale, L., 2021. Physical education's journey on the road to health. Sport, Education and Society, 26(5), pp.486-499. DOI: 10.1080/13573322.2020.1740979 **Q1**

- Casey, A., MacPhail, A., Larsson, H. and Quennerstedt, M., 2021. Between hope and happening: Problematizing the M and the P in models-based practice. Physical Education and Sport Pedagogy, 26(2), pp.111-122. DOI: **Q1 Top 10%**

- Chillón, P., Gálvez-Fernández, P., Huertas-Delgado, F.J., Herrador-Colmenero, M., Barranco-Ruiz, Y., Villa-González, E., Aranda-Balboa, M.J., Saucedo-Araujo, R.G., Campos-Garzón, P., Molina-Soberanes, D. and Segura-Díaz, J.M., 2021. A school-based randomized controlled trial to promote cycling to school in adolescents: the PACO Study. International journal of environmental research and public health, 18(4), p.2066.DOI: 10.3390/ijerph18042066 **Q1**

- Cindrich, S.L., Lansing, J.E., Brower, C.S., McDowell, C.P., Herring, M.P. and Meyer, J.D., 2021. Associations between change in outside time pre-and post-COVID-19 public health restrictions and mental health: brief research report. Frontiers in public health, 9, p.8.DOI. 10.3389/fpubh.2021.619129 **Q1**

- Conroy, E., Kowal, M., Toth, A.J. and Campbell, M.J., 2021. Boosting: Rank and skill deception in esports. Entertainment Computing, 36, p.100393. DOI: 10.1016/j.entcom.2020.100393 **Q3**

- Cooper, J., Murphy, J., Woods, C., Van Nassau, F., McGrath, A., Callaghan, D., Carroll, P., Kelly, P., Murphy, N. and Murphy, M., 2021. Barriers and facilitators to implementing community-based physical activity interventions: a qualitative systematic review. International Journal of Behavioral Nutrition and Physical Activity, 18(1), pp.1-13.DOI: 10.1186/s12966-021-01177-w **Q1 Top 10%**

- Cremona, A., O'Gorman, C.S., Ismail, K.I., Hayes, K., Donnelly, A.E., Hamilton, J. and Cotter, A., 2021. A risk-prediction model using parameters of maternal body composition to identify gestational diabetes mellitus in early pregnancy. Clinical Nutrition ESPEN, 45, pp.312-321.DOI: 10.1016/j.clnesp.2021.08.002

- Crotty, E.D., Furlong, L.A.M., Hayes, K. and Harrison, A.J., 2021. Onset detection in surface electromyographic signals across isometric explosive and ramped contractions: a comparison of computer-based methods. Physiological Measurement, 42(3), p.035010. DOI: 10.1088/1361-6579/abef56 **Q3**

- Dishman, R.K., McDowell, C.P. and Herring, M.P., 2021. Customary physical activity and odds of depression: a systematic review and meta-analysis of 111 prospective cohort studies. British Journal of Sports Medicine, 55(16), pp.926-934. DOI: 10.1136/bjsports-2020-103140 **Q1 Top 10%**

- Doherty, R., Madigan, S.M., Nevill, A., Warrington, G. and Ellis, J.G., 2021. The sleep and recovery practices of athletes. Nutrients, 13(4), p.1330. DOI: 10.3390/nu13041330 **Q1**

- Dowling, L., Jakeman, P., Norton, C., Skelly, M.M., Yousuf, H., Kiernan, M.G., Toomey, M., Bowers, S., Dunne, S.S., Coffey, J.C. and Dunne, C.P., 2021. Adults with Crohn's disease exhibit elevated gynoid fat and reduced android fat irrespective of disease relapse or remission. Scientific Reports, 11(1), pp.1-8. DOI: 10.1038/s41598-021-98798-9 **Q1**

- Dowling, L., Jakeman, P., Norton, C., Skelly, M.M., Yousuf, H., Kiernan, M.G., Toomey, M., Bowers, S., Dunne, S.S., Coffey, J.C. and Dunne, C.P., 2021. Adults with Crohn's disease exhibit elevated gynoid fat and reduced android fat irrespective of disease relapse or remission. Scientific Reports, 11(1), pp.1-8. DOI: 10.1038/s41598-021-98798-9 **Q1**

- Elia, A., Gennser, M., Harlow, P.S. and Lees, M.J., 2021. Physiology, pathophysiology and (mal) adaptations to chronic apnoeic training: a state-of-the-art review. European Journal of Applied Physiology, 121(6), pp.1543-1566. DOI: 10.1007/s00421-021-04664-x Q1

- Everard, E., Lyons, M. and Harrison, A.J., 2021. An Examination of the Relationship Between the Functional Movement Screen, Landing Error Scoring System, and 3D Kinematic Data During a Drop Jump Task. Journal of Strength and Conditioning Research, 35(11), pp.3012-3020. DOI: 10.1519/JSC.0000000000003261 **Q1**

- Fealy, C.E., Grevendonk, L., Hoeks, J. and Hesselink, M.K., 2021. Skeletal muscle mitochondrial network dynamics in metabolic disorders and aging. Trends in molecular medicine, 27(11), pp.1033-1044. DOI: 10.1016/j.molmed.2021.07.013 **Q1 Top10%**

- Fleming, K.M., Coote, S.B. and Herring, M.P., 2021. Home-based Pilates for symptoms of anxiety, depression and fatigue among persons with multiple sclerosis: An 8-week randomized controlled trial. Multiple Sclerosis Journal, 27(14), pp.2267-2279. DOI: 10.1177/13524585211009216 **Q1**

- Furlong, L.A.M., Harrison, A.J. and Jensen, R.L., 2021. Measures of strength and jump performance can predict 30-m sprint time in rugby union players. The Journal of Strength & Conditioning Research, 35(9), pp.2579-2583. DOI: 10.1519/JSC.0000000000003170 **Q1**

- Gelius, P., Messing, S., Forberger, S., Lakerveld, J., Mansergh, F., Wendel-Vos, W., Zukowska, J. and Woods, C., 2021. The added value of using the HEPA PAT for physical activity policy monitoring: a four-country comparison. Health Research Policy and Systems, 19(1), pp.1-12. DOI: 10.1186/s12961-021-00681-6 **Q1**

- Ginis, K.A.M., van der Ploeg, H.P., Foster, C., Lai, B., McBride, C.B., Ng, K., Pratt, M., Shirazipour, C.H., Smith, B., Vásquez, P.M. and Heath, G.W., 2021. Participation of people living with disabilities in physical activity: A global perspective. The Lancet, 398(10298), pp.443-455. DOI: 10.1016/S0140-6736(21)01164-8 **Q1 Top 10%**

- Gjaka, M., Tessitore, A., Blondel, L., Bozzano, E., Burlot, F., Debois, N., Delon, D., Figueiredo, A., Foerster, J., Gonçalves, C. and Guidotti, F., 2021. Understanding the educational needs of parenting athletes involved in sport and education: The parents' view. Plos one, 16(1), p.e0243354. DOI: 10.1371/journal.pone.0243354 **Q2**

- Goncalves, L.L., Parker, M. and Carbinatto, M.V., 2021. COMMUNITY OF PRACTICE AND CONTINUING PROFESSIONAL DEVELOPMENT OF PHYSICAL EDUCATION TEACHERS IN A BRAZILIAN SCHOOL. MOVIMENTO, 27. 10.22456/1982-8918.113015 **Q4**

- Gordon, B.R., McDowell, C.P., Lyons, M. and Herring, M.P., 2021. Resistance exercise training among young adults with analogue generalized anxiety disorder. Journal of Affective Disorders, 281, pp.153-159. DOI: 10.1016/j.jad.2020.12.020 **Q1**

- Griffin, A., Kenny, I.C., Comyns, T.M. and Lyons, M., 2021. Training load monitoring in amateur rugby union: a survey of current practices. The Journal of Strength & Conditioning Research, 35(6), pp.1568-1575. DOI: 10.1519/JSC.0000000000003637 **Q1**

- Griffin, A., Kenny, I.C., Comyns, T.M., Purtill, H., Tiernan, C., O'Shaughnessy, E. and Lyons, M., 2021. Training load monitoring in team sports: a practical approach to addressing missing data. Journal of Sports Sciences, 39(19), pp.2161-2171. DOI: 10.1080/02640414.2021.1923205 Q1

- Guberman, A., Ulvik, M., MacPhail, A. and Oolbekkink-Marchand, H., 2021. Teacher educators' professional trajectories: evidence from Ireland, Israel, Norway and the Netherlands. European Journal of Teacher Education, 44(4), pp.468-485. DOI: 10.1080/02619768.2020.1793948 **Q1**

- Guijarro, E., MacPhail, A., González-Víllora, S. and Arias-Palencia, N.M., 2020. Relationship between personal and social responsibility and the roles undertaken in Sport Education. Journal of Teaching in Physical Education, 40(1), pp.76-85. DOI: 10.1123/jtpe.2019-0097 **Q1**

- Hallgren, M., Herring, M.P., Vancampfort, D., Hoang, M.T., Andersson, V., Andreasson, S. and Abrantes, A.M., 2021. Changes in craving following acute aerobic exercise in adults with alcohol use disorder. Journal of Psychiatric Research, 142, pp.243-249. DOI: 10.1016/j.jpsychires.2021.08.007 **Q1**

- Hallgren, M., Vancampfort, D., Hoang, M.T., Andersson, V., Ekblom, Ö., Andreasson, S. and Herring, M.P., 2021. Effects of acute exercise on craving, mood and anxiety in non-treatment seeking adults with alcohol use disorder: An exploratory study. Drug and alcohol dependence, 220, p.108506. DOI:10.1016/j.drugalcdep.2021.108506 **Q1**

- Healy, R., Kenny, I.C. and Harrison, A.J., 2021. Resistance training practices of sprint coaches. The Journal of Strength & Conditioning Research, 35(7), pp.1939-1948. DOI: 10.1519/JSC.0000000000002992 **Q1**

- Herring, M.P., Gordon, B.R., McDowell, C.P., Quinn, L.M. and Lyons, M., 2021. Physical activity and analogue anxiety disorder symptoms and status: Mediating influence of social physique anxiety. Journal of Affective Disorders, 282, pp.511-516. DOI:10.1016/j.jad.2020.12.163 **Q1**

- Hopkins, D., García Bengoechea, E. and Mandic, S., 2021. Adolescents and their aspirations for private car-based transport. Transportation, 48(1), pp.67-93. DOI: 10.1007/s11116-019-10044-4 **Q1**

- Hortigüela-Alcalá, D., Calderón, A. and González-Calvo, G., 2020. Transcultural impact of learning to teach sport education on preservice teachers' perceived teaching competence, autonomy, and academic motivation. Journal of Teaching in Physical Education, 40(3), pp.431-441. DOI: 10.1123/jtpe.2019-0169 **Q1**

- Howley, D. and O'Sullivan, M., 2021. 'Getting better bit by bit': Exploring learners' enactments of student voice in physical education. Curriculum Studies in Health and Physical Education, 12(1), pp.3-19. DOI: 10.1080/25742981.2020.1865825

- Howley, D. and O'Sullivan, M., 2020. "You're not going to get it right every time": Teachers' perspectives on giving voice to students in physical education. Journal of Teaching in Physical Education, 40(1), pp.166-174. DOI: 10.1123/jtpe.2019-0142 **Q1**

- Hutzler, Y., Tesler, R., Ng, K., Barak, S., Kazula, H. and Harel-Fisch, Y., 2021. Physical activity, sedentary screen time and bullying behaviors: exploring differences between adolescents with and without disabilities. International Journal of Adolescence and Youth, 26(1), pp.110-126. DOI: 10.1080/02673843.2021.1875852

- Iannucci, C., Richards, K.A.R. and MacPhail, A., 2021. The relationships among personal accomplishment, resilience and teachers' experience of teaching multiple school subjects role conflict. European Physical Education Review, 27(3), pp.613-635. DOI: 10.1177/1356336X20980777 **Q1**

- NCD Risk Factor Collaboration, 2021. Heterogeneous contributions of change in population distribution of body mass index to change in obesity and underweight. Elife, 10, p.e60060. DOI: 10.7554/eLife.60060 **Q1 Top 10%**

- Keane, J., Malone, S., Keogh, C., Young, D., Coratella, G. and Collins, K., 2021. A comparison of anthropometric and performance profiles between elite and sub-elite hurling players. Applied Sciences, 11(3), p.954. DOI: 10.3390/app11030954 **Q2**

- Kearney, P.E., Comyns, T.M. and Hayes, P., 2021. The Prevalence and Consequences of Within-Sport Specialization in Track and Field Athletics. Research Quarterly for Exercise and Sport, 92(4), pp.779-786. DOI: 10.1080/02701367.2020.1776819 **Q2**

- Kelly, L., O'Connor, S., Harrison, A.J. and Ní Chéilleachair, N.J., 2021. Effects of an 8-week school-based intervention programme on Irish school children's fundamental movement skills. Physical Education and Sport Pedagogy, 26(6), pp.593-612. DOI: 10.1080/17408989.2020.1834526 **Q1 Top 10%**

- Kenny, E., O'Malley, R., Roche, K., Morrissey, E., Dinneen, S.F., Byrne, M. and Casey, B., 2021. Diabetes distress instruments in adults with Type 1 diabetes: A systematic review using the COSMIN (COnsensus-based Standards for the selection of health status Measurement INstruments) checklist. Diabetic Medicine, 38(4), p.e14468. DOI: 10.1111/dme.14468 **Q2**

- King, L., Cullen, S.J., McArdle, J., McGoldrick, A., Pugh, J., Warrington, G. and Losty, C., 2021. Stressors experienced by professional jockeys. The Sport Psychologist, 35(2), pp.142-154. DOI: 10.1123/tsp.2020-0128 **Q3**

- King, L., Cullen, S.J., McGoldrick, A., Pugh, J., Warrington, G., Woods, G. and Losty, C., 2021. Mental health difficulties among professional jockeys: a narrative review. BMJ open sport & exercise medicine, 7(2), p.e001078. DOI: 10.1136/bmjsem-2021-001078

- King, L., Cullen, S.J., O'Connor, S., McGoldrick, A., Pugh, J., Warrington, G. and Losty, C., 2021. Racehorse Trainer Mental Health: Prevalence and Risk Factors. Journal of Equine Veterinary Science, 101, p.103423. DOI: 10.1016/j.jevs.2021.103423 **Q2**

- King, L., Cullen, S., O'Connor, S., McGoldrick, A., Pugh, J., Warrington, G., Woods, G., Nevill, A.M. and Losty, C., 2021. Common mental disorders among Irish jockeys: prevalence and risk factors. The Physician and Sportsmedicine, 49(2), pp.207-213. DOI: 10.1080/00913847.2020.1808435 **Q3**

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