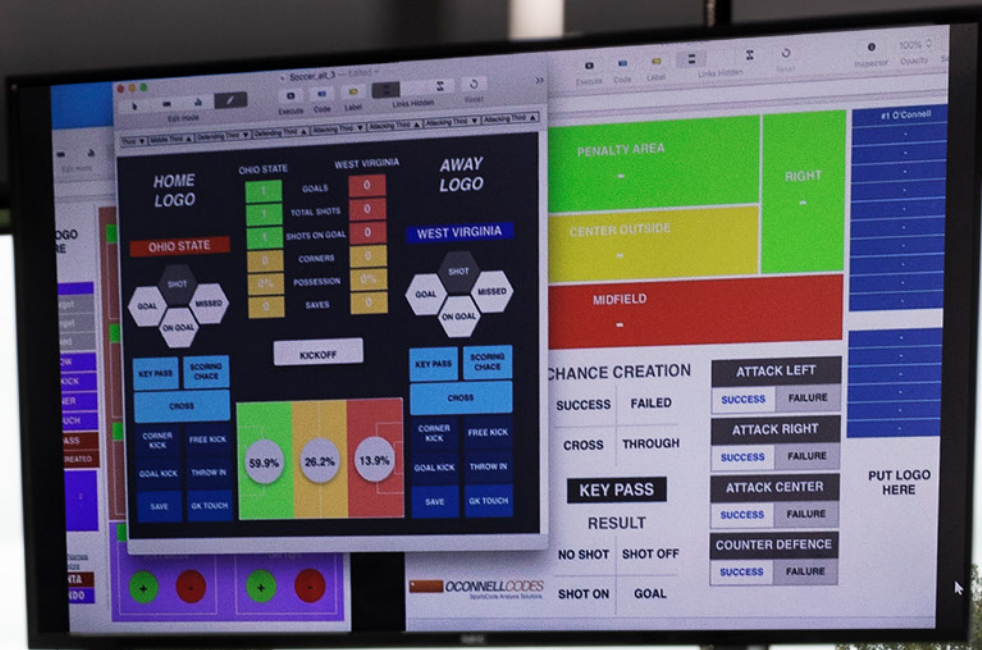


LASEM ANNUAL REPORT 2021

La Trobe Sport and Exercise
Medicine Research Centre





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La Trobe University acknowledges that our campuses are located on the lands of many Traditional Custodians in Victoria and New South Wales. We recognise their ongoing connection to the land and value their unique contribution to the University and wider Australian society.

La Trobe University is committed to providing opportunities for Aboriginal and Torres Strait Islander people, both as individuals and communities, through teaching and learning, research and community partnerships across all our campuses.

The wedge-tailed eagle (*Aquila audax*) is one of the world's largest, and the Wurundjeri people – Traditional Owners of the land where our Melbourne campuses are located – know the wedge-tailed eagle as Bunjil, the creator spirit of the Kulin Nations.

There is a special synergy between Bunjil and the La Trobe University logo of an eagle. The symbolism and significance for both La Trobe and for Aboriginal people challenges us all to gamagoen yarrbat – to soar.

Cover image and left: La Trobe Bachelor of Sport and Exercise Science students. May 2021.

Disclaimer: Every effort has been made to ensure the information contained in this publication is accurate and current at the date of printing.

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Overview

La Trobe Sport and Exercise Medicine (LASEM) Research Centre leads, conducts, and disseminates world class research to optimise an individual's chosen level of performance and participation in sport, physical activity, work, and leisure.

Our focus is to increase sport and exercise medicine knowledge through excellent collaborative research, and to translate knowledge into policy, practice, participation, health, and wellbeing.

LASEM encompasses a unique collaboration between clinical and sports science, creating the capacity to make a real difference to the health, wellbeing and participation of individuals and communities.

Sport and exercise play an important role in maintaining and improving physical and psychological health, therefore optimising participation in active living. This is critical for health across the lifespan, and for those with health conditions.

Equally, optimising performance in sport and exercise is vital to maximise an individual's potential performance in their

chosen activity, and minimise the health cost burden caused by injury.

To improve healthy participation and performance in exercise across the spectrum from elite sport to chronic disease, we need further education, training and rehabilitation interventions designed to prevent injury and optimise healthy participation, and to educate about the benefits of prevention.

Welcome Message from the Director, LASEM

Reflecting on the accomplishments of the La Trobe Sport and Exercise Medicine Research Centre brings to mind both our enormous achievements, but also the difficult odds we had to overcome to succeed. Ongoing COVID-19 lockdowns in 2021 continued to cause disruptions to our research program, with many face-to-face clinical trials and PhD candidatures being put on hold, and data collection significantly delayed.

We farewelled one of LASEM's founders, Professor Jill Cook. Thankfully she will stay on in an Emeritus Professor role, to keep sharing her wisdom with the Centre. As LASEM continued to grow, we also welcomed a Deputy Director, Associate Professor Joanne Kemp. Jo has been a member of the LASEM team since 2016 and brings with her a wealth of expertise in hip pain, as well as an international reputation as an expert in her field. We are very grateful she said yes! Post-doctoral researcher Dr Adam Culvenor also had a noteworthy 2021, securing a NHMRC Emerging Leadership Fellowship, and winning the La Trobe University Vice Chancellor's Research Excellence Award. We also had the pleasure of nominating LASEM founding member Professor Peter Brukner for a prestigious La Trobe University Honorary Degree. Of course he was successful in being awarded a DSc (Honoris Causa) for exceptional leadership in the field of sport and exercise medicine.

We published a similar amount in 2021 to 2020. In 2021, international collaboration grew from 42% to 52%, revealing a

hidden benefit of our new virtual world – collaborations are no longer dictated by geography. We also had 53 active research projects in 2021 and our external funding continued to increase, with growth of \$390,000 to \$5,334,849.

In 2021, we secured a significant industry partnership with Levin Health, allowing us to delve into the effect of medicinal cannabis on hip and knee pain. The TRAIL project recruited 200 runners, collected their data and patient reported outcomes, and conducted biomechanical testing/imaging on more than 100 runners and The FORCE project team completed their 2-3 year follow-up data collection. CanMOVE, a theoretically informed behaviour change intervention to promote physical activity for children undergoing acute cancer treatment, completed a feasibility study and found there was high demand for CanMOVE in the paediatric oncology setting with a 95% enrolment rate.

Our online presence remained strong with members of the FORCE team being key contributions to 11 webinars, on hip pain and cam morphology as a part of the Oxford-Aspetar-La Trobe Young Athlete's (YAHIR) Hip Webinar Series. Additionally, the TRAIL website was launched (<https://trail.latrobe.edu.au/>), providing ongoing education about running injuries and performance. Our presence in the media was a success. Media star Dr Brooke Patterson was interviewed on injury prevention in women's sport, drawing audiences of 958,000 and my parallel coverage of



Women in Sport attracted more than 431,000 audience members. The topic of concussion continued to be popular too, with Peter Brukner's interviews on the topic attracting an audience of 644,000. More than 15 podcasts were created by LASEM team members.

We were thrilled to see 4 PhD completions in 2021, with a host of awards alongside them (see page 26 for details).

As always, I am so proud of the team that I work alongside and the work that we do to improve quality of life for the community.

Professor Kay Crossley



Welcome Message from the Deputy Vice-Chancellor and Vice-President (Research and Industry Engagement)

The La Trobe Sport and Exercise Medicine (LASEM) Research Centre is known for its high-quality research and academic publications. The Centre translates knowledge into the health sector, clinical practice, elite sport, and the community, where it has a transformational impact in injury prevention, non-surgical intervention, and enhancing quality of life. It is one of La Trobe's high profile research centres and links research excellence and impact with La Trobe Sport's impressive infrastructure.

An important partnership with Levin Health was formed in 2021, resulting in a collaboration between LASEM researchers and Levin Health – an Australian sports science company specialising in researching, developing, and commercialising medicinal cannabis products. In a world-first trial, the study will recruit 114 people with chronic hip and/or knee pain and investigate the effects of medicinal cannabis on pain and function outcomes. Levin Health also develops innovative technologies to assess the severity of concussions. The Neurolog Eye Tracking Technology (NETT) is a portable set of goggles that assesses eye movements and reaction times, which is being evaluated by LASEM, on behalf of Levin Health.

The Partnership between La Trobe University and The Australian Ballet continued to investigate how to improve dancer wellbeing and prevent injury in 2021. The LASEM partnerships with

the Australian Football League (AFL), AFL Victoria (formerly Football Victoria) Medibank, Australian Physiotherapy Association (APA), Australasian College of Sport and Exercise Physicians (ACSEP), and Sports Medicine Australia (SMA) continues to extend research into injury prevention in women in sport through the Prep-to-Play intervention. I am proud to share that the Prep-to-Play project recruited 2600 players from 165 teams from 118 metropolitan and 47 regional areas, as well as 165 coaches, 165 trainers and 159 team representatives. In addition, 50 trained observers conducted over 300 random visits to training and games.

The GLA:D® program, an implementation program for Australians with hip and knee osteoarthritis, has been delivered to more than 10,000 Australians with knee (82%) and/or hip (18%) osteoarthritis. Impressively, more than 50% of the Australian participants who desired surgery prior to GLA:D®, no longer desired surgery at 12-months after intervention.

As Director, Professor Kay Crossley has provided clear leadership for LASEM's team of researchers who produced an impressive volume of timely, real-world, and impactful research, disseminated globally. In 2021, the Centre produced 281 publications, supervised 68 HDR students and Centre members delivered presentations for 53 invited speaking engagements.

LASEM staff received several awards in recognition of their successes, including:

- Professor Kay Crossley - the ACGR Award for Excellence in Graduate Research Supervision
- Professor Nora Shields - 2021 La Trobe University HDR Supervision Excellence Award
- Dr Adam Culvenor - NHMRC Emerging Leadership Fellowship
- Dr Adam Culvenor - La Trobe University Vice Chancellor's Research Excellence Award
- Dr Prasanna Sritharan - Fulbright Future Scholarship
- Dr Brooke Patterson – Winner Victorian Fresh Scientist
- Professor Peter Brukner – La Trobe University Honorary Degree - DSc (Honoris Causa) for exceptional leadership in the field of sport and exercise medicine
- Professor Jill Cook – Recognised as an Emeritus Professor

I am confident that LASEM will continue its excellent research projects and knowledge translation activities, creating impact and improving quality of life for communities and individuals.

Professor Susan Dodds

2021 LASEM facts



281
publications



\$5.3m
centre funding



68
HDR students



53
active projects



53
invited speaking
appointments



2
keynotes





91k
blog visitors



8446
Twitter
followers +11%



3785
Facebook
members +15%



52%
International
collaborators +10%



3.8m
total media
audience



3
PhD completions



LASEM Advisory Committee

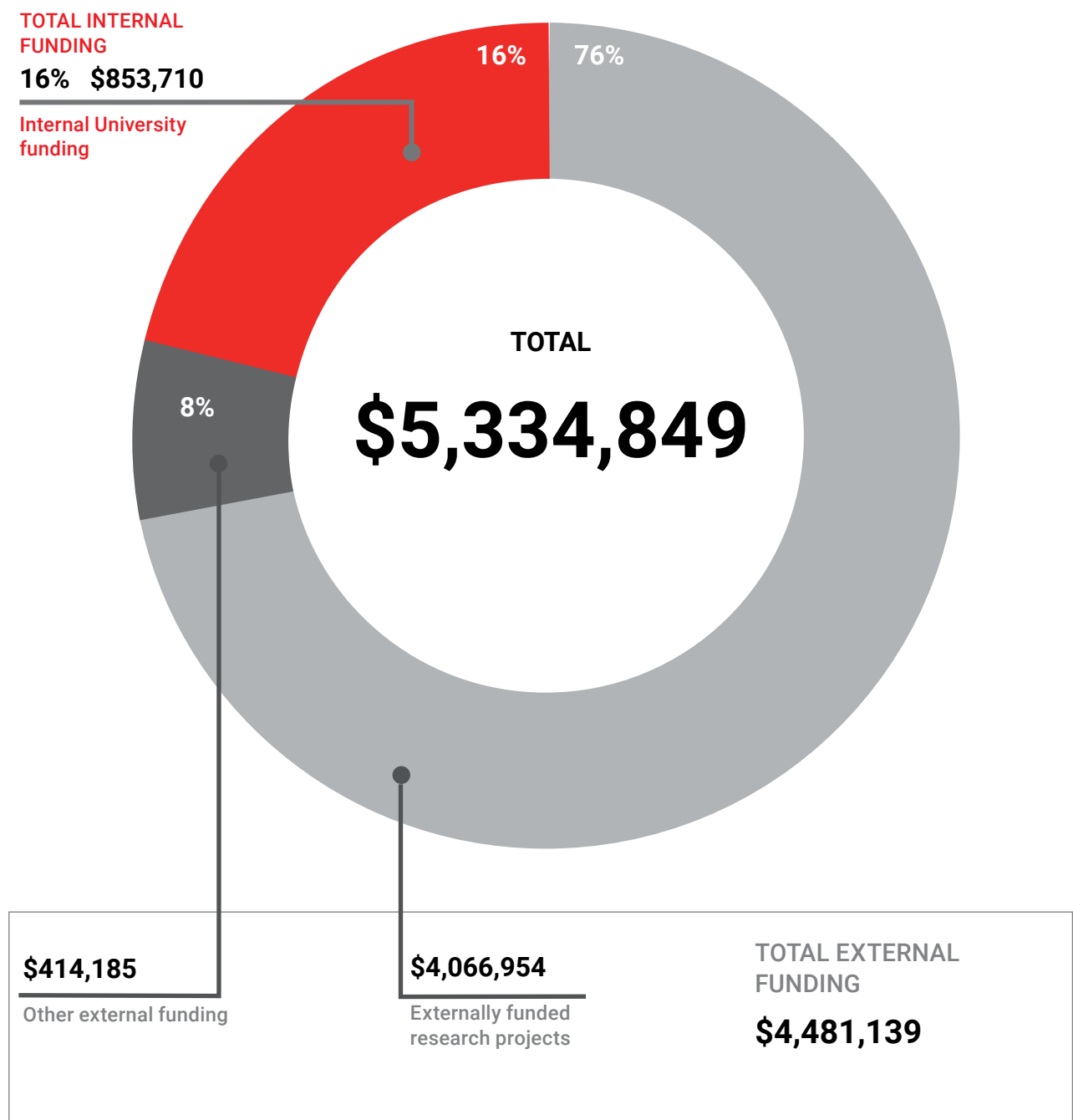
The LASEM Advisory Committee provides strategic advice on the Centre's research agenda

LASEM Executive	
Professor Kay Crossley	Director, La Trobe Sport and Exercise Medicine Research Centre
Professor Peter Brukner	OAM, Professor, La Trobe Sport and Exercise Medicine (LASEM) Research Centre School of Allied Health, Human Services and Sport
Internal University Staff (Or nominee)	
Professor Rob Pike	Pro Vice-Chancellor, College of Science, Health and Engineering (SHE), La Trobe University
Professor Russell Hoye	Head of School, School of Allied Health, Human Services and Sport, La Trobe University
External Advisors	
Professor Ewa Roos (Chair)	Professor and Head of Research, Musculoskeletal Function and Physiotherapy and Center for Muscle and Joint Health, Department of Sports and Clinical Biomechanics, University of Southern Denmark
Dr Darren Burgess	High Performance Manager – Melbourne Football Club, AFL
Professor Karim Khan	Professor, Department of Family Practice and the School of Kinesiology at the University of British Columbia
Professor Craig Purdam	Former Deputy Director of Athlete Services and the Head of Physical Therapies at the Australian Institute of Sport (35 years, until 2017)
Internal Advisors	
Professor Hylton Menz	Internal Advisor: Podiatry; LASEM Executive
Professor Paul Gastin	Internal Advisor: Sport and Exercise Science; LASEM Executive
A/Prof Jodie McClelland	Internal Advisor: Physiotherapy; LASEM Executive
Professor Kate Webster	Internal Advisor: SER RFA; LASEM Executive
Secretariat	
Marguerite Hawke	Senior Centre Administrator
Tara Amsterdam-Bagdas	Administration Officer

Terms of Reference

- The Advisory Committee will provide strategic advice, particularly from an expert and external perspective, on partnership and engagement opportunities with the aim to facilitate achievement of the Research Centre's strategic objectives
- The Advisory Committee has an advisory role and is not a decision-making body
- The Advisory Committee will be strictly bound to conduct itself according to the existing legislation, policies and procedures of the University
- These Terms of Reference outline the purpose, objectives and governance arrangements of a Research Centre Advisory Committee and provide a template for Centres

Funding **summary**



Further detail available on page 30

LASEM staff

Lasem is led by an experienced team that understands the importance of scientific innovation and translatable research outcomes

Executive

Professor Kay Crossley, Director, LASEM Research Centre

Emeritus Professor Jill Cook, LASEM Research Centre

Professor Peter Brukner, Adjunct Professor, LASEM Research Centre

Professor Paul Gastin, Professor, Exercise Science, Department of Sport, Exercise and Nutrition Sciences

Professor Kate Webster, Head of Department Sport, Exercise & Nutrition Sciences

Associate Professor Jodie McClelland, Head of Department, Physiotherapy, Podiatry, Prosthetics and Orthotics

Professor Hylton Menz, NHMRC Senior Research Fellow

Principal Research Fellow

Associate Professor Anthony Schache, LASEM Research Centre

Associate Professor Joanne Kemp, Principal Research Fellow, LASEM Research Centre

Associate Professor Christian Barton, Principal Research Fellow, LASEM Research Centre

Senior Research Fellow

Dr Adam Culvenor, NHMRC ECR, LASEM Research Centre

Dr Ebonie Rio, NHMRC ECR, LASEM Research Centre

Dr Andrea Mosler, Senior Research Fellow, LASEM Research Centre

Research Fellow

Dr Brooke Patterson - Senior Lecturer, Exercise Science

Dr Joshua Heerey, Research Fellow, LASEM Research Centre

Dr Clare Ardern, NHMRC ECR, LASEM Research Centre Adjunct

Dr Sean Docking, Research Fellow, LASEM Research Centre

Dr Danilo de Oliveira Silva, Research Fellow, LASEM Research Centre

Dr Prasanna Sriitharan, Research Fellow, LASEM Research Centre

Dr Richard Johnston, Research Fellow, LASEM Research Centre

Alesha Southby, Research Fellow, Physiotherapy

Dr Harvi Hart, Adjunct Research Fellow, SAHHSS

Dr Katia Ferrar, Research Fellow

Dr Matthew King, Research Fellow

Dr Allison Ezzat, Research Fellow

Dr Marcella Ferraz Pazzinatto, Research Fellow

Dr Eduardo Cofre Lizama, Research Fellow, Sport and Exercise Science

Dr Sallie Cowan, Research Fellow, LASEM Research Centre

Dr Haresh Suppiah, Research Fellow, Sport and Exercise Science

Research Officer

Christian Bonello, Research Officer, LASEM Research Centre

Karen Dundules, Research Officer, LASEM Research Centre

Matt Francis, Research Officer, LASEM Research Centre

Mick Girdwood, Research Officer, LASEM Research Centre

Mel Haberfield, Research Officer, LASEM Research Centre

Zuzana Perraton, Research Officer, LASEM Research Centre

Sally Coburn, Research Officer, LASEM Research Centre

Alison Gibbs, Research Officer, LASEM Research Centre

Milly Bell, Research Officer, LASEM Research Centre

Eliza Roughead, Research Officer, LASEM Research Centre

Georgia Coburn, Research Officer, LASEM Research Centre

Tom West, Research Officer, LASEM Research Centre

Seb Evans, Research Officer, LASEM Research Centre

Matthew Wirdnam, Research Officer, LASEM Research Centre

David Thwaites, Research Officer, LASEM Research Centre

Namita Mehta, Research Officer, LASEM Research Centre

Administration

Marguerite Hawke, LASEM Senior Centre Administrator, EA to Director, Comms Editor

Tara Amsterdam-Bagdas, LASEM Administration Officer

Academic Affiliates

Professor

Professor Meg Morris, Clinical and Rehabilitation Practice, SAHHSS

Prof George Moschonis, Prof, Dietetics & Human Nutrition

Professor Nick Taylor, Physiotherapy

Professor Nora Shields, Physiotherapy

Professor Karl Landorf, Podiatry

Professor Dave Morley, Sport Coaching and Development

Associate Professor

Associate Professor Tania Pizzari, Physiotherapy

Associate Professor Shannon Munteanu, Podiatry

Dr Rebekah Alcock, Lecturer, Dietetics & Human Nutrition

Associate Professor Natasha Lannin, Adjunct Associate Professor, Occupational Therapy

Associate Professor Richard Newsham-West, Physiotherapy

Associate Professor Matt Driller, Sport and Exercise Science

Associate Professor Adam Semciw, Physiotherapy

Senior Lecturer

Dr Adrienne Forsyth, Senior Lecturer, Dietetics and Human Nutrition

Dr Clare MacMahon, Senior Lecturer, Sport and Exercise Science

Dr Sarah Anderson, Senior Lecturer, Prosthetics and Orthotics

Dr Matthew Oates, Director of Learning and Teaching, SAHSS and Senior Lecturer, Podiatry

Dr Gina Trakman, Senior Lecturer, Dietetics & Human Nutrition

Dr Andrew Hahne, Senior Lecturer, Physiotherapy

Dr Ben Mentiplay, Senior Lecturer, Sport and Exercise Science

Dr Daniel Bonanno, Senior Lecturer, Podiatry

Dr Casey Peiris, Senior Lecturer, Physiotherapy

Dr Rodrigo Rico Bini, Senior Lecturer, Exercise Science

Dr Matthew Varley, Senior Lecturer, Sport and Exercise Science

Lecturer

Deenika Benjamin, Lecturer, Physiotherapy

Dr Andrea Bruder, Lecturer, Physiotherapy

Dr David Carey, Lecturer, Sports Analytics

Dr Anthea Clarke, Lecturer, Sport and Exercise Science

Dr Andrew Govus, Lecturer, Sport and Exercise Science

Dr Lachlan James, Lecturer, Sport and Exercise Science

Sally Mastwyk, Lecturer, Physiotherapy

Dr Kane Middleton, Lecturer, Sport and Exercise Science

Lauren Manning - Lecturer, Dietetics & Human Nutrition

Dr Amy Dennett, Adjunct Lecturer, Physiotherapy

Dr Alex Roberts, Lecturer, Sport Coaching and Development

Dr Katerina Sarapis - Lecturer, Dietetics & Human Nutrition

Dr Glen Whittaker, Lecturer, Podiatry

Dr Matthew Cotchett, Lecturer, Podiatry

Dr Joanne Wittwer, Lecturer, Physiotherapy

Dr Claire Willis, Lecturer, Sport and Exercise Science

Dr Karen Mickle, Lecturer, Sport and Exercise Science

Dr Minh Huynh, Lecturer, Sport and Exercise Science

Dr Carolyn Taylor, Lecturer, Physiotherapy, La Trobe Rural Health School

Alison Kuter, Lecturer, Physiotherapy

Jamon Couch, Lecturer, Physiotherapy

Jack Williams, Lecturer, Physiotherapy

Bridget Ward - Lecturer, Physiotherapy

Honorary

Dr Clare Arden Physiotherapist and Senior Researcher, University of British Columbia, Canada

Dr Darren Burgess, High Performance Manager – Melbourne Football Club, AFL

Honorary Paul Coburn, Director, Mill Park Physiotherapy and Clinical Leader TAC and Worksafe

Honorary Adjunct Dr Natalie Collins, Chair of the Physiotherapy Research Foundation grant review committee, Lecturer in Physiotherapy, University of Queensland

Dr Sean Docking, Research Fellow, School of Public Health and Preventive Medicine, Monash University & Adjunct Research Fellow, Epidemiology and Preventive Medicine Alfred Hospital

Dr Harvi Hart, Post-doc at Western University, Canada: PF pain/OA, biomechanics, physical activity, wearables

Professor Karim Khan, Department of Family Practice and the School of Kinesiology, University of British Columbia

Honorary Adjunct Associate Professor Alex Kontouris, Lecturer, APA Sports Physiotherapist, Cricket Australia Sports Science and Sports Medicine Manager

Professor Natasha Lannin, Professor, and Lead, Brain Recovery and Rehabilitation Research Group in the Department of Neuroscience, Monash University

Honorary Adjunct Associate Professor Dr Michael Makdissi, Sport and Exercise Physician, Olympic Park Sports Medicine Centre

Adjunct Research Fellow Dr Susan Mayes, Principal physiotherapist and medical team manager, The Australian Ballet

Adjunct Professor Craig Purdam, Doctor of Science La Trobe University, Adjunct Professor University of Canberra

Adjunct Professor Ewa Roos, Associate Professor, Professor and Head of Research Musculoskeletal Function and Physiotherapy, Lund University, Sweden, University of Southern Denmark

Dr Jade Tan, Lecturer, School of Allied Health, Podiatric Medicine & Surgery, Adjunct Senior Lecturer, School of Allied Health, Podiatric Medicine & Surgery

Dr Matt Whalan, Physiotherapist, Sports Scientist & Partner at Figtree Physiotherapy

Women in sport projects

Prep-to-Play

2021 was a huge year for the Prep-to-Play project (NHMRC Partnership Grant APP1193733).

Research team members worked tirelessly to recruit clubs, coaches, injury reporters and team representatives across Victoria, resulting in 2600 consented players from 165 teams (99 senior and 66 junior) spread across 118 metropolitan and 47 regional areas. From these teams we recruited 165 coaches, 165 trainers and 159 team

representatives. 30 physiotherapists were trained to teach coaches and player leaders how to run Prep-to-Play at their clubs and how best to support them in this implementation. More than 30 workshops were run across metropolitan Melbourne by Prep-to-Play trained physiotherapists, supported by research team members. In addition, 50 observers were trained and completed over 300 random visits to training and games during 2021. The pandemic and disruptions caused by extended COVID

lockdowns made for a challenging period of implementation, but the Prep-to-Play team rose to the task. This led to the development of online Prep-to-Play workshops which were run in November and December for clubs who missed their intervention during 2021 due to COVID, and to a major redesign and refining of the Prep-to-Play physio training for 2022, incorporating both online and in-person training.

Research team members:

Prof Kay Crossley	Karina Chilman	Andrea Mosler
Dr Brooke Patterson	Libby Birch	Andrea Bruder
Dr Sallie Cowan	Melissa Haberfield	Matt Wirdnam
Dr Matt King	Christian Bonello	Libby Gracius
Eliza Roughead	Dr Josh Heerey	Dr Mark Scholes
Sarah Lampard	Sam Pietsch	Jesse Castillo

Our partnership organisations have provided valuable financial and in-kind support for the Prep-to-Play Project

- Australian Football League (AFL)
- AFL Victoria (formerly Football Victoria)
- Medibank
- Australian Physiotherapy Association (APA)
- Australasian College of Sport and Exercise Physicians (ACSEP)
- Sports Medicine Australia (SMA)

Selected publications:

Bruder, A. M., Crossley, K. M., Donaldson, A., & Mosler, A. B. (2021). Through the athlete lens: A novel study exploring the perspectives and experiences of injury prevention practices in women playing elite Australian Football. *Brazilian Journal of Physical Therapy*. <https://doi.org/10.1016/j.bjpt.2021.05.003>

Bruder, A. M., Donaldson, A., Mosler, A. B., Patterson, B. E., Haberfield, M., Mentiplay, B. F., Clifton, P., Livingstone, N. D., & Crossley, K. M. (2021). Creating Prep to Play PRO for women playing elite Australian football: A how-to guide for developing injury-prevention programs. *J Sport Health Sci*. <https://doi.org/10.1016/j.jshs.2021.09.003>

HERsport

HERsport embraces many research activities within LASEM. In 2021 the HERsport logo was developed, and a website to highlight research activities and translate knowledge to clinicians and the general public is currently being developed.



Key Projects in 2021

HERsport Leadership: Changing culture to promote female sport and exercise practitioners working in elite sport

Women sport and exercise practitioners (including physiotherapists and sport and exercise physicians) often work, or aspire to work, within elite sport, however, it appears that these women may not have equal opportunities to jobs, training, mentoring, promotion, remuneration and respectful workplace environments

as men. This project commenced in 2021 by surveying titled APA Sports Physiotherapists and Australasian Sport and Exercise Medicine Physicians to gain an understanding of their experiences working in elite and professional sport. In 2022 survey results will be supplemented by interviews/focus groups of women working in elite settings (e.g., the Olympic Games; Commonwealth Games; AIS/NINs) and women working in elite professional sports.

HERsport Gender bias: Women in Publishing

Data for this review was extracted during 2021. Publications were compared in four journals over two time periods to measure change (2008-2009 and 2018-2019). The review indicated that women were strikingly under-represented in lead and senior author positions and as participants in leading sports and exercise medicine/physiotherapy journals. These results will be published and presented in 2022.

Sport and exercise science

2021 saw another year of COVID-related challenges, however, it was a successful year for the discipline of Sport and Exercise Science, as we continued to grow and consolidate our teaching and research profile.

Sport and Exercise Science research continued to go from strength-to-strength, with >80 peer-reviewed manuscripts published in 2021 – an impressive ~30% growth from 2020. SES staff now encompasses 22 academics with a mix of teaching and research focuses. 4 staff members received academic promotions in 2021 (Dr Paul Xanthos, Dr Andrew Govus, Dr Kane Middleton, and A/Prof Clare MacMahon), while Dr Benjamin Mentiplay was recognised with a Special Commendation for the SHE College Provost Research Excellence Award for Early Career Researchers. In 2022, as part of the University Transformation process, Professor Kate Webster will join the discipline, providing a wealth of experience and leadership for our researchers.

The discipline is continually increasing HDR student numbers, with 20 students now undertaking either a PhD or Masters by Research. This includes industry funded PhDs with external partners, such as Melbourne City Football Club and the Melbourne Rebels. In 2021, a number of students completed their research degrees, including 1 Honours student (Georgia Banister), 1 Masters student who has since started a PhD (Daniel Epifano), and 1 PhD student (Daniel Chalkley); with plenty of milestones reached during 2021. In 2022, the first cohort in the new Bachelor of Sport and Exercise Science (Honours) degree will begin.

Dr Alex Roberts received a Nike and ESSA Seed Grant for a project looking to identify the key facilitators for consistent training in recreational runners, and Dr Claire Willis and the FitSkills team won the VicHealth Active Recreation Initiative of the Year award and the Leading Health Promotion Research Award. SES researchers continue to work on ongoing grants, including the continuation of the AIS Elevate Coach Development Program (Maris Lidums, Alex Roberts, Kate Perry, and Minh Huynh) and the HPRnet



project evaluating functional movement variability during military load carriage (Kane Middleton, Eduardo Cofre Lizama, and Paul Gastin).

2021 also saw the Victorian State Government, in partnership with La Trobe University, announce significant funding to be made available for the next stage of our La Trobe Sports Park, which will see the Home of the Matildas provide a home for Football Victoria and a Victorian State Rugby Centre of Excellence constructed at La Trobe University – a very exciting chapter has commenced.

New initiatives delivered in 2021 included the Supporting the Female Athlete short course, expertly developed and led by Dr Anthea Clarke. The course was targeted to professionals working with female athletes, and had close to 600 participants enrol, including a good proportion of participants from our La Trobe Sports Stadium residents in Football Victoria, and through ACHPER (Australian Council for Health, Physical Education and Recreation). The team hosted the Australasian Skill Acquisition Network Conference over two days, online. The Strength in Numbers professional development event had an impressive line-up of speakers including Dr Darren Burgess, Dr Warren Young, and

Dr Lorena Torres Ronda. This event was a pre-cursor to a new course offering beginning in 2022 - the Master of Strength and Conditioning – developed and led by Dr Lachlan James.

Research team members:

Professor Paul Gastin
Dr Alex Roberts
Dr Andrew Govus
Dr Anthea Clarke
Dr Benjamin Mentiplay
Dr Claire Willis
Dr Clare MacMahon
Dr David Carey
Dr Eduardo Cofre Lizama
Dr Haresh Suppiah
Dr Kane Middleton
Dr Lachlan James
A/Prof Matthew Driller
Dr Matthew Varley

Honorary Degree Peter Brukner

Honorary Degree from La Trobe University awarded to Dr Peter Brukner

In 2021, Dr Peter Brukner, one of the founders of the LASEM Research Centre, was awarded an auspicious Honorary Degree from La Trobe University.

OAM, MBBS, FACSP, FACSM, FASMF, FFSEM, Dr Brukner is a specialist sports and exercise physician and world-renowned sports and exercise medicine clinician and researcher. His research focus lies in sports-related injuries, such as stress fractures, groin pain, hamstring injuries, fatigue, and the female athlete.

From the grass roots of community sport to the elite, Dr. Peter Brukner's contribution to sport and exercise medicine is irrefutable. Starting his career as a medical doctor in 1978, he was one of driving forces behind the formation of the Australasian College of Sport and Exercise Physicians (ACSEP) in 1985. Peter served two terms as ACSEP President and played a key role in establishing sports medicine as a medical specialty in Australia. Through the hard work of Peter and his colleagues, the ACSEP gained speciality recognition from the Australian Medical Council in 2009, creating a global template for such specialist training.

Dr. Brukner has dedicated much of his clinical career to training the next generation of sport and exercise medicine doctors and physiotherapists, nationally and internationally. Peter was personally involved in training and mentoring more than 50 sport and exercise medicine physicians. He is also a mentor to junior doctors and has served as Thesis Examiner (6 students) and Research Supervisor (21 students), providing expert knowledge to enhance clinical relevance of research.

Peter was the Founding Partner and Medical Director of Olympic Park Sports Medicine Centre in 1987, and later the Team Doctor for the Australian Cricket Team (2012-2017) and the Socceroos (2007-2010), the Head of Sports Medicine and Sports Science for

Liverpool Football Club (2010-2012) and Team Doctor/Manager for the Australian Athletics team (1997-2000, including the Olympic Games). His work at the highest level in sports medicine compliments his 35 years working in a voluntary capacity for the sports medicine community.

In 2006, Peter was awarded a Medal of the Order of Australia (OAM), for services to sports medicine and his esteemed sports medicine service was recognised by the Citation for Distinguished Service by the Australian College of Sports Physicians, and the Citation Award of the American College of Sports Medicine. He was the first Australian elected to the American College of Sports Medicine Board. He is Senior Associate Editor of the British Journal of Sports Medicine and was previously the Senior Associate Editor at the Clinical Journal of Sport Medicine and Current Sports Medicine Reports.

Combining clinical expertise with clinical research has been a cornerstone of his quest to provide excellence in preventing and managing sports-related injuries and has underpinned his training of future generations of sports medicine practitioners. As a practising clinician, he has published more than 100 peer-reviewed research articles in scientific journals and many books and book chapters. He is the co-author of Clinical Sports Medicine, (a best-seller), Stress Fractures, Food for Sport, The Encyclopedia of Exercise and Sport Health, Clinical Sports Anatomy and recent best-seller A Fat Lot of Good.

Dr. Brukner's expertise, combined with his warmth and passion for public speaking, has seen him speaking at conferences around the world. Since 1985, he has given 213 invited papers, including 36 keynotes. Keynote appointments include the FIMS World Congress of Sports Medicine, the Asian Congress of Sports Medicine, the American College of Sports Medicine and the British Association of Sports Medicine. For national and international conferences, he has acted as Conference Chair 10 times, and chaired conference sessions 30 times.

Dr. Brukner's current passion for reducing preventable disease, onset, and inflammation by reducing sugar



and fat intake (in general and athletic populations) led him to found and be the patron for the not-for-profit SugarByHalf, which aims to reduce the intake of added sugar in Australia, and to found Defeat Diabetes, the first science-based and doctor-led program to transform the health of Australians diagnosed with type 2 diabetes, pre-diabetes and chronic illness. In two years, he has been invited to present his *We are getting fatter and sicker* lecture more than 30 times.

Peter's presence in the media is second to none. He has had 1383 appearances in the media and more than 15M readers of newspaper interviews in the past 5 years alone, as he continues to advocate for better health to Australians and across the globe.

Peter Brukner is an exceptional leader in the field of sport and exercise medicine, is passionate about advancing the health of all Australians and a deserving recipient of a La Trobe University Honorary Degree.

NHMRC Investigator Grant Adam Culvenor

In 2021, one of LASEM's Senior Research Fellows, Dr Adam Culvenor, was one of only two La Trobe researchers to be awarded a prestigious 5-year NHMRC Investigator Grant (Emerging Leadership Level 2). It is worth over \$1.4 million and will support his research program to reduce the burden of knee osteoarthritis in young adults.

Adam's Investigator Grant success allows him to build on his groundbreaking PhD and post-doctoral work revealing the rapid onset and formidable burden of osteoarthritis in young adults in the first years after knee injury. His previous early career research fellowships from the European Research Commission and NHMRC helped build a network of national and international collaborators to support his ambitious research program.

While osteoarthritis is typically considered a disease of older adults, an alarming one in three Australians who seek care for osteoarthritis are aged under 55 years. Adam's work has contributed to understanding that one in two people who sustain a knee injury will develop post-traumatic osteoarthritis and persistent disability before the age of 40 - this costs Australia's healthcare system more than \$600 million annually.

Over the next 5 years, Adam will lead an international multidisciplinary program to identify those at highest risk of early-

onset knee osteoarthritis and develop implementable and scalable prevention strategies. This will be achieved through large cohort studies and clinical trials, together with initiatives to unify global research efforts (e.g., consensus statements) and the establishment of an international database of post-traumatic osteoarthritis outcomes.

The outcome of Adam's research fellowship will be an evidence-based model of care for the management of knee injuries to prevent osteoarthritis and associated disability. The findings will change guidelines on knee injury and surgery management to keep young adults, who are typically active and healthy prior to injury, from becoming major participants in our health care system.



Participation, physical activity and chronic disease

The hidden epidemic of metabolic syndrome

Metabolic syndrome is the name given to a combination of specific risk factors that commonly occur together to raise the risk of chronic disease. About 25-30% of adults have metabolic syndrome, but due to the low-grade inflammation present, prevalence may be higher in people who commonly present for physiotherapy services, potentially impacting their treatment outcomes and providing a key opportunity to intervene to prevent progression to chronic disease.

Dr Casey Peiris and her team conducted a cross-sectional, multi-centre, observational study of adults (n=193) presenting to rehabilitation with various health complaints. They assessed for metabolic syndrome, health literacy, physical activity, and dietary intake.

The researchers found almost two-thirds (64%) of participants had metabolic syndrome. Of these, only three (2%) knew they had it. People with metabolic syndrome scored lower on health literacy tests and took fewer daily steps than those without metabolic syndrome. The findings indicate that metabolic syndrome is a prevalent and under-recognised condition in community rehabilitation. Community healthcare professionals and health services may need to consider a broader approach to management including lifestyle assessment and intervention of patients with various conditions.

Research funded by the Eastern Health Foundation

CanMOVE: Promoting positive physical activity behaviours in children undergoing acute cancer treatment

CanMOVE is a theoretically informed behaviour change intervention to promote physical activity for children undergoing acute cancer treatment. PhD student Sarah Grimshaw and her team completed a feasibility study including 20 families with children (median age 12, range 5-16 years) who have various cancer diagnoses. Participants completed the 10-week CanMOVE intervention which utilised Fitbits (for children and parents) and structured healthcare professional support from a physiotherapist.

They found there was high demand for CanMOVE in the paediatric oncology setting with a 95% enrolment rate. The program was acceptable from a participation and staff

Selected publications:

Taylor NF, O'Halloran PD, Watts JJ, et al (2021): Motivational interviewing with community-dwelling older adults after hip fracture (MIHip): protocol for a randomised controlled trial. *BMJ Open* 11:e047970. doi: 10.1136/bmjopen-2020-047970

Rimayanti MU, O'Halloran PD, Shields N, Morris R, Taylor NF. (in press). Comparing process evaluations of motivational interviewing interventions for managing health conditions and health promotions: A scoping review. *Patient Education and Counselling* (accepted 24 August 2021)

Peiris CL, Harding K, Porter J, Shields N, Gilfillan C, Taylor NF (in press): Understanding the hidden epidemic of metabolic syndrome in people accessing community rehabilitation: a cross-sectional study of physical activity, dietary intake and health literacy. *Disability and Rehabilitation* (Accepted 9 April 2022)

perspective. All aspects of the intervention met the minimum feasibility thresholds set for implementation and there were no serious adverse events recorded. Both quantitative and qualitative data indicate that CanMOVE shows promise in influencing participant physical activity behaviour. Positive impacts of the intervention were also seen in parent and staff behaviour towards physical activity promotion.

Research funded by Little Big Steps

MIHip: Motivational interviewing in community-dwelling older adults after hip fracture

Professor Nick Taylor and his team continued recruitment for MIHip, a project that aims to increase physical activity of people following hip fracture, throughout 2021. PhD student, Made Rimayanti, wowed audiences with her 3MT presentation based on her work on the MIHip project. Made not only won the School of Allied Health, Human Services and Sports competition but also went on to win the College of Science, Health and Engineering competition before being crowned the La Trobe University 3MT winner for 2021. Made then represented La Trobe in the Asia Pacific competition. You can watch Made's presentation here: <https://vimeo.com/606163505>

Research funded by the NHMRC



Research team members

Prof Nicholas Taylor
Prof Nora Shields
Dr Casey Peiris
Dr Katherine Harding
Dr Amy Dennett
Dr Rachel Kennedy
Dr Claire Willis

Germaine Tan

PhD students:

Made Rimayanti, Sarah Grimshaw, Sally Mastwyk, Karl Espenberger, Helen Kugler, Georgia McKenzie, Cara Schofield, Ann Shoebridge, Leanne Rees, Yeshna Bhowon

Projects: Foot & Ankle

2021 was another productive year for the foot and ankle research team. The team welcomed three new PhD students – Laura Anderson, who will be evaluating the effects of gait retraining in runners with medial tibial stress syndrome, Polly Lim, who will be conducting a randomised trial of treatments for midfoot osteoarthritis, and Jamie Allan, who commenced a jointly funded La Trobe-Sheffield Hallam University PhD program to research foot shape assessment using 3-dimensional foot scanning.

The team were awarded three Australian Podiatry Education and Research Foundation grants (combined value of \$50K) and secured \$75K funding from Able Health Pty Ltd to fund an Industry PhD to evaluate balance-enhancing footwear for older people at risk of falling. Professor Menz was also part of a team who were awarded a \$3.5M National Institute of Health Research Health Technology Assessment Program Grant to conduct a trial of individualised exercises and foot orthoses in the treatment of plantar heel pain.



The team's research generated over 30 publications on a range of topics including plantar heel pain, footwear, foot osteoarthritis and Achilles tendinopathy. Of particular note, two major randomised trials were published in 2021 – the HEALTHY trial, which found that heel lifts were more effective than calf muscle eccentric exercise in reducing pain and improving function in people with Achilles tendinopathy, and

the SIMPLE trial, which demonstrated the effectiveness of shoe-stiffening inserts in the treatment of first metatarsophalangeal joint (big toe) osteoarthritis.



Research team members:

Professor Hylton Menz
Professor Shannon Munteanu
Professor Karl Landorf
Dr Daniel Bonanno

Dr Andrew Buldt
Dr Glen Whittaker
Dr Matthew Cotchett

PhD students:

Jamie Allan

Laura Anderson
Polly Lim
Merridy Lithgow
John Osborne
Chantel Rabusin

Selected publications:

Rabusin CL, Menz HB, McClelland JA, Evans AM, Malliaras P, Docking SI, Landorf KB, Gerrard JM, Munteanu SE. Efficacy of heel lifts versus calf muscle eccentric exercise for mid-portion Achilles tendinopathy (HEALTHY): a randomised trial. *British Journal of Sports Medicine* 2021;55:486-492.

Munteanu SE, Landorf KB, McClelland JA, Roddy E, Cicuttini FM, Shiell A, Auhl M, Allan JJ, Menz HB. Shoe-stiffening inserts for first metatarsophalangeal joint osteoarthritis: a randomised trial. *Osteoarthritis and Cartilage* 2021;29:480-490.

Project **FORCE**



Footballers often develop a condition in the hip joint known as femoroacetabular impingement or FAI. FAI is caused by abnormal bone formation within the hip joint.

This condition is associated with hip and groin pain and contributes to early hip arthritis. Findings from project FORCE study may help to develop targeted intervention strategies for managing this condition in the future.

Despite being another COVID-ravaged year, 2021 started off well for the FORCE project with Joshua Heerey submitting his PhD thesis in Feb 2021, officially becoming a Doctor in August 2021. Imaging data collection for the 5-year follow-up participants in the FORCE prospective cohort study commenced in

March. Collecting the two-year follow-up imaging data recommenced and annual online questionnaire data collection procedures continued with >70% retention of the cohort.

FORCE HDR projects

Mark Scholes made the final touches to his PhD thesis and completed his pre-submission presentation, Zuzana Perraton and Chris Stewart continued successfully and completed their confirmation milestones in April 2021. Zuzana also submitted her first PhD paper: *Towards defining muscular regions of interest from axial magnetic resonance imaging with anatomical cross-reference: A scoping review of lateral hip musculature* to BMC Musculoskeletal disorders in December.

Chris, Zuzana, Pete Lawrenson and Adam Semciw worked closely with Ken Weber from Stanford University to finalise the machine learning process for defining muscle morphology. Many conferences were cancelled or held online in 2021, but all students and post-docs working on FORCE contributed to knowledge translation by participating in virtual education events. Zuzana was also successful in receiving two grants for 5-year data collection for the FORCE cohort: Physiotherapy Research Foundation (\$9,970), and the Sports Medicine Australia Research Grant (\$2,000), where she also received the Brian Sando Award for her submission.

Find out more about the team's work:

<http://semrc.blogs.latrobe.edu.au/volunteer-for-research/force-trial/>

Research team members:

Professor Kay Crossley
A/Prof Joanne Kemp
A/Prof Adam Semciw
A/Prof Anthony Schache
Dr Andrea Mosler
Dr Ben Mentiplay

Dr Danilo De Oliveira Silva
Dr Peter Lawrenson
Dr Matthew King
Dr Denise Jones
Dr Joshua Heerey
Dr Mark Scholes

Zuzana Perraton
Chris Stewart
Christian Bonello
Mick Girdwood

Selected publications:

Heerey JJ, Srinivasan R, Agricola R, et al. Prevalence of early hip OA features on MRI in high-impact athletes. The femoroacetabular impingement and hip osteoarthritis cohort (FORCE) study. *Osteoarthritis Cartilage* 2021;29:323–34. doi:10.1016/j.joca.2020.12.013

Heerey J, Agricola R, Smith A, et al. The Size and Prevalence of Bony Hip Morphology Do Not Differ Between Football Players With and Without Hip and/or Groin Pain: Findings From the FORCE Cohort. *J Orthop Sports Phys Ther* 2021;51:115–25. doi:10.2519/jospt.2021.9622

Heerey J, Kemp J, Agricola R, et al. Cam morphology is associated with MRI-defined cartilage defects and labral tears: a case-control study of 237 young adult football players with and without hip and groin pain. *BMJ Open Sport Exerc Med* 2021;7:e001199. doi:10.1136/bmjsem-2021-001199

King MG, Schache AG, Semciw AI, et al. Lower-limb work during high- and low-impact activities in hip-related pain: Associations with sex and symptom severity. *Gait Posture* 2021;83:1–8. doi:10.1016/j.gaitpost.2020.09.025

Lawrenson PR, Crossley KM, Hodges PW, et al. Hip muscle activity in male football players with hip-related pain; a comparison with asymptomatic controls during walking. *Phys Ther Sport* 2021;52:209–16. doi:10.1016/j.ptsp.2021.09.008

Scholes MJ, King MG, Crossley KM, et al. The Validity, Reliability, and Responsiveness of the International Hip Outcome Tool-33 (iHOT-33) in Patients With Hip and Groin Pain Treated Without Surgery. *Am J Sports Med* 2021;49:2677–88. doi:10.1177/03635465211027180

Scholes MJ, Crossley KM, King MG, et al. Running biomechanics in football players with and without hip and groin pain. A cross-sectional analysis of 116 sub-elite players. *Phys Ther Sport* 2021;52:312–21. doi:10.1016/j.ptsp.2021.10.011

physio**FIRST**

physioFIRST Randomised Controlled Trial

The physioFIRST RCT aimed to determine the effectiveness of a targeted, individualised 6-month physiotherapist-led strength program compared to a standardised stretching program.

The physioFIRST RCT aimed to recruit 164 participants aged 18-50 years with femoroacetabular impingement into the study, however recruitment was stopped at 156 participants due to the COVID-19 pandemic. In spite of the pandemic, and extended periods of lockdown in Victoria, 6-month follow-up was completed on almost 90% of participants. A study protocol paper was published in BMJ Open, and a number of other publications were under review or in draft form at the end of 2021.

In 2022, the physioFIRST team plans to complete and publish primary analysis results, alongside a number of other important publications covering research topics such as the relationship between fear of movement and other outcomes, what people with FAI syndrome expect from physiotherapist-led treatment, and the relationship between running biomechanics and other outcomes in FAI syndrome. Additionally, examining whether running biomechanics change with physiotherapist-led treatment, and whether hip joint structure changes after a strengthening intervention will be investigated.



physioFIRST LASEM team

A/Prof Joanne Kemp
Professor Kay Crossley
A/Prof Anthony Schache
Dr Richard Johnston
Dr Ben Mentiplay

Dr Matthew King
Dr Danilo De Oliveira Silva
Dr Denise Jones
Dr Marcella Pazzinatto
Dr Joshua Heerey

Dr Ebonie Rio
Sally Coburn
Mark Scholes
Milly Bell
Mick Girdwood

Project TRAIL



The TRAIL running study faced some challenges in 2021 due to data collection interruptions caused by lockdown restrictions. Even so, the research team managed to have over 100 runners come through the biomechanics laboratory.

The TRAIL study uses high-tech equipment and a thorough running assessment which aims to monitor the trajectory of runners' knee joint health and overall clinical condition over a 4-year period.

Find out more about the team's work: <https://trail.latrobe.edu.au>

Running community Engagement

One of the priorities of the TRAIL team is to engage the running community through our education platform. In 2021, the TRAIL team produced 16 podcast episodes, with research experts and people with lived experience of running-related injuries, with a total audience of more than 4,000 people.

"I've struggled with injury and burnout since rupturing my ACL about 4 years ago. I've been through multiple physios and tried a few running coaches, with little to no improvement. After signing up to the TRAIL Running Study, I met Richie and haven't looked back! My Achilles pain is gone, my chronic back pain is close to non-existent and my patella femoral pain is at an all time low. My running is the most consistent it's ever been and I haven't experienced any symptoms of burnout."

Jaye Dickinson – TRAIL participant

Research funded by: La Trobe Themes ABC Grant and Arthritis Australia

Research team members:

Professor Kay Crossley (Chief Investigator)

Dr Richard Johnston

Dr Adam Culvenor

Dr Danilo de Oliveira Silva

Dr Benjamin Mentiplay

Dr David Carey

A/Prof Christian Barton

A/Prof Adam Semciw

DA/Prof Anthony Schache

Dr Andrea Bruder

Dr Prasanna Sritharan

Christian Bonello

Students

Paula Pappalardo

James L. Alexander

Tom West

Michael Hedger

Melissa J. Haberfield

TRAIL running ambassadors

Ellie Pashley

Tyler Scarce

Project SUPER Knee

Supervised Exercise-therapy and Patient Education Rehabilitation (SUPER)-Knee Project

The SUPER-Knee randomised controlled trial is a supervised exercise-therapy and patient education rehabilitation program for young adults experiencing knee symptoms 9 months to 3 years following anterior cruciate ligament (ACL) reconstruction. Using innovative MRI scans, knee pain, function, quality of life, and early osteoarthritis will be assessed over 4 and 12-months in 184 adults aged 18 to 40 years, to evaluate the effectiveness of supervised exercise and education, compared to a minimal intervention control group..

After a delayed start due to COVID-19, the project finally commenced recruitment in February 2021. During the first year, around 30 physiotherapists working at 15 clinics were trained in the SUPER-Knee program. So far, eighty eligible young adults have been recruited and randomised into either the SUPER-

“The biggest thing is– I’m much more confident on my knee in sport and day to day life. Mostly I feel like I can almost do everything with my knee now. It’s the most confidently I have played in cricket since returning from having knee surgery”

Aimee – SUPER knee participant

Knee intervention group or minimal intervention control group. Currently sixty participants have completed 4-month re-assessments and in 2022, will undertake 12-month re-assessments.

In 2022, the project team will complete enrolment and randomisation of all 184 participants. As part of the broader aims of the project, the team will conduct qualitative interviews to gain a deeper understanding of participant experiences in the program. A PhD candidate who will lead the 12-month reassessments and the team will submit the project protocol paper.

SUPER-Knee HDR projects

Tom West successfully completed his confirmation of candidature in October 2021. He submitted his first PhD paper: *a systematic review exploring prognostic capacity of hop tests after ACL injury*. Tom presented findings from his systematic review at two national conferences. In 2022, Tom will explore relationships between functional and strength outcomes.



A. Proton density fat suppressed (MOAKS)



B. Multi-echo-spin-echo (T2 relaxation time)



C. FSPGR (thickness and bone shape)

Research team members:

Professor Kay Crossley
Dr Adam Culvenor
A/Prof Christian Barton

Dr Andrea Bruder
Tom West
Dr Mark Scholes

Mick Girdwood
Laura To
Melissa Haberfield

Industry Partnerships: Levin Health

2021 saw the LASEM Research Centre establish a new industry partnership with Levin Health, an Australian sports science company specialising in researching, developing, and commercialising medicinal cannabis products.

This partnership has seen the development of a trial protocol. It aims to evaluate the effects of medicinal cannabis in people with chronic hip and/or knee pain as a result of injury. This study received research ethics approval in 2021, with recruitment to commence on the trial in mid-2022. The study will recruit 114 people with chronic hip and/or knee pain and compare pain and function outcomes between people who receive medicinal cannabis and those who take a non-active placebo. This is a world-first randomised, double-blind, placebo-controlled trial in this cohort.

In addition to medicinal cannabis, Levin Health also has a keen interest in the development of new and innovative technologies to assess the severity and risks associated with concussions. The Neurologn Eye Tracking Technology (NETT) is a portable set of goggles that performs a variety of tests to assess the severity of someone's concussion through their eye movements and reaction time. LASEM examined the reliability of these goggles as an assessment tool on behalf of Levin Health. The results demonstrated that the NETT system had reliable metrics in areas such as saccades, reaction times, and optokinetic tests. This industry report was supplied to Levin Health, and the manuscript for the study is currently being drafted.



Research team members:

Professor Peter Brukner - Program lead
 Professor Kay Crossley
 A/Prof Joanne Kemp
 Dr Matthew King
 Dr Ben Mentiplay
 Dr Marcella Ferraz Pazzinatto
 Dr Richard Johnston
 Sarah Lampard

Funding:

- La Trobe Sport and Exercise Medicine Research Centre and Levin Health collaboration partnership
- A phase 2a, randomised, double-blind, placebo-controlled study to evaluate the efficacy of ZTL-106 in treating patients with chronic pain as a result of a musculoskeletal injury
- Evaluating the Neurologn eye-tracking technology: a reliability study

GLA:D[®] AUSTRALIA

The GLA:D[®] Australia program continues to grow in all states and territories and is now provided at more than 500 public and private health services.

GLA:D[®] is an education and exercise program developed by researchers for people with knee or hip osteoarthritis symptoms.

Since its implementation in 2017, 13% of all Australian musculoskeletal physiotherapists have been trained to deliver GLA:D[®], with 618 trained in 2021.

The GLA:D[®] program has been delivered to more than 10,000 Australians with knee (82%) and/or hip (18%) osteoarthritis. After participating in the program, people report reduced pain, reduced intake of painkillers, higher quality of life and improved physical function. Similar results occur at

“The GLAD program gave me the confidence to start exercising again, and I am now going to the gym and doing Pilates classes regularly to maintain my fitness”

62-year-old female with hip OA

12-months after the program. More than 50% of the Australian participants who desired surgery (joint replacement) prior to GLA:D[®], had not undergone surgery and no longer desired surgery at 12-months.

Due to COVID-19 restrictions, training courses were delivered online over the past two years, and more than 270 health services provided the GLA:D[®] program via telehealth (i.e. online video consultation). 8 in 10 Australians who attended the GLA:D[®] program

via telehealth considered themselves recovered and were satisfied with the program. Preliminary analysis of the data shows that participants completing the program via telehealth have similar outcomes compared to those who complete it face-to-face.

Further details can be found in the GLA:D[®] Australia Annual Report 2021

<https://gladaustralia.com.au/annual-reports/>

Find out more about the GLA:D[®] Australia program:

<https://gladaustralia.com.au/>



GLA:D[®] Australia Research team members

A/Prof Christian J Barton – Program co-lead
A/Prof Joanne L Kemp – Program co-lead
Professor Kay M Crossley – Program co-lead
Dr Marcella Ferraz Pazzinatto – Program coordinator
Dr Allison Ezzat

Dr Danilo de Oliveira Silva
Dr Joshua Heerey
Karen Dundules
Matthew Francis
Tara Amsterdam-Bagdas

Selected publications:

Barton C, Kemp J, Roos E, Skou S, Dundules K, Pazzinatto M, Francis M, Lannin N, Wallis J, Crossley K. Program evaluation of GLA:D[®] Australia: Physiotherapist training outcomes and effectiveness of implementation for people with knee osteoarthritis. *Osteoarthritis and Cartilage Open*, 2021. Doi: 10.1016/j.ocarto.2021.100175

Barton C, Pazzinatto M, Crossley K, Dundules K, Lannin N, Francis M, Wallis J, Kemp J. Reported practices related to, and capability to provide, first-line knee osteoarthritis treatments: a survey of 1064 Australian physical therapists. *Brazilian Journal of Physical Therapy*, 2021. Doi: 10.1016/j.bjpt.2021.08.001

Roos E, Gronne D, Skou S, Zywił M, McGlasson R, Barton C, Kemp J, Crossley K, Davis A. Immediate outcomes following the GLA:D[®] program in Denmark, Canada and Australia. A longitudinal analysis including 28,370 patients with symptomatic knee or hip osteoarthritis. *Osteoarthritis and Cartilage*, 2021. Doi: 10.1016/j.joca.2020.12.024

Partnership with The Australian Ballet

The Partnership between La Trobe University and The Australian Ballet continued making headway on its ambitious research program, fulfilling its vision of optimising artistic performance and supporting the health and wellbeing of the dancers by engaging in evidence-based, world-leading practices and research that is daring, but respects tradition.

In 2021, an extensive research program of eleven projects explored diverse issues in dance, such as lower limb injury, pelvic floor dysfunction, cognitive fatigue and wellbeing. Our research findings have been shared locally and internationally with dance and sporting organisations and at conferences.

We are grateful to The Australian Ballet Ambassador program for funding the post-doctoral researcher Dr Katia Ferrar.

Achievements

Sue Mayes and Katia Ferrar were awarded the 2021/22 Shepherd Foundation Research Grant (\$45,000) to support the foot pain PhD study.

Carly Harrison was awarded a PhD in August 2021 and Peta Baillie was awarded a Masters of Research in November 2021.



Find out more about the team's work:

<http://latrobe.edu.au/ballet>

Research team members:

Dr Sue Mayes AM

Prof Jill Cook

Dr Katia Ferrar

Dr Ebonie Rio

Professor Russ Hoye*

Dr Clare MacMahon

A/Prof Adam Semciw

Dr Karen Mickle

A/Prof Jodie McClelland

Dr Matt King

Dr Pam Kappelides*

Matthew Wirdnam

Christian Bonello

Kate Madden

Jason Brown

Dr Scott Ruddock

Dr Paul O'Halloran

Dr Mandy Ruddock-Hudson

Dr Jason Lam, The Australian Ballet

Dr Peter Smith, East Melbourne MIA radiology

Debbie Stuart

Sophie Emery, The Australian Ballet

A/Prof Helen Frawley (University of Melbourne)

Dr Roline Barnes (University of the Free State, South Africa)

A/Prof Tanis Wizenberg (UTas)

Dr Jason Rogers (UTas)

HDR Candidates: P Baillie, R Cowan, C Harrison, Dr Ana Azevedo, Matthew Wirdnam, Jess Frydenberg, Cherezane Marais (University of the Free State, South Africa)

*TAB Education and Outreach evaluation project 2020 (funded by TAB):



Project updates

1. Two studies investigating the association of hip muscle size with hip pain in elite ballet and age-and sex-matched non-dancing athletes have been completed by Dr Rachael McMillan and Sophie Emery
2. The study 'Posterior ankle impingement syndrome in dancers' was completed by HDR candidate, Peta Baillie
3. An international collaboration exploring posterior ankle pain in South African ballet dancers and adolescent dance students is underway
4. A study investigating clinical and imaging correlates of foot pain in dance, athletic and clinical populations is underway, led by international candidate Dr Ana Azevedo who was awarded the inaugural Bronwyn Schlotterlein PhD Scholarship
5. A scoping review exploring the direct effects of pointe shoes on ballet dancers' biomechanics, muscle activity, movement and symptoms has been submitted to a peer reviewed journal
6. A wellbeing and mindfulness training in professional dancers study was completed by PhD candidate, Carly Harrison, School of Psychology and Public Health, La Trobe University
7. A study exploring the prevalence and factors associated with pelvic floor conditions in Australian performing artists is underway by Masters candidate Jessica Frydenberg
8. Data collection has been completed for a study exploring the perceptions and experience of cognitive fatigue in professional dancers by Masters candidate Matthew Wirdnam
9. A systematic review examining performance quality tools for dance, that adds high quality research findings to the field of dance science, is complete and will be submitted in 2022
10. A systematic review on resistance training in dancers investigated the effect of resistance training on ballet, modern and contemporary dancers' strength, function, dance performance, anthropometrics, and injury rates, was submitted to a journal
11. The social impact of the The Australian Ballet's Education and Outreach Program on participants' health, wellbeing, social inclusion, educational outcomes and First Nations engagement is underway by Professor Russ Hoye (Dean, School of Allied Health, Human Services and Sport, La Trobe University) and Dr Pam Kappelides (Senior Lecturer, Sport Management, La Trobe University)

Selected publications (2021)

Baillie, P., Cook, J., Ferrar, K., Smith, P., Lam, J., & Mayes, S. (2021). Magnetic resonance imaging findings associated with posterior ankle impingement syndrome are prevalent in elite ballet dancers and athletes. *Skeletal Radiology*, 50(12), 2423-2431. <https://pubmed.ncbi.nlm.nih.gov/34013446/>

Baillie P, Mayes S, Lam J, Ferrar K, Cook J. (2021) Associations between clinical and imaging findings in posterior ankle impingement syndrome: a systematic review. *Acta Radiol.* 2021 Apr 19;2841851211008389. doi:10.1177/02841851211008389. <https://pubmed.ncbi.nlm.nih.gov/33874783/>

Emery S, Cook J, Ferrar K, Mayes S. (2021) Deep hip external rotator muscle size in ballet dancers compared to non-dancing athletes, and associations to pain. *Phys Ther Sport.* 2021 Sep;51:58-64. doi: 10.1016/j.ptsp.2021.06.010. <https://pubmed.ncbi.nlm.nih.gov/34237542/>

Harrison C, Ruddock S, O'Halloran P, Mayes S, Cook J, Ruddock-Hudson M. (2021) Wellness Monitoring for Professional Ballet Dancers - A Pilot Study. *J Dance Med Sci.* 2021 Jun 15;25(2):80-85. <https://pubmed.ncbi.nlm.nih.gov/33781371/>

Mayes S, Smith P, Stuart D, Cook J. (2021) Joint Hypermobility Does Not Increase the Risk of Developing Hip Pain, Cartilage Defects, or Retirement in Professional Ballet Dancers Over 5 years. *Clin J Sport Med.* 2021 Nov 1;31(6):e342-e346. doi: 10.1097/JSM.0000000000000862. <https://pubmed.ncbi.nlm.nih.gov/33239510/>

Mayes S, Smith P, Stuart D, Semciw A, Cook J. Hip Joint Cartilage Defects in Professional Ballet Dancers: A 5-year Longitudinal Study. *Clin J Sport Med.* 2021 Nov 1;31(6):e335-e341. doi: 10.1097/JSM.0000000000000818. <https://pubmed.ncbi.nlm.nih.gov/32079824/>

Student papers

Baillie, Peta (2021): Posterior Ankle Impingement Syndrome: Is Clinical Presentation Associated With Imaging Findings in Elite Ballet Dancers and Athletes? La Trobe. Thesis. <https://doi.org/10.26181/17304104.v1>

Harrison, Carly (2021): Exploring Wellness: A Self-Report Monitoring Application and Mindfulness Intervention for Professional Ballet Dancers. La Trobe. Thesis. <https://doi.org/10.26181/611b43cddf5f2>

Awards and achievements

In April 2021, Professor Kay Crossley was awarded the ACGR Award for Excellence in Graduate Research Supervision – an incredible national achievement!


From the Australian Council of Graduate Research

“Professor Kay Crossley has 13 years of supervision experience, with 57 HDR completions (27 as principal supervisor), across physiotherapy, medicine, podiatry and engineering disciplines.

As well as having a focus on supporting candidates to publish their research, Kay works tirelessly to secure grant support for her students. Her completed PhD candidates to date have produced on average 6 peer-reviewed publications each and more than half of her current


candidates have NHMRC scholarships.

Professor Crossley constantly strives to develop opportunities for her students ...and she is committed to fostering the academic and research careers of all her students and provide them with the mentoring and networks that are necessary for a successful career in research.”




AUSTRALIAN COUNCIL OF GRADUATE RESEARCH

AWARDS



Professor Kay Crossley - La Trobe University

2021 ACGR Award for Excellence in Graduate Research Supervision sponsored by ResearchMaster 



Staff Awards

- **Professor Nora Shields** - Winner of the 2021 HDR Supervision Excellence Award
- **Dr Adam Culvenor** - Winner La Trobe University, SHE College Mid-Career Research Excellence Award
- **Dr Adam Culvenor** - Winner La Trobe University Vice Chancellor Research Excellence Award, Mid Career
- **Dr Ben Mentiplay** - Special Commendation, SHE College, Early Career Research Excellence Award
- **Brooke Patterson** – Winner Victorian Fresh Scientist

Staff Achievements

- **Professor Peter Brukner** - *Honorary Degree*
- **Professor Jill Cook** - *Emeritus Professor*
- **Dr Prasanna Sritharan** - *Fulbright Future Scholarship*
- **Professor Nora Shields** won the VicSports Active Recreation Initiative of the Year for the FitSkills program, and took out the 2021 *VicHealth Leading Health Promotion Research Award*
- **Dr Dan Bonanno** was appointed *Victorian Director of Sports and Exercise Podiatry Australia*
- **Dr Andrea Mosler** was appointed *Deputy Editor at BJSM* and *Associate Editor at JSAMS*

Excellence in teaching performance

Staff who achieved either outstanding Student Feedback on Subjects (SFS) and/or a substantial increase in SFS scores for subjects delivered in the January – June 2021 reporting period:

- **David Carey** - SPE5PSA Principles of Sports Analytics
- **Melissa Haberfield** - PTY4PCP Person Centred Physiotherapy
- **Madeline Hannington** - PTY2PDA Physiotherapy Practice Development A
- **John Mastwyk** – PTY2PDA Physiotherapy Practice Development A
- **Andy Govus** – SPE2EPA Exercise Physiology and Assessment
- **Ben Mentiplay** – HPB2PBM Physiology and Biomechanics of Movement

AccessAbility awards for supporting students with LAPs

- **Madeline Hannington**, Casual Academic, Physiotherapy and Podiatry

Higher degrees by research

LASEM coordinated monthly higher degree by research mentoring and training sessions, which were conducted online. Topics covered included grant and manuscript writing, statistical techniques, peer-reviewing manuscripts, research and professional leadership, and knowledge dissemination.

Student Grants

Milly Bell received a grant from Arthritis Australia for \$10,000 to continue her investigations into using a supported motivational intervention (SUMIT), to improve physical activity in people with knee osteoarthritis.

Student Awards

Brady Green was awarded the prestigious **Nancy Millis Medal** for the exceptional quality of his PhD thesis

Zuzana Perraton was awarded the *SMA Research Foundation Grant (Brian Sando Award)* for \$2000

Rachael Cowan won the *Early Career Research Award for Clinical Sports Medicine* at the SMA Conference

Rachael Cowan won the *PEDro Award for best Randomised Controlled Trial* at World Physio Congress 2021 (9-11 April 2021) <https://world.physio/news/pedro-award-winner-announced>

Rachael Cowan won the *Outstanding Platform Presentation Award for Asia Western Pacific Region* at World Physio Congress 2021

School 3MT Finalists

Made Rimayanti and **Sarah Grimshaw** were finalists in the 3MT competition, both physiotherapy PhD students supervised by Professors Nora Shields and Nicholas Taylor.

2021 Completions

Candidate	Supervisors	Subject
Josh Heerey	Kay Crossley	Josh – Hip joint imaging findings in football players with hip and groin pain
Brady Green	Tania Pizzari	Brady – Calf muscle strain injuries in sport
Sirawee Chaovalit	Nick Taylor	Sirawee - Sit-to-stand exercise programs for children with Cerebral Palsy

Made won the competition with her presentation “The unseen chains”, while Sarah claimed second place with her presentation “Surviving stronger: Physical activity for children with cancer”.

Students in the Media

Milly Bell, March 16 2021: Opinion piece in Australian Country Media (syndicated to 112 newspapers) *Osteoarthritis: are we too quick to jump to surgery?* <https://www.newcastleherald.com.au/story/7166771/osteoarthritis-are-we-too-quick-to-jump-to-surgery/?cs=7725>

Anthony Goff, September 1, 2021: Interviewed in the APA magazine 'inmotion' about *Patient education for knee osteoarthritis* - a featured Q&A about his systematic review <https://australian.physio/inmotion/patient-education-knee-osteoarthritis>

Student Achievements

Anthony Goff and **Milly Bell** were published in the Journal of Physiotherapy: <https://www.sciencedirect.com/science/article/pii/S1836955321000540>

Anthony Goff hosted Symposium 1 at the Singapore International Physiotherapy congress

School Graduate Research Conference awards

- Podium Best Presentation: **Ali Gibbs**
- Podium Peoples' Choice: **Leanne Rees**
- Peoples' Choice Poster: **Milly Bell**

2021 LASEM Higher Degree by Research (HDR) students

PhDs

- Alana Leabeter
- Ali Gibbs
- Andrea Lewis
- Anthony James Goff
- Anthony Nasser
- April-Rose Matt
- Billymo Rist
- Bradley Thoseby
- Brady Green
- Brodwen McBain
- Brooke Flew
- Cara Schofield
- Danazumi Musa Sani
- Danielle Vickery-Howe
- Deenika Benjamin
- Francesco Fronzoni
- Georgie McKenzie
- Hazel Heng
- Helen Kugler
- Jamie Allan
- Jemma Coleman
- John Osborne
- Josh Heerey
- Karl Espenberger
- Laura Anderson
- Leanne Rees
- Luke Champion

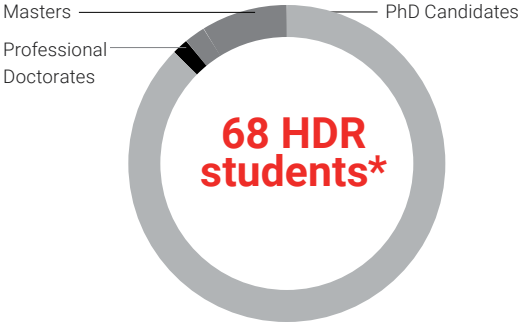
- Lyndon Hawke
- Made Utari Rimayanti
- Madeline Hannington
- Mark Scholes
- Marlena Calo
- Mary Claire Geneau
- Melissa Mazzarino
- Merridy Lithgow
- Michael Hedger
- Michael O'Brien
- Mick Girdwood
- Milly Bell
- Nicholas Busuttil
- Patrick Slattery
- Paula O'Neill
- Polly Lim
- Rachael Mary Cowan
- Rebecca Peek
- Sally Coburn
- Sally Mastwyk
- Sara Louise Grimhsaw
- Sirawee Chaovalit
- Tim Retchford
- Todd Pickering
- Tom West
- Yeshna Bhowon
- Zuzana Perraton

Masters

- Aidan Rich
- Christopher Stewart
- Daniel Epifano
- Daniel Verdon
- David Thwaites
- James Alexander
- Jennifer Corda
- Jessica Frydenberg
- Paula Pappalardo
- Peta Baillie
- Sam Pietsch
- Sara Hasani

Professional Doctorates

- Anne Shoebridge



* 68 Higher Degree by Research (HDR) students supervised by LASEM members, including 55 PhDs, 12 Masters by Research and 1 Professional Doctorates

Media, Dissemination & knowledge translation

At LASEM we are passionate about translating our research for the benefit of the community, including health professionals and the broader public. In 2021, several international conferences were held online, enabling the engagement of our experts, in a world in which 'virtual' conference attendance had become the new norm. In 2021, LASEM members undertook 53 invited speaking appointments (16 domestic/37 international), including 2 keynotes.

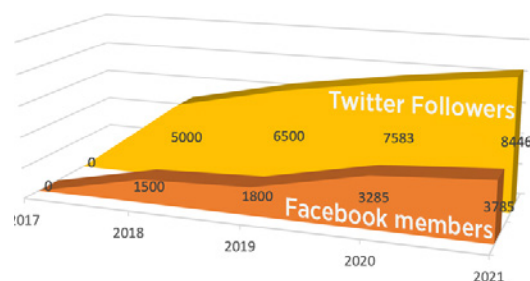
Media star **Dr Brooke Patterson** garnered much media attention in 2021, with her interviews on **injury prevention in women's sport** drawing crowds of 958,000. **Professor Kay Crossley's** coverage of **Women in Sport** was big news in 2021 too, with more than 431,000 audience members engaging in this content. As Professor Crossley and Dr Patterson work together in the **women in sport** space, this means that this topic caught the attention on nearly **1.4m** members of the public. The topic of **concussion** continued to be popular with the media as well, with **Peter Brukner's** interviews on the topic attracting an audience of 644,000.

Social Media

LASEM's Social Media presence continued to climb in 2021, with nearly **1000 more Twitter followers** joining LASEM and 500 more Facebook members signing up. **1.3 million** Twitter impressions were made by our Twitter account, achieved by 155 tweets (45% fewer than 2020), leading to more than **22,000 direct profile visits** (28% more than 2020). Colleagues mentioned us more than **800 times** (2.2 mentions per day) - 14% more than in 2020. The most popular tweet in 2021 highlighted an editorial (<https://bjsm.bmj.com/content/50/16/959>) authored by Professor Jill Cook, Dr. Ebonie Rio, and Dr. Sean Docking. The editorial highlighted the role of diagnosis in

guiding treatment and reached over 55,000 people.

Meanwhile more than 60% of our Facebook members were active in 2021. LASEM Blog views continued to represent steady engagement (91,000 views), but also remained in decline due to staff resourcing on a limited budget, i.e. less content written for consumption of followers, resulting in less views.



Speaking Appointment Highlights

Speaker	Subject	Country
Kay Crossley	Canadian Arthritis Research Conference: Research with Impact (virtual), <i>An ounce of prevention is worth a pound of cure – injury prevention – can we do it?</i>	Canada
Kay Crossley	5th Manchester United Sports Medicine Conference, – UK November, <i>Injury prevention programmes in female soccer, making football safer for women</i>	UK
Jill Cook	IOC World Conference on prevention of injury & illness in sport. <i>Training load specifics for tendons – prevention of injuries and re-injuries when there is pathology, pain, or a normal tendon.</i>	Monaco
Jill Cook	British Orthopaedic Sports Trauma and Arthroscopy Association 2021 Annual International Conference	UK
Peter Brukner	Defeat Diabetes. The role of an online program. Low Carb Allstars	Australia
Peter Brukner	What the military can learn from elite sport. UK Defence Rehabilitation Conference	UK
Joanne Kemp	SICOT: The World Orthopaedic Organisation – Special Sports Surgery Hip Preservation Symposium keynote speaker and session chair	Belgium
Joanne Kemp	Boston Celtics invited speaker <i>Assessment and treatment of hip pain in adults</i>	USA
Christian Barton	Australian Physiotherapy Association Victorian Branch End of Year Breakfast: <i>First line care for knee osteoarthritis: How can we make it happen</i>	Australia
Christian Barton	Singapore International Physiotherapy Congress: <i>Gait retraining for patellofemoral pain</i>	Singapore
Ebonie Rio	National Orthopaedic Division of the Canadian Physiotherapy Association. Achilles tendinopathy webinar with Craig Dixon	Canada
Andrea Mosler	British Association Sports & Exercise Medicine Spring Conference <i>Exercise-based Management of Hip Related Pain in Athletes</i>	UK
Allison Ezzat	Invited speaker GLA:D: <i>An evidence-based treatment program for hip and knee osteoarthritis.</i> BC Nurse Practitioners Conference. Invited Speaker. June	Canada
Brooke Patterson	AFL Europe Coach Education Webinar Series: Prep2Play	UK
Josh Heerey	Invited speaker International Sports Medicine Congress and 18th Turkish Sports Medicine Congress	Turkey

Virtual teaching and seminars

LASEM Education Events were hampered by ongoing COVID-19 lockdowns, as well as virtual event fatigue. However, we maintained a strong online and face-to-face presence, with a series of successful events.

GLA:D Osteoarthritis courses

Five courses, either online or face-to-face Training 619 Physiotherapists across every state of Australia

Promoting Progress Conference

12 La Trobe Sport and Exercise Medicine Research Centre panel speakers - 91 attendees

La Trobe Sport and Exercise Medicine Research Centre - Sports related concussion symposium

4 international keynote speakers - 50 live attendees

Cancer Exercise Toolkit

A team at LASEM, led by Dr Amy Dennett, codesigned and published of an online toolkit to support exercise professionals to provide care to people with or recovering from Cancer: <https://cancerexercisetoolkit.trekeeducation.org/>

Ask the Doctor series www.youtube.com/playlist?list=PLcYKug2r_8apWY5gQxe7kS5fJ8um8PJm

Dr Danilo de Oliveira Silva - <https://www.youtube.com/watch?v=b6h5ZAzP9qU>

Dr Denise Jones - <https://www.youtube.com/watch?v=m9uAUaiyUgU>

Injuries in Women Football Project

Concussion management for sports trainers | 34 attendees

Breast health and injuries | 56 attendees

Q&A with AFLW players | 92 attendees

Talent identification and careers in football | 35 attendees

ACL injured players peer support group | 3 meetings | ~10 attendees per meeting

Podcasts

Dr Susan Mayes

January 2021 #27 - Physio Explained by Physio Network: *Clinical pearls on tendinopathy with Dr Jill Cook*

Dr Andrea Mosler

March 2021 #17 Physio Explained by Physio Network: *Hip and Groin pain Explained*

Dr Susan Mayes

January 2021 #9 - Physio Explained by Physio Network: *Talking foot pain with Dr. Sue Mayes*

Dr Brooke Patterson

March 2021 *A seat at the top of the table* (BJSM Podcast) BJSM podcast

Dr Ebonie Rio

7th July 2021 Mechanical Care Forum (podcast) with Jason Ward. *Tendons and role of isometric exercise*

Prof Jill Cook

11th July 2021 Jacked athlete podcast with Jake Tuura. Podcast #23: *Patellar Tendinopathy vs. Patellofemoral Pain with Jill Cook*

Prof Jill Cook and Dr Ebonie Rio

August 2021 *Wild Physio Fitness* Podcast with Andrew Wild #29

Dr Ebonie Rio

21 September 2021 *Women in Physiotherapy Interview Series with Mick Hughes and Jane Rooney, Physioeducators series.*

Dr Ebonie Rio

21 October 2021 *Core Advantage Athletic Development* podcast with Durham McInnes & Mason Lauder

Dr Ebonie Rio

August 2021 *Pearls of Performance* podcast with Evert Verhagen <https://www.buzzsprout.com/1054978>

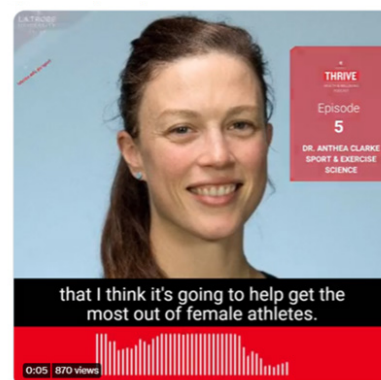
La Trobe University Thrive Health & Wellbeing Podcast:

Dr Ebonie Rio

Nov 2021 *Returning to sport after a long lay off - Injury Prevention*, Episode 6

Dr Anthea Clarke

Sept 2021 *Coaching and supporting female athletes* Sport & Exercise Science



Funding detail

Project	Total 2021
Category 1 Australian Competitive Grants - NHMRC	
The Femoroacetabular Impingement Rehabilitation Study (FIRST)	11,353
Chronic knee pain: neuroscience meets exercise for pain relief	76,633
Quality of life burden in active young adults living with hip-related pain	68,118
SUPER rehabilitation for young people with old knees	322,974
Reducing inappropriate knee joint replacement surgery and hospital burden	391,510
Making football safe for women: implementing an injury prevention program	116,711
Improving outcomes for older people with musculoskeletal foot disorders	164,712
A Public-Private Partnership to Reduce Falls in Australian Hospitals	128,030
Motivational Interviewing to increase walking in community-dwelling older adults	209,779
Improving muscle strength in young people with Prader-Willi syndrome	103,327
Australian Centre for Health, Independence, Economic Participation and Value	19,375
Improving Rehabilitation Outcomes through Self-Management	233,397
DigiCare4You: An intersectoral innovative solution involving DIGItal tools, empowering families and integrating community CARE services for the prevention and management of type 2 diabetes and hypertension	132,316
Effectiveness of a time-efficient school-based physical activity intervention	15,969
	1,994,204
Category 2 - Other public sector research funding	
Optimising quality of life and participation in physical and sporting activity	39,113
Muscle size and quality in people with hip-related pain	39,113
Health and Performance in Female athletes: A Scoping Review	20,000
Changes in the brain after injury	39,113
HPRnet: Functional movement variability during military load carriage	171,564
The effect of task constraints on gait variability during load carriage	15,000
Increasing physical activity among young adults with disability	90,000
Artificial Intelligence as the Most Valuable Player	120,000
	533,903
Category 3 - Industry and other Research Funding	
Patellar tendon pathology: its development and relationship with pain in elite athletes	40,625
Relationship Agreement with The Australian Ballet	120,000
Does I-factor improve outcomes and is it safe for use in peri-acetabular osteotomy for hip dysplasia?	10,000
Reducing inappropriate knee joint replacement surgery and hospital burden	23,250
IOC Research Centre	128,717
Making football safe for women: implementing an injury prevention program	160,000
Efficacy of medicinal cannabis for chronic pain as a result of injury	17,820

Project	Total 2021
Increasing physical activity for people with knee osteoarthritis - Arthritis Australia	10,000
SUMIT - Cabrini Health	15,438
Osteoarthritis and Diet	180,000
Levin Health-La Trobe Clinical Research Partnership	166,666
Biomechanical and physiological responses to different types of footwear	25,200
Evaluating the Neuroalign eye tracking technology: a reliability study	24,500
HERsport Leadership - Australian Physiotherapy Association	40,000
Progression of hip osteoarthritis symptoms and structure in young adults - Physiotherapy Research Foundation	9,959
Healthscope Projects	147,628
The Effect of High Polyphenol Extra Virgin Olive Oil on Markers of Cardiovascular Disease Risk	7,500
New approaches to obtaining and analysing data on individual player movement in Australian football	50,000
OrthoSport Victoria Industry Collaboration	85,000
Dance Exercises for Parkinson's Rehabilitation: How Much is Enough?	19,574
Relationship: countermovement jump force-time variables & sports performance - Vald Performance Pty Ltd	25,000
CanMOVE: Promoting positive physical activity behaviours in children undergoing acute cancer treatment	25,000
Accuracy of the motusTHROW sensor during baseball pitching - Boston Red Sox	14,000
The effectiveness of a probiotic food supplement in the reduction of depressive symptoms: A double-blind randomised placebo-controlled trial	20,000
Biomechanical analysis of hospital-based tasks	14,000
Osteo Study Australia	64,759
Development and evaluation of an online telehealth toolkit - Australian Physiotherapy Association	10,816
The role of matrix metalloproteinase 3 and type 2 collagen C-telopeptide fragments in predicting post traumatic osteoarthritis after anterior cruciate ligament reconstruction	6,195
The assessment and development of agility in soccer players - Melbourne City Football Club	21,600
The development and implementation of scrum assessment methods in elite rugby union	27,000
Remote Clinical Assessment for Overseas Qualified Physiotherapists - Australian Physiotherapy Council	28,600
	1,538,847
Total Externally Funded Research Grants	4,066,954
Other external funding	414,185
Internal University Funding	853,710
Total	5,334,849

2021 Publications

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General enquiries

La Trobe Sport and Exercise Medicine
Research Centre
La Trobe University
VIC 3086
Australia

T +61 3 9479 2169

E semrc@latrobe.edu.au

B <http://semrc.blogs.latrobe.edu.au/>

F www.facebook.com/latrobesemrc

T @latrobeSEM

W www.latrobe.edu.au/lasem

