



THE UNIVERSITY OF  
MELBOURNE

Faculty of Medicine,  
Dentistry and Health Sciences  
Department of Physiotherapy




# CHESM 2022 Annual Report

CENTRE FOR HEALTH, EXERCISE AND SPORTS MEDICINE

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The University of Melbourne acknowledges the Traditional Owners of the unceded land on which we work, learn and live: the Wurundjeri Woi Wurrung and Bunurong peoples (Burnley, Fishermans Bend, Parkville, Southbank and Werribee campuses), the Yorta Yorta Nation (Dookie and Shepparton campuses), and the Dja Dja Wurrung people (Creswick campus).

The University also acknowledges and is grateful to the Traditional Owners, Elders and Knowledge Holders of all Indigenous nations and clans who have been instrumental in our reconciliation journey.

We recognise the unique place held by Aboriginal and Torres Strait Islander peoples as the original owners and custodians of the lands and waterways across the Australian continent, with histories of continuous connection dating back more than 60,000 years. We also acknowledge their enduring cultural practices of caring for Country.

We pay respect to Elders past, present and future, and acknowledge the importance of Indigenous knowledge in the Academy. As a community of researchers, teachers, professional staff and students we are privileged to work and learn every day with Indigenous colleagues and partners.



# 2022 CHESM Snapshot

CHESM's education, research and translational activities focus on conservative strategies across the lifespan to improve health & wellbeing for people with musculoskeletal conditions.

## HIGHLIGHTS

**1** MELBOURNE LAUREATE  
PROFESSOR APPOINTMENT

**1** DAME KATE CAMPBELL  
FELLOWSHIP

**3** ACADEMIC  
PROMOTIONS

**2** PHD  
CONFERRALS



## CHESM KNOWLEDGE TRANSLATION NETWORK

**4,682**   
CLINICIANS

**4,573**  
CONSUMERS

## MY EXERCISE MESSAGES APP

**1,006**

DOWNLOADS



## RESEARCH PUBLICATIONS

**88** PAPERS PUBLISHED

**412** AUTHORS

**129** INSTITUTIONS

**22** COUNTRIES



**37** RESEARCHERS  
INCLUDING **5** NEW  
STAFF &  
STUDENTS



## AWARDS

MARLES MEDAL RECIPIENT

ACTA INDUSTRY  
PARTNERSHIP AWARD

ANZMUSC ECR  
PAPER OF THE YEAR

CLINICAL RESEARCHER  
PREMIER'S AWARD



## ONLINE RESOURCES

PEAK PROGRAM  
**12,076**  
REGISTRATIONS

MY KNEE EXERCISE  
**21,065**  
VIEWS

MY JOINT YOGA  
**4,996**  
VIEWS



# CHESM



The Centre for Health, Exercise and Sports Medicine (CHESM) is a multidisciplinary research Centre established by the Department of Physiotherapy, Melbourne School of Health Sciences, Faculty of Medicine, Dentistry and Health Sciences at the University of Melbourne in 2000.

The Centre's main activities span three areas:

**Research** - including post-doctoral training and research higher degree supervision;

**Engagement and translation** – ensuring research is informed by and impacts key stakeholders;

**Leadership and Service** – within and external to the University.

Our main research focus is on the role of non-drug, non-surgical strategies, particularly exercise in prevention and management of musculoskeletal conditions such as osteoarthritis. To do this, a lifespan approach is taken from childhood through to the elderly years and includes implementation research to address evidence-practice gaps.

CHESM is based within the Department of Physiotherapy in the Alan Gilbert Building on the University Parkville campus. CHESM also has a state-of-the-art Human Movement Laboratory located nearby at 202 Berkeley St. This facility houses equipment including a Vicon motion analysis system, force platforms, electromyography systems and muscle strength dynamometer.



# Message from the Director



It gives me great pleasure to introduce the CHESM 2022 Annual Report. The year 2022 became the “new normal” after we emerged from the COVID-19 lockdowns and restrictions of the previous year. As with many

workplaces, CHESM has changed in how we function as a team and while many members continued to work remotely for part of the work week, some have moved interstate or overseas, highlighting the work flexibility that is now possible. I would like to take this opportunity to thank the wonderful CHESM team for their dedication and collegiality this year and congratulate them on their achievements. I would also like to acknowledge the on-going support from the Department of Physiotherapy, particularly the former Head, Prof Jenny McGinley, and new Head, A/Prof Fiona Dobson, as well as the CHESM Advisory Board.

In 2022, CHESM comprised a strong multidisciplinary team of 37 staff and research higher degree students with backgrounds in physiotherapy, exercise science, podiatry, osteopathy, biomechanics and biostatistics. We welcomed several new staff members to CHESM including Sam Shearer, Dr Zobaida Edib, Jesse Pardo, and Sarah Stratulate as research assistants and Dr Joanna Ling as a biostatistician. We farewelled post-doctoral research scientists, Dr Sarah Jones and Dr Pek Ling Teo. Many staff achieved personal recognition for their achievements. In particular, congratulations to Prof Rana Hinman as a University of Melbourne Marles Medals recipient and Dr Michelle Hall and Dr Kade Paterson who were both promoted to Associate Professor.

Our research achievements are notable. We mentored 10 PhD students with Scott Starkey and Pek Ling Teo graduating. We celebrate another year of grant success. A/Prof Kade Paterson led a successful Medical Research Future Fund grant for a 5-year project investigating force-reducing minimalist footwear for adolescents with chronic knee pain. CHESM's research was disseminated via 88 contributions to peer reviewed journal articles as well as 43 invited presentations, most delivered remotely.

CHESM is committed to ensuring that its research is impactful. In 2022, our online learning courses for clinicians had >12,800 registrants with translations into Spanish, Portuguese, and Chinese. CHESM also launched further digital programs/resources for people with osteoarthritis including an educational program, a yoga program and an App to improve exercise adherence. Our social media engagement expanded while the CHESM Knowledge Translation Network providing an avenue for research dissemination grew to over 4,600 clinicians and 4,500 consumers from around the world.

Moving into 2023, CHESM seeks to continue its success with a team culture that embodies the Faculty's values. We want to remain innovative in our research and to further drive translation of our findings both nationally and internationally in order to improve outcomes for people at risk of, or living with, musculoskeletal conditions.

A handwritten signature in black ink, appearing to read 'Kim Bennell'.

**Kim Bennell, PhD**  
Director, CHESM



# Our Team



## CHESM Director

- Prof Kim Bennell

## Staff

- Dr Kim Allison (parental leave)
- A/Prof Adam Bryant
- Penny Campbell
- A/Prof Fiona Dobson
- Dr Zobaida Edib
- Dr Thorlene Egerton
- Dr Stephanie Filbay
- Bridget Graham
- Dr Michelle Hall
- Prof Rana Hinman (Deputy Director)
- Dr Sarah Jones (until November)
- Alex Kimp
- Gabby Knox
- Dr Belinda Lawford
- Ben Metcalf
- Dr Mark Merolli
- Dr Rachel Nelligan
- Jesse Pardo

- A/Prof Kade Paterson

- Sam Shearer
- Libby Spiers
- Sarah Stratulate
- Dr Pek Ling Teo (until April)

## Biostatistician

- Fiona McManus
- A/Prof Karen Lamb
- Dr Joanna Ling

## PhD students

- Pei Wei Chi
- Luke Davies
- Travis Haber
- Sam Kayll
- Ehsan Lohrasbi
- My Linh Nguyen Luong
- Patrick Rowe
- Emma Searle
- Scott Starkey (completed November)
- Julia Zhu

# Advisory Board

The CHESM Advisory Board was originally established in 2001 under University auspices. Its role is to provide advice and recommendations on research activities and future direction.

As the Centre is evolving in terms of its multi-disciplinary research focus, it was time to revisit the Terms of Reference, and refresh our Advisory Board. In June 2014, a new Board, with stronger consumer representation and key discipline areas relevant to our research focus, was established. Membership terms are three years. Last year, the board membership included new stakeholder, clinician, and consumer representatives.

## CHESM Advisory Board Membership in 2022:

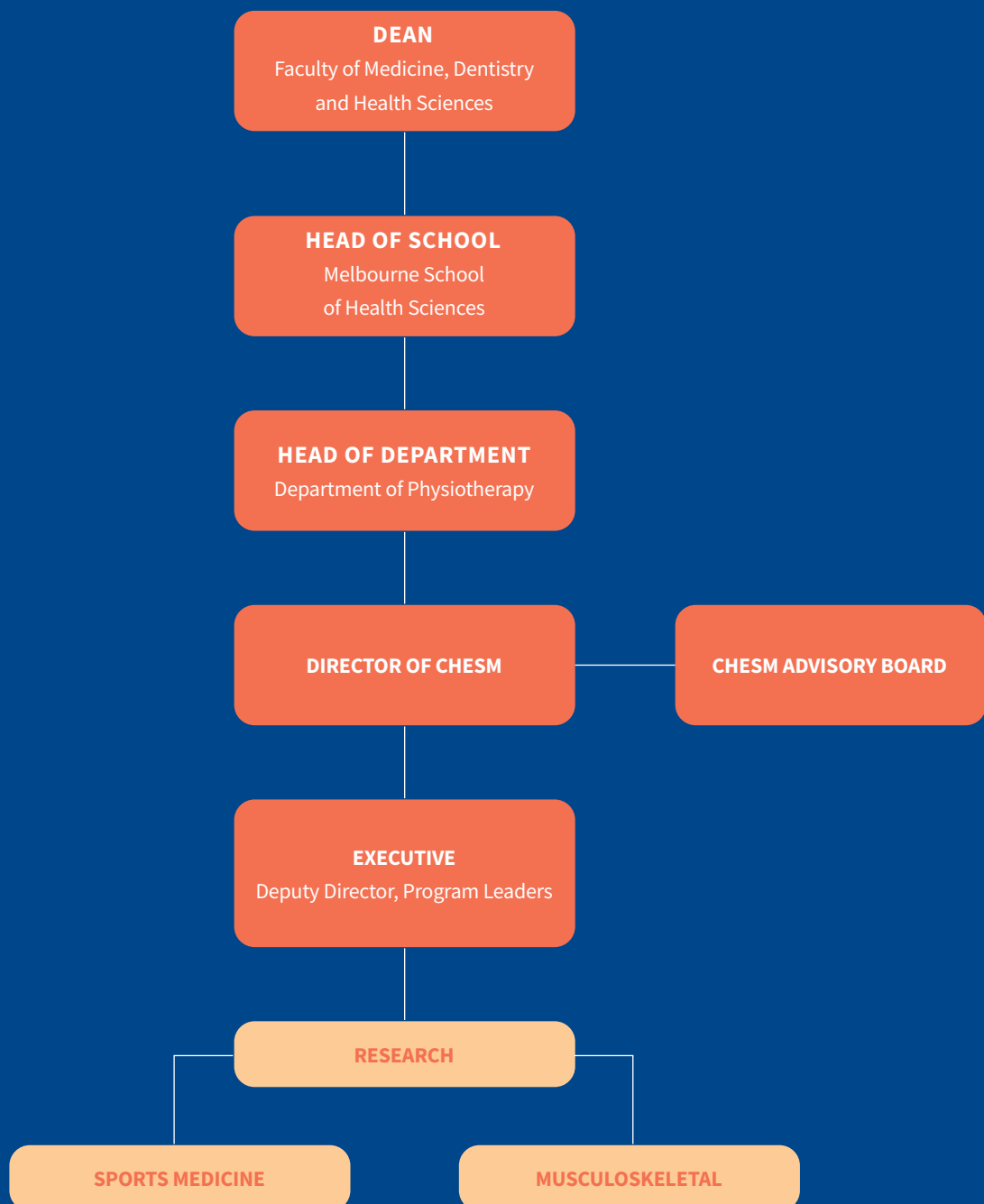
COMPOSITION	MEMBER	POSITION
Department of Physiotherapy	Prof Jennifer McGinley A/Prof Fiona Dobson (from May 2022)	Head of Department
CHESM	Prof Kim Bennell	Director
Representative of Faculty external to the Department of Physiotherapy	Prof Mark Hargreaves	Acting Deputy Vice-Chancellor (Research)
Clinician representative(s) of discipline area(s) relevant to CHESM activities and external to the University	Mr Andrew Dalwood	Specialist Musculoskeletal Physiotherapist, Director of Waverley Park Physiotherapy Centre and Co-Director of Physioworks Health Group Camberwell
Clinician representative(s) of discipline area(s) relevant to CHESM activities and external to the University	Dr Sophie Heywood	Clinical Research Coordinator, St Vincent's Hospital, Sports Physiotherapist
Stakeholder representative(s) relevant to CHESM activities	Dr Catherine Keating	Head of Health Strategy and Services, Medibank
Stakeholder representative(s) relevant to CHESM activities	Mr Dan Miles	Policy Advisor, Australian Physiotherapy Association
Consumer representative	Mr Neil Bidgood	Consumer with lived experience of osteoarthritis



# Governance Structure

The current governance structure of CHESM is shown below. The location of CHESM within the Department of Physiotherapy, School of Health Sciences, affords it the same support and governance procedures of the Department and School.

The Centre's leadership, research and financial management, and long-term strategic planning are the responsibility of the Director, Prof Kim Bennell. Her role is supported by Deputy Director, Prof Rana Hinman and A/Prof Adam Bryant, Sports Medicine Program Leader. Administrative support is also provided.



# Key Research Projects

The primary focus of research at CHESM is on the role of conservative strategies, particularly exercise, in promoting overall health and wellbeing, and in preventing and managing musculoskeletal conditions in particular osteoarthritis.

In 2022, CHESM conducted the following key research projects:

## Telehealth assessment study

The primary aim of this study was to investigate the accuracy of performance-based tests when conducted via videoconferencing by a physiotherapist, compared to when the same tests are conducted in-person. This study also looked to establish the reliability of the measures when performed via videoconferencing.

Status of project: PUBLISHED 2022

*Journal of Telemedicine and Telecare*



## Comparative effect of two educational videos for people with knee osteoarthritis (vidEO)

This randomised controlled trial determined if an educational video based on an empowerment and participatory discourse improves self-efficacy to manage knee osteoarthritis pain and reduces fear of movement more than an educational video based on a disease information and impairment discourse in people with knee osteoarthritis.

Status of project: PUBLISHED 2022

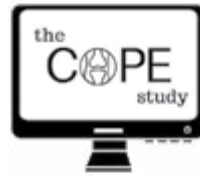
*Osteoarthritis and Cartilage*

## Self-reported confidence of final year Australian physiotherapy entry-to-practice students and recent graduates in their capability to deliver care via videoconferencing

This study investigated the self-reported confidence of Australian physiotherapy students and recent graduates delivering care via videoconferencing. These findings can help inform the content of telehealth physiotherapy curricula to improve delivery of care via this mode.

Status of project: PUBLISHED 2022

*European Journal of Physiotherapy*



## Modified yoga exercise program for people with knee osteoarthritis

This randomised controlled trial aimed to investigate the effectiveness of an unsupervised online yoga program for people with knee osteoarthritis to help them manage their symptoms. Participants were asked to utilise an OA resource website for 12 weeks including completing a modified-yoga exercise in their own home using videos accessed on the internet or education only.

Status of project: PUBLISHED 2022

*Annals of Internal Medicine*

## An international core capability framework for physiotherapists delivering telephone-based care

This study developed a discipline specific core skills-based (capability) framework for physiotherapists involved in the delivery of telephone-based care using an international consensus process.

Status of project: PUBLISHED 2022

*European Journal of Physiotherapy*

## Foot orthoses for big toe joint osteoarthritis – randomised controlled trial

The primary aim of this study was to investigate the effect of insoles for pain during walking due to big toe osteoarthritis over a 12-week period. Osteoarthritis is common at the big toe joint resulting in pain and problems with movements such as walking and there is need for effective treatments that reduce pain and improve function.

Status of project: PUBLISHED 2022

*Osteoarthritis and Cartilage*

## Footwear for self-managing lateral knee osteoarthritis symptoms: FOLK trial

This study investigated the effects of two classes of readily available off-the-shelf shoes on knee (lateral tibiofemoral) osteoarthritis symptoms. It is recommended that clinicians provide advice on “appropriate” footwear for people with knee osteoarthritis. However, there is little evidence from clinical trials to determine which shoes are best for self-managing lateral knee osteoarthritis.

Status of project: PUBLISHED 2022

*BMJ Open*

### **Educational information, with and without pathoanatomical information, for people with knee osteoarthritis**

This randomised controlled trial aimed to compare the effects of knee osteoarthritis educational information, with and without pathoanatomical content, on consumer osteoarthritis management beliefs.

Status of project: PUBLISHED 2022

*Journal of Orthopaedic & Sports Physical Therapy*



### **Exercise for people with hip osteoarthritis**

The primary aim of this randomised controlled trial was to investigate the effects of two different 9-month exercise programs (strengthening vs aerobic plus strengthening) on pain and physical dysfunction in people with hip osteoarthritis. Participants in both groups were allocated to a physiotherapist for nine sessions over the first three months and asked to perform weekly exercises.

Status of project: completed

### **Telehealth education and training in entry-to-practice physiotherapy programs in Australian universities: A qualitative study with university educators**

Attitudes to telehealth education and experiences incorporating telehealth education into entry-to-practice physiotherapy programs in Australia, from the perspective of university educators was explored. A visual summary was produced that includes recommendations for university educators to help curriculum development.

Status of project: PUBLISHED 2022

*Musculoskeletal Care*

### **Effects of educational information, plus general practitioner recommendation, on osteoarthritis management beliefs**

A randomised controlled trial was conducted to evaluate the effects of knee osteoarthritis educational information, plus a general practitioner recommendation to exercise, on consumer osteoarthritis management beliefs.

Status of project: PUBLISHED 2022

*ACR Open Rheumatology*



### **Optimising primary care management of knee osteoarthritis: PARTNER project**

This cluster randomised controlled trial developed and evaluated a model of care for primary care management of knee osteoarthritis that supported both General Practitioners and patients to uptake the key osteoarthritis clinical guideline recommendations and achieve improvements in pain and function. Optimal management of knee osteoarthritis often requires challenging lifestyle changes for people with knee osteoarthritis, and General Practitioners face challenges in guiding and supporting their patients to make these changes.

Status of project: PUBLISHED 2022

*BMJ Open*

### **Exercise and diet for people with hip osteoarthritis: a randomised controlled trial (ECHO)**

This study is comparing the effects of a weight loss and exercise program to an exercise only program on clinical outcomes (hip pain) at 6 months in people with hip osteoarthritis and overweight or obesity.

Status of project: in progress

### **Musculoskeletal treatment pathways**

This multi-site project led by Prof Trudy Rebeck at the University of Sydney aimed to compare two treatment pathways provided in primary and specialist care to advance understanding of recovery from neck pain/whiplash, non-specific low back pain, or knee osteoarthritis. One group were treated by their usual doctor or health professional as required, while the other group was given treatment based on their risk of chronicity/poorer prognosis, with care provided by their primary care provider and/or a specialist provider.

Status of project: completed



### Health professionals and patient experiences of management for anterior cruciate ligament injury: Informing the patient decision aid

This study explores patients' and clinicians' experiences managing people with ACL injury to understand current practices in Australia, explore beliefs and expectations surrounding ACL management options, barriers and facilitators for making an informed treatment decision, and the perceived positive and negative features of ACL management options. Findings will inform the development of a patient decision aid for the management of ACL injury.

Status of project: in progress

### The EPIPHA-KNEE Trial: Explaining Pain to target unhelpful pain beliefs to Increase Physical Activity in KNEE osteoarthritis

Led by A/Prof Tasha Stanton at the University of South Australia, this multi-site study aims to evaluate the clinical- and cost-effectiveness of integrating physiotherapist-delivered pain science education, an evidence-based conceptual change intervention targeting unhelpful pain beliefs by increasing pain knowledge, with an individualised walking, strengthening, and general education program.

Status of project: in progress



### Physiotherapists' management of hip pain

The primary aim of this study is to investigate how physiotherapists manage middle aged or older patients with chronic hip pain in Australian and New Zealand. This study will inform future research aiming to improve the health outcomes for people with chronic hip pain.

Status of project: in progress

### Physiotherapy Exercise and physical Activity for Knee Osteoarthritis: PEAK Study

This study compares the clinical effectiveness and cost-effectiveness of video consultations with physiotherapists to traditional face-to-face consultations for management of people with knee osteoarthritis and explore the experiences of users and providers of care. This study will help determine whether video consultations are non-inferior to face-to-face consultations for improving knee pain on walking and physical function.

Status of project: in progress

### Footwear for self-managing hip osteoarthritis symptoms: SCHIPP trial

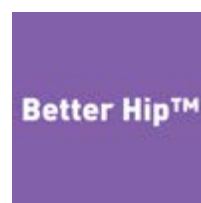
The primary aim of this research study is to investigate the effects of two classes of readily available off-the-shelf shoes on hip osteoarthritis symptoms. It is recommended that clinicians provide advice on "appropriate" footwear for people with hip osteoarthritis. However, there is little evidence from clinical trials to determine which shoes are best for self-managing hip osteoarthritis.

Status of project: in progress

### Understanding health service usage and management practices for ankle sprains and chronic ankle instability in netball athletes

This study examines the prevention and management practices for ankle sprains undertaken by netball athletes. We aim to better understand what prevention measures are implemented and whether netball athletes seek medical advice and treatment from health professional(s) following an ankle sprain.

Status of project: in progress



### HipHealth – "Better Hip" Trial

Together with Medibank, this study will evaluate the effectiveness of a telehealth-delivered clinician-supported program (Better Hip) which will comprise education, strengthening exercise, physical activity, self-management strategies and if needed, dietary intervention for weight loss, for Medibank members with hip osteoarthritis. We will evaluate the effectiveness of the Better Hip program on pain and physical function, and also conduct a cost-effectiveness analysis of the program.

Status of project: in progress

### Healing of acute anterior cruciate ligament injury without surgery

The primary aim of this study is to evaluate the outcomes and ACL healing via magnetic resonance imaging in patients with ACL rupture who are managed with a novel cross bracing protocol.

Status of project: in progress

### Athletic footwear for reducing knee loads in girls and women

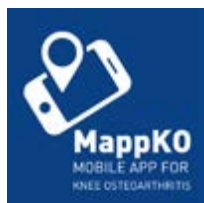
This study will develop a novel athletic shoe that can reduce harmful knee loads during sport in adolescent girls and young women. The findings will lead to the development of a new ASICS shoe (phase 1) that will be “field-tested” (phase 2) during sporting activity with high anterior cruciate ligament injury risk (netball) to evaluate its effect on tibial shock (in-field surrogate measure of knee load) and player comfort compared to a conventional shoe.

Status of project: in progress

### Reliability of quantitative sensory testing and indicators of inflammation in people with hip osteoarthritis

This study investigates the reliability of pain sensitivity and stability of levels of inflammation measured in the blood. Little is known about how stable these measures are in people whose hip pain is consistent with hip osteoarthritis, making it very difficult to interpret any changes seen in these measures over time.

Status of project: in progress



### Mobile app for Knee Osteoarthritis (MappKO)

This randomised controlled trial will assess whether a mobile app that contains behaviour change messages and monitoring can help improve adherence to a physiotherapist-delivered home exercise program in people with knee osteoarthritis. The mobile app was adapted from a behaviour change-informed SMS program that CHESM previously developed and shown to improve outcomes.

Status of project: in progress

### Exercise and Weight loss for Knee Pain (POWER)

This randomised controlled trial is testing the efficacy of a physiotherapist-supervised very low calorie ketogenic diet combined with an exercise program, for people with knee osteoarthritis compared to an exercise program only. This will inform whether physiotherapists can successfully and safely deliver a weight loss program and help inform new models of service delivery.

Status of project: in progress



### My Hip Exercise

The primary aim of this study is to develop and compare a combined intervention that includes a website, ‘My Knee Exercise’, containing educational information, guidance to increase physical activity, and the prescription of a 24-week self-directed home-based lower-limb strengthening program in addition to a 24-week behaviour change SMS exercise adherence program to ‘My Knee Education’, an education control website containing osteoarthritis and exercise information only over 24 weeks for people with knee osteoarthritis.

Status of project: in progress



### PHOENIX: using brain imaging to reveal the effect of exercise in hip osteoarthritis

The primary aims of this study are to; 1) compare the brain neurobiology of people with hip osteoarthritis to people who do not have hip osteoarthritis, and; 2) explore the effect of a 12-week exercise program on brain neurobiology of people with hip osteoarthritis.

Status of project: completed

# EFFECTIVENESS OF AN UNSUPERVISED ONLINE YOGA PROGRAM ON PAIN AND FUNCTION IN PEOPLE WITH KNEE OSTEOARTHRITIS

A RANDOMIZED CLINICAL TRIAL



Pain while  
walking

Physical function  
(WOMAC)



• 212 participants, 45+ years, with knee osteoarthritis

• Two primary outcomes, measured at 3 and 6 months

## Control group



Online education  
only

Comprising OA information, treatment options, pain management, sleep and patient stories

VS



Online education

+

Unsupervised online yoga  
program for 12 weeks



Pre-recorded videos, each to be  
performed 3x a week

## Intervention group

## Main results:

Compared with control at 3 months, **yoga led to greater improvements in self-reported physical function but not knee pain during walking.**

**Benefits were not maintained at 6 months.**



## Key message

An unsupervised 12-week online yoga program for people with knee osteoarthritis **improved function more than online education immediately following the program.**

The improvement **did not meet the minimal clinically important difference** and was **not sustained at 6 months.**



**Centre for Health, Exercise and Sports Medicine**

Department of Physiotherapy, The University of Melbourne

Further information: Prof Kim Bennell, [k.bennell@unimelb.edu.au](mailto:k.bennell@unimelb.edu.au)

Publication: <https://www.acpjournals.org/doi/10.7326/M22-1761>

Yoga program evaluated available free at [www.myjointyoga.com.au](http://www.myjointyoga.com.au)



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# Effect of motion control versus neutral walking footwear on pain associated with lateral tibiofemoral joint osteoarthritis

A comparative effectiveness randomised clinical trial



**Aim:** Determine if motion control walking shoes are better for reducing knee pain for people with lateral knee osteoarthritis than neutral walking shoes.

## What we did:



We planned to recruit **110** participants with **symptomatic radiographic lateral tibiofemoral knee osteoarthritis** but ceased recruitment at **40** due to COVID-19-related impacts



### Motion Control Shoes

Black ASICS Gel-Kayano 25  
Dual density midsole which is stiffer medially



Randomised to either



Both groups advised to wear shoes >6 hours/day over 6 months.

### Neutral Walking Shoes

Black ASICS Gel-Nimbus 20  
Uniformly stiff midsole and are visually similar to the motion control shoes.



months later change in walking knee pain assessed



## What we found:



Motion control shoes were **not superior** than neutral walking shoes to **reduce walking knee pain** in lateral tibiofemoral osteoarthritis



**Limited clinical trial evidence** in people with **lateral knee osteoarthritis**, further research to confirm findings and discover effective treatments for this subgroup



### Centre for Health, Exercise and Sports Medicine

Department of Physiotherapy, The University of Melbourne

Further information: Kade Paterson, kade.paterson@unimelb.edu.au

Publication: Paterson KL, Bennell KL, Metcalf BR, et al. Effect of motion control versus neutral walking footwear on pain associated with lateral tibiofemoral joint osteoarthritis: a comparative effectiveness randomised clinical trial. BMJ Open 2022;12:e061627. doi:10.1136/bmjopen-2022-061627



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# Guidance for Implementing Best Practice Therapeutic Exercise for Patients With Knee and Hip Osteoarthritis



## What is therapeutic exercise?

- ✓ Exercise is a subcategory of physical activity that is planned, repetitive and structured
- ✓ Therapeutic exercise = designed and prescribed by a clinician to achieve specific goals

## What dosage should be used?

- ▶ Limited evidence on the optimal dosage including optimal intensity of exercise needed for benefits
- ▶ Benefits can be gained from both higher and lower intensity
- ▶ Dosages recommended in general exercise for healthy can be followed but interim exercise goals may be useful

## How can exercise programs be delivered?

Individual (one-on-one)  
Class-based (group)  
Home-based  
Combination



Similar benefits  
for pain and  
function

## How can exercise programs be individualised?

Tailoring of exercise to :

- Patient's values, needs, preferences and goals
- Comorbidities (e.g. obesity, heart disease, diabetes)

## What strategies and techniques can be used to help patients stick to their exercise program?

- Strong therapeutic relationship
- Patient education
- Behaviour change techniques:
  - Goal setting
  - Social support
  - Instruction and demonstration of exercise
  - Practice rehearsal
  - Monitoring and feedback
- Tech:
  - Mobile applications
  - Activity monitors
  - Text & email prompts

## What type of therapeutic exercise?

- ✓ Benefits can be gained from many types of therapeutic exercise: aerobic, strength training, neuromuscular, tai chi, yoga, water
- ✓ Small-to-moderate effects on pain and function and similar or better to most pain-relieving medication
- ✓ Lack of agreement as to which type or combination most beneficial

## How should exercise program be progressed or modified?

- ▶ Strengthening exercise
  - Testing muscle strength
  - Rating of difficulty
- ▶ Aerobic exercise
  - Target heart rates
  - Ratings of perceived exertion
- ▶ Self-Reported and Performance-Based Outcome measures
  - Recommended set:
    - Timed Up & Go Test
    - 6 Minute Walk Test
    - Minimum core set:
      - 30s Chair Stand Test
      - 40m Fast paced Walk test
      - Stair Climb test

## Is exercise safe for people with hip and knee osteoarthritis?

**YES!**



No evidence of:

- serious adverse events
- increases in pain
- decreases in physical function
- progression of structural OA on imaging
- increased total knee replacements

## What are barriers and facilitators to starting and continuing with an exercise program?

Influenced by complex inter-play of various physical, personal and social-environmental factors



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Department of Physiotherapy, The University of Melbourne  
Publication: <https://doi.org/10.7326/M20-6321>

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## Does removing pathoanatomical content from osteoarthritis information affect treatment beliefs?

### What did we do?



Recruited **556** people aged **45+** years  
with and without knee pain



Asked to imagine they were **visiting their GP**  
for a **hypothetical** knee problem

Participants were randomised to one of two groups:



#### Standard information group

Read a **general information pamphlet** about osteoarthritis, based on existing consumer information found online



#### Experimental information group

Read the same *Standard information* pamphlet, but with **all pathoanatomical information deleted** (i.e., any words/sentences/images related to joint structure, and words related to pathology like 'damage' and 'wear and tear')

### What did we find?



**No differences** between groups in beliefs about the need for **x-ray** or **surgery** for their hypothetical knee problem

**Experimental information** led to reduced beliefs that **exercise would damage the knee** and better **osteoarthritis knowledge** than *Standard information*



Among those **without tertiary education** and those who had **never sought care for knee pain**, participants in *Experimental information* believed x-rays and surgery were less necessary than those in *Standard information*

### What did we conclude?

Removing pathoanatomical content from OA information **did not affect beliefs about x-ray and surgery**, but may **reduce beliefs that exercise is damaging** and **increase osteoarthritis knowledge**



#### Centre for Health, Exercise and Sports Medicine

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Journal manuscript: <https://www.jospt.org/doi/10.2519/jospt.2022.11618>



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# Beliefs about hip pain and its care

Systematic review

## What we did:



Review of **qualitative studies** - guided by the **Common-Sense Model of Self-Regulation**



**Middle-age and older adults with chronic hip pain**



**28 studies included**

## What we found - beliefs and expectations:



People believed hip pain was due to **age, wear and tear, overuse, and posture**



People **wanted and needed more information** about hip pain



People believed that **nonsurgical treatments** were **unhelpful** or reported they were **not offered**



**Difficulties with movement, personal and social activities, and sleep**



People **rested or avoided activities** to cope with pain



People expected that **surgery is inevitable**

## How our findings may inform clinical care of people with hip pain:



Explore peoples' **physical, emotional, and social needs** - and tailor care to these needs



Consider **educating** people about the **biopsychosocial causes** of hip pain



Consider **offering nonsurgical treatments** - and **reassuring** people about them



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Publication: Haber et al. *Pain*. 2022  
doi: 10.1097/j.pain.0000000000002792



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# Why don't some people with knee osteoarthritis improve with exercise?

## WHAT WE DID

Recruited **12** people whose pain and function had **IMPROVED** ("responders") & **14** people whose pain and function had **NOT IMPROVED** ("non-responders") to the PEAK exercise program



They were interviewed over the phone

And asked about factors contributing to their outcomes



## WHAT WE FOUND

### RESPONDERS ONLY

Empowered for self management of knee osteoarthritis



### RESPONDERS & NON-RESPONDERS

Identified a range of similar exercise facilitators

Had a nothing to lose attitude

Believed their OA is degenerative

Perceived their health to be good

Felt stronger from exercise



### NON-RESPONDERS ONLY

Felt high body weight contributed to OA & lack of response to exercise

Other health conditions & life stressors were barriers, contributing to sub-optimal exercise adherence

Felt study outcomes were not personally relevant

Accepted responsibility for lack of improvement



## SUMMARY

There were many shared perceptions & attitudes between responders & non-responders

Non-responders reported more challenges including greater impacts from excess body weight, other health conditions, life stress & events, which affected their adherence to, and outcomes from, the exercise program



**Centre for Health, Exercise and Sports Medicine**  
Department of Physiotherapy, The University of Melbourne  
Further information: Prof. Rana Hinman, [ranash@unimelb.edu.au](mailto:ranash@unimelb.edu.au)  
Publication: <https://doi.org/10.1002/acr.25085>



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## Are lower limb performance-based tests reliable when administered via telehealth?

### What did we do?



Recruited **57** people **45+** years with **persistent musculoskeletal pain** in their hips, legs, or feet



Participants completed **two** sessions of physical performance tests with a physio **via Zoom**



Participants also completed **one** session of physical performance tests with a physio **in-person**

### What did we find?



Poor  
(ICC<0.5)



Moderate  
(ICC=0.5-0.7)



Good-excellent  
(ICC≥0.7)

	Reliability for repeat use via telehealth	Agreement between scores via telehealth and in-person
30 second chair stand	✓	✓
5 metre fast paced walk	✓	✗
Stair climb	✓	✓
Timed up and go	✓	✓
Step test	✓	✓
Timed single-leg stance test	✓ *right limb only	✓ *left limb only
Calf raise tests	✓	✓

### What did we conclude?

**Stair climb, timed up and go, right leg timed single-leg stance, and calf raise tests** have acceptable reliability for use via telehealth. If re-testing via a different mode (telehealth/in-person), clinicians and researchers should consider using the **30 second chair stand** test, left leg **timed single-leg stance**, and **calf raise** tests.



#### Centre for Health, Exercise and Sports Medicine

Department of Physiotherapy, University of Melbourne

More information: Dr Belinda Lawford, [belinda.lawford@unimelb.edu.au](mailto:belinda.lawford@unimelb.edu.au)

Journal publication: <https://doi.org/10.1177/1357633X221137387>

Our telehealth testing manual can be downloaded here: <https://go.unimelb.edu.au/6hie>



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## What effect does information have on beliefs about management of knee osteoarthritis?

### What did we do?



Recruited **735** people



Aged **45+** years



Did **not** have knee pain or osteoarthritis

Asked to imagine they were **visiting their GP** for a **hypothetical** knee problem and were randomised to 1 of 3 groups:



#### Group 1

Read a **general information pamphlet** about osteoarthritis



#### Group 2

Read general information pamphlet  
+  
Read a **treatment option table** with the pros and cons of each option



#### Group 3

Read general information pamphlet  
+  
Read treatment option table  
+  
Received a hypothetical **GP recommendation** to exercise

### What did we find?



**Group 3** had more favourable beliefs that **exercise was best** for their knee, compared to **Group 1**



**Group 2** had less favourable beliefs about the necessity of **surgery and x-rays** for their knee, compared to **Group 1** and **Group 3**

### What did we conclude?

The group that received a **GP exercise recommendation**, along with a **treatment option table** and a **general information pamphlet** about osteoarthritis, had the **most favourable views** regarding exercise being the best treatment option.



#### Centre for Health, Exercise and Sports Medicine

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Journal manuscript: <https://doi.org/10.1002/acr2.11513>



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This cross-sectional study aimed to identify the frequency of digital health use to obtain/record clinical information **BEFORE THE COVID-19** pandemic and willingness to use digital technologies among physical therapists and patients with musculoskeletal conditions

102  
Physical Therapists



103  
Patients



Across  
Australia



Physical Therapists mostly used **non-digital methods** to obtain **subjective (96.1%)** and **objective (93.1%)** information

## Physical Therapists

Top 3 digital health technologies used:

Photo Based  
Image Capture



Accessing information  
logged/tracked by  
patients into a mobile app



Electronic systems  
to capture  
subjective  
information that  
the patient fills in



Willing to use technology for:

1. Receiving diagnostic images
2. Scheduling appointments
3. Capturing diagnostic results



## Patients

Top 3 digital health technologies used:

Activity  
trackers



Logging/tracking health  
information on mobile  
apps or websites trackers



Entering  
information on a  
computer



Willing to use technology for:

1. Receiving notifications about health results
2. Looking up health information
3. Receiving personalised alerts/reminders



**Before the COVID-19 pandemic**, physical therapists and patients **infrequently used digital health technologies** to support **musculoskeletal care**. There was willingness to consider their use for **select functions**.



Centre for Health, Exercise and Sports Medicine

Department of Physiotherapy, The University of Melbourne

• Further information: Dr Mark Merolli, [merollim@unimelb.edu.au](mailto:merollim@unimelb.edu.au)

Publication: <https://onlinelibrary.wiley.com/doi/10.1002/msc.1627>

<https://doi.org/10.1002/msc.1627>



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# How does hip osteoarthritis differ to knee osteoarthritis?

## Narrative review



### Prevalence

- Hip osteoarthritis prevalence is lower than knee osteoarthritis
- Hip osteoarthritis occurs in men and women similarly, whereas knee osteoarthritis occurs more in women



### Prognosis

- Joint shape is a key risk factor in hip osteoarthritis, less so in knee osteoarthritis
- Body weight is a key risk factor in knee osteoarthritis, less so in hip osteoarthritis
- Hip joint replacements performed in younger adults, in more males, and in those with lower body weight compared to knee osteoarthritis



### Epigenetics

- HOX-genes in cartilage differ between hip and knee osteoarthritis
- Expression of miRNA differ between the two osteoarthritic joints



### Pathophysiology

- Inflammatory markers in the synovium and serum differs
- Collagen IV potentially plays differing role



### Clinical presentation

- Restricted range of motion, pain with side lying and groin pain with sexual activities are unique to hip osteoarthritis
- 'Buckling' or 'giving way' is more typical with knee osteoarthritis



### Clinical recommendations

- Education and exercise consistent core treatments for both joints
- Some recommendations such as weight loss for hip osteoarthritis are based on research in knee osteoarthritis

**Key message: Differences between hip and knee osteoarthritis should be considered to enhance joint-specific treatments**



#### Centre for Health, Exercise & Sports Medicine

Department of Physiotherapy, The University of Melbourne

Further information: Dr Michelle Hall [halm@unimelb.edu.au]

Publication: Hall et al Osteoarthritis Cartilage 2022 30:32-41

doi: 10.1016/j.joca.2021.09.010



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# Walking-related knee contact forces and associations with knee pain across people with mild, moderate and severe radiographic knee osteoarthritis



**AIM:** To investigate knee contact forces & their relationships with knee pain, across grades of X-ray knee osteoarthritis severity



People with medial knee osteoarthritis



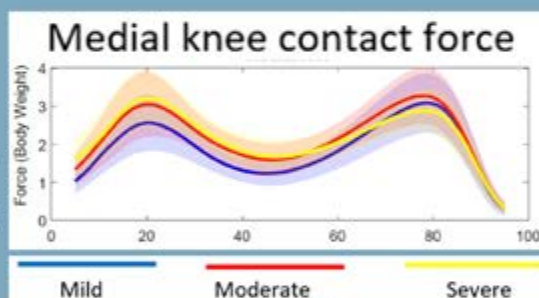
Trials of gait assessment whilst walking barefoot at a self-selected normal walking speed



Musculoskeletal computational modelling

## Main results

The medial knee contact force of participants with **moderate** and **severe** radiographic osteoarthritis was significantly **greater than** those with **mild** osteoarthritis during early and middle stance



There were no associations between knee contact force and pain for any grade of radiographic osteoarthritis severity



## Key messages

**Medial** and **lateral** knee contact forces differ between mild, moderate and severe radiographic knee OA but are **not associated with knee pain severity for any radiographic OA grade**



**Centre for Health, Exercise and Sports Medicine**

Department of Physiotherapy, The University of Melbourne

Further information: Dr Kade Paterson, [kade.paterson@unimelb.edu.au](mailto:kade.paterson@unimelb.edu.au)

Publication: Walking-related knee contact forces and associations with knee pain across people with mild, moderate and severe radiographic knee osteoarthritis: a cross-sectional study. *Osteoarthritis and Cartilage*. <https://doi.org/10.1016/j.joca.2022.02.619>



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# The FORT Trial:

## Insoles for big toe joint osteoarthritis

AIM: compare contoured foot orthoses to flat insoles for big toe osteoarthritis

 **88** Participants

 **2** Consultations

 **12** Week Outcomes

 **Pain** with walking: Primary outcome

### Contoured orthotics



Vs

### Flat sham insoles



\*Images taken from Bonanno et al. J Foot Ankle Res 2015; 8(1): 51



Participants instructed to wear allocated insoles at all times whilst wearing shoes for 12 weeks

## Main results

**No evidence** that contoured foot orthoses were **superior** to sham insoles for **reducing pain** (mean difference -0.3 NRS units (95% CI -1.2 to 0.6),  $p=0.53$ )

Foot orthoses were **not superior** to sham on any **secondary outcomes**

## Key messages

Contoured foot orthoses are **NO MORE EFFECTIVE** than flat sham insoles in the clinical management of first metatarsophalangeal (MTP) or "big toe" joint osteoarthritis.

**Further research needed to identify effective approaches**



### Centre for Health, Exercise and Sports Medicine

Department of Physiotherapy, The University of Melbourne

Further information: Dr Kade Paterson, [kade.paterson@unimelb.edu.au](mailto:kade.paterson@unimelb.edu.au)

Publication: Effect of foot orthoses versus sham insoles on first metatarsophalangeal joint osteoarthritis symptoms: a randomized controlled trial. *Osteoarthritis and Cartilage*. <https://doi.org/10.1016/j.joca.2022.01.014>



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# Collaborations and Partnerships

CHESM benefits from working with other academics, industry, government, community organisations and consumers to help co-design, conduct and disseminate its work. The following is a summary of main partners and collaborators that CHESM worked with throughout 2022.



## CHESM's 2022 publications:



412

different authors



35%

included national collaborators



51%

included international collaborator across 22 countries

## External partners included:

Allied Health Professions Australia  
Arthritis Australia  
ASICS Oceania  
Austin Health  
Australian Diabetes Educators Association  
Australian Physiotherapy Association  
Australian Podiatry Association

Coviu  
Dietitians Australia  
Exercise and Sports Science Australia  
Formthotics  
FutureLearn  
Medibank  
Melbourne Disability Institute  
Musculoskeletal Australia

National Disability Insurance Agency  
Occupational Therapy Australia  
Össur (Iceland)  
Osteopathy Australia  
Speech Pathology Australia  
Victorian College of the Arts

# Early Career Training and Mentoring Program

The Musculoskeletal Early Career Training and Mentoring program was established in 2015 across CHESM and the research groups of Prof David Hunter at the University of Sydney and Prof Paul Hodges and Prof Bill Vicenzino at the University of Queensland as part of a joint NHMRC Program grant and Centre of Research Excellence.

Although these grants have concluded, the training and mentoring program has continued as MUSQ:Impact. It comprises approximately 65 early career researchers, both students and post-doctoral fellows. Activities within this program are coordinated by a Training and Mentoring Committee which comprised 11 members in 2022 ranging from PhD students to research directors. Activities have included a seminar series, infographic competition and a retreat. The 3-day retreat was held at the Gold Coast and involved over 30 staff and students from across the groups. The attendees heard presentations from team leaders and early career researchers as well as worked together on collaborative projects in the areas of osteoarthritis policy, social media and using big data.

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## Teaching and Learning

Whilst research is core business for CHESM, members participated in a range of teaching and learning activities in 2022. Some CHESM team members hold joint positions within the Department of Physiotherapy or School of Health Sciences as teaching and research academics. As such, a key part of their role is dedicated to specific teaching and learning. Prof Kim Bennell shares the Graduate Research Co-ordinator role for the Department of Physiotherapy with A/Prof Kate Hayward.

Other CHESM members who have research-focused positions contribute to specialist teaching in their areas of expertise. Research higher degree students also undertake teaching activities including marking and giving lectures and tutorials in order to gain experience for their future careers. CHESM team members contributed to a range of University of Melbourne programs including the Doctor of Physiotherapy, Masters of Sports Medicine, Masters of Information Systems, Graduate Certificate in Health Informatics and Digital Health, Masters of Clinical Rehabilitation and Masters of Physiotherapy.

We were fortunate to have two students who completed placements with CHESM during the year. This included one University of Melbourne Doctor of Physiotherapy student and a graduate research student from the University of Texas, both of whom completed research placements on CHESM projects.

# Engagement and Impact

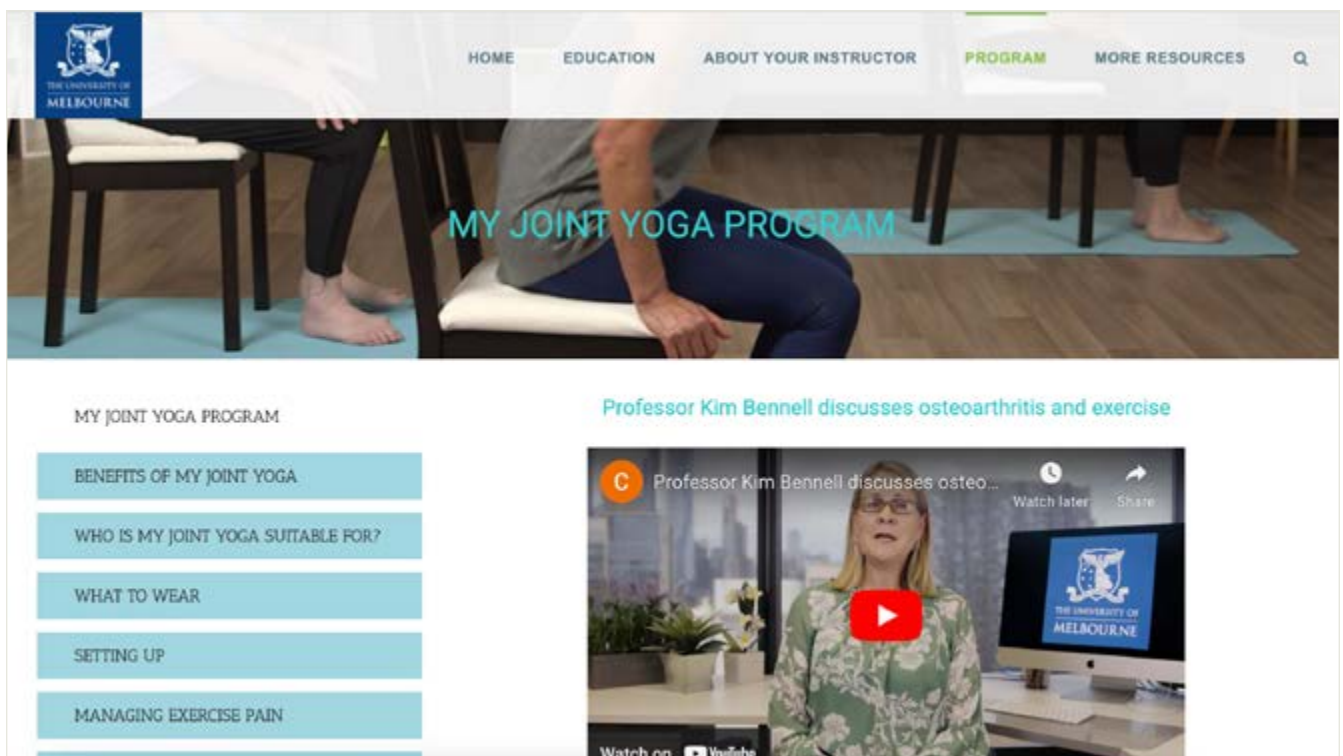
Ensuring that research has an impact is a major goal for CHESM and we worked with key stakeholders including consumers, clinicians, health insurers, professional organisations, industry, and consumer organisations to co-design, conduct and disseminate research. We highlight several examples of work in 2022 that demonstrates the link between research, engagement and impact:

## My Joint Yoga

Yoga is a form of mind-body exercise that can appeal to many people with osteoarthritis because it combines strength training and stretching in a low-impact setting along with a focus on breathing and relaxation. It is typically undertaken 'in-person' in a group setting, but this delivery mode can be inaccessible, inconvenient, and costly. Online self-directed programs may increase access to exercise, a core recommended treatment for knee osteoarthritis.

The My Joint Yoga program was designed in conjunction with yoga therapists, researchers, physiotherapists, and people with osteoarthritis. The program was tested in a randomized clinical trial in 212 people from around Australia and shown to have benefits for function, knee stiffness, quality of life and confidence to self-manage. The study was published in *Annals of Internal Medicine* in October 2022 with the program made freely available. By the end of 2022, **4,996 people** from **58 different countries** visited the website.

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



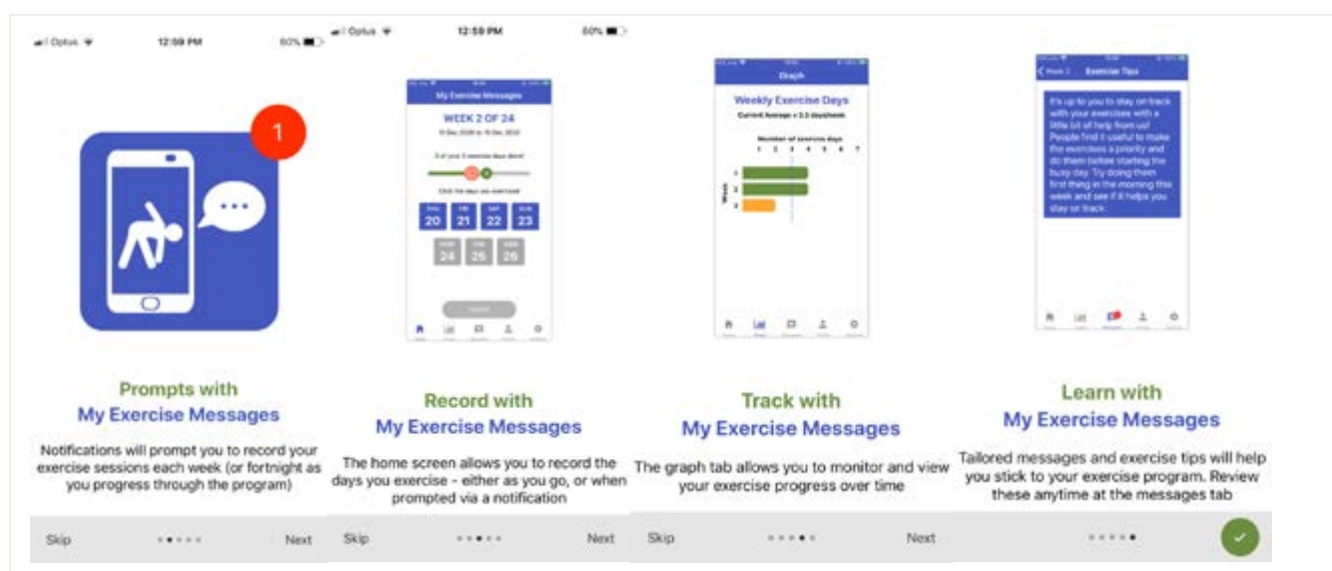


## My Exercise Messages App for Knee Osteoarthritis

Mobile apps are a popular method for supporting people to implement positive behaviour changes required for chronic disease management such as undertaking regular exercise. Compared to SMS, mobile apps offer greater flexibility in delivery and presentation of behaviour change messages and enhanced functionality for logging and monitoring exercise adherence over time. Mobile apps can also be delivered at scale free of charge to the user which also overcomes limitations of costs involved with delivery of SMS. Unfortunately, health and lifestyle apps designed to modify health behaviours (physical activity, diet and sleep) contain low levels of theory-based behaviour change techniques.

We thus adapted our evidence- and theory-informed SMS program into a mobile app called “My Exercise Messages” in collaboration with the University of Melbourne eResearch Group. My Exercise Messages iOS version is currently available in the Apple Store (2021) and the Android version was released in 2022.

My Exercise Messages has been downloaded by **1,006 people** by the end of 2022. My Exercise Messages is being evaluated for effectiveness through a randomised controlled trial (MappKO) that is currently ongoing.





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# Better Knee, Better Me

A support program for eligible Medibank members\* to help manage painful knee osteoarthritis. Give us a call to check your eligibility.

Call 1300 584 427 Register interest




## Better Knee, Better Me could help you manage knee osteoarthritis




### Reduce knee pain

A physiotherapist will coach you in pain management and exercises designed to help improve knee pain.



### Manage weight loss

A dietitian will support you with a weight management plan to reduce pressure on your knees.



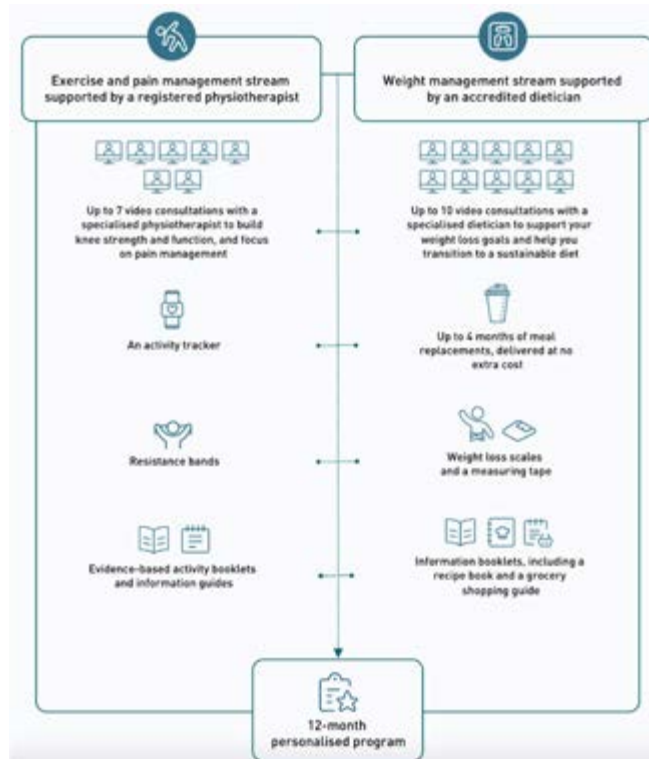
### Exercise safely

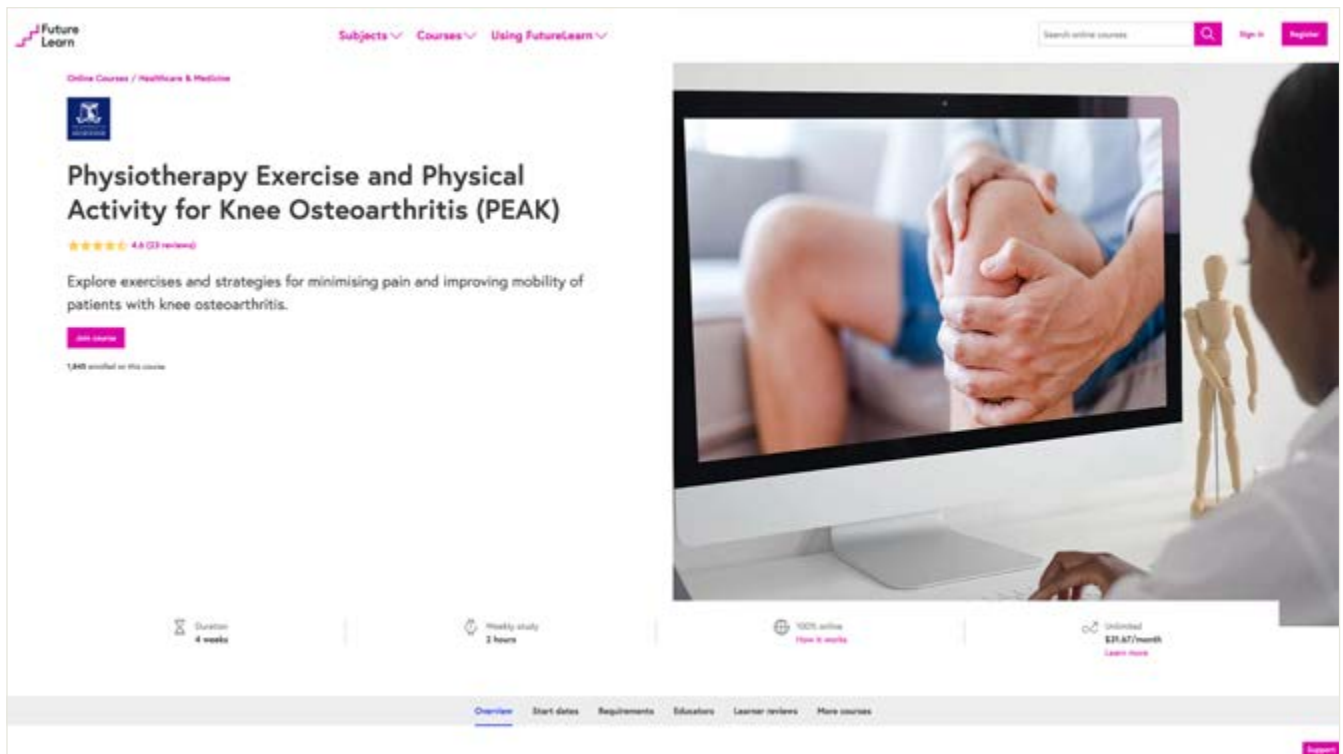
A physiotherapist will guide you on how to exercise safely with knee osteoarthritis.

## Medibank Better Knee, Better Me™ program roll out

<https://www.medibank.com.au/health-support/health-services/better-knee-better-me/>

As a result of our Better Knee, Better Me™ Trial which was published in Annals of Internal Medicine, Medibank scaled up and released the remotely-delivered combined diet plus exercise program for its eligible members. There is no fee to enrol or participate in the program for eligible Medibank members who have joint replacement surgery included in their hospital cover. CHESM continued to play a role in ensuring the successful implementation of this program in 2022 by providing training to new health professionals recruited to deliver the program and advising on modifications.





### Physiotherapy Exercise and physical Activity for Knee osteoarthritis (PEAK) online training modules

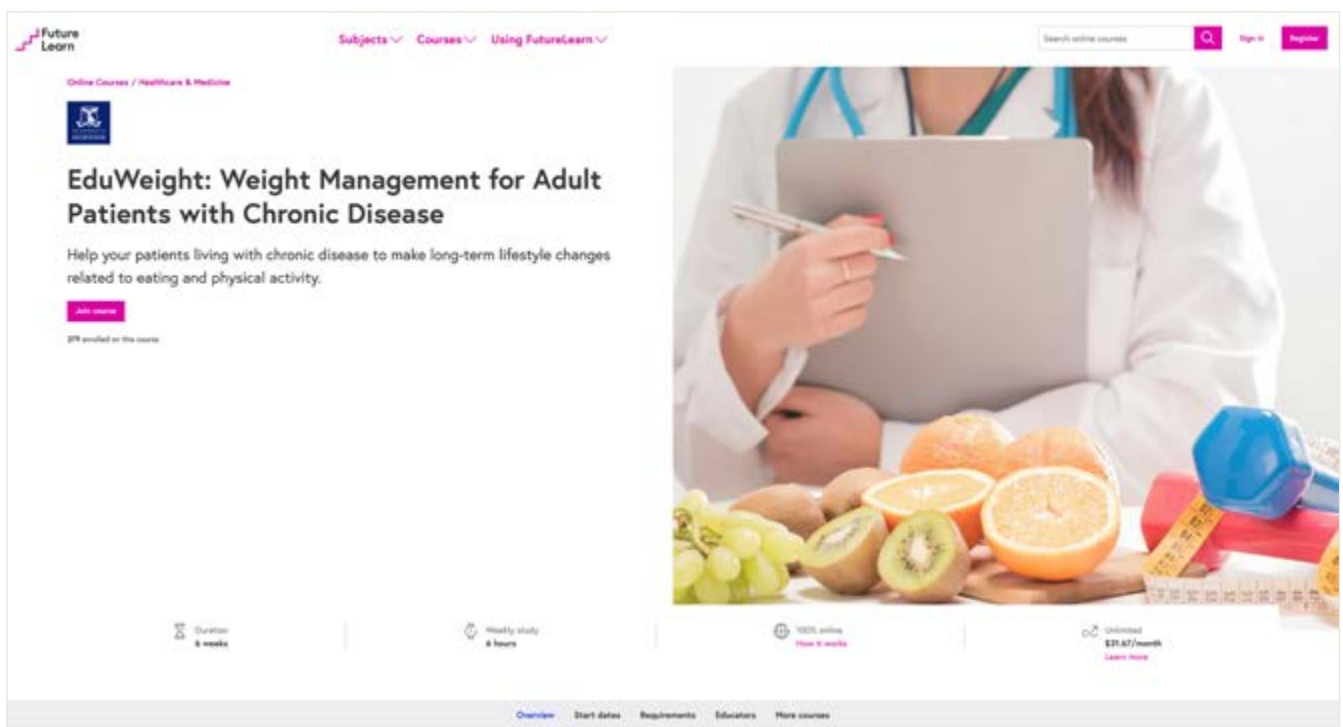
Our online training modules guiding health professionals in how to implement best-practice exercise care to people with knee osteoarthritis were translated and made available in Spanish, Portuguese, and Chinese. By the end of 2022, we have had **>12,000 total registrations** across **141 different countries**. CHESM also coordinated three PEAK launch webinars with the collaborating translators in the host countries.

Available at: <https://www.futurelearn.com/courses/peak>  
<https://www.futurelearn.com/courses/peak-Chinese>  
<https://www.futurelearn.com/courses/peak-Spanish>  
<https://www.futurelearn.com/courses/peak-Portuguese>

### E-learning for health professionals in weight management for patients with chronic diseases

At the end of November in 2021, we released an online course on FutureLearn for health professionals to educate them about weight management for their patients with chronic disease and overweight/obesity. It was based on our research showing that the program improved physiotherapists' short-term confidence in knowledge and skills in weight management and reduced weight stigmatized attitudes. The course continued to gain interest throughout 2022 with **800 people** registering from over **83 different countries**.

Available at: <https://www.futurelearn.com/courses/eduweight>



## Taking Control of your Hip and Knee Osteoarthritis online training modules

Patient education is a fundamental pillar of osteoarthritis care. Unfortunately, barriers exist for health professionals in the delivery of high-quality osteoarthritis educational information to their patients with osteoarthritis. Barriers include skill and knowledge deficits, time pressures and a lack of high-quality resources to provide patients.

We developed an innovative e-Learning course specifically for patients “Taking Control of your Hip and Knee Osteoarthritis” to provide quality and evidence-based information and education and osteoarthritis and its management with an emphasis on exercise and weight management. It was released in July and by the end of 2022, **530 people** had registered for the course. Feedback to date has been excellent:

*“This course was evidence- based and provided useful strategies to cope with osteoarthritis without immediately resorting to surgery. I would highly recommend this course.”*

*“On an easy to understand level, this class explains how to manage osteoarthritis without drugs or surgery. Exercise and weight loss are key. I highly recommend.”*

*“This course exceeded my expectations as it provided so much valuable information about arthritis through short explanations and longer links to scientific papers. Links to exercise sites have provided practical and effective help, teaching multiple ways to manage arthritis without surgical intervention until absolutely necessary. Thank you for such a well-rounded course.”*

A randomised controlled trial will commence in 2023 which will investigate whether the e-Learning course improves knowledge about osteoarthritis and its management and/or pain self-efficacy when compared to currently available osteoarthritis educational information in people with hip and/or knee osteoarthritis.



## Advocacy work

CHESM is involved in advocacy efforts to help improve care of people with musculoskeletal conditions. For example, Prof Bennell and Neil Bidgood, one of CHESM’s consumer representatives, were part of Arthritis Australia’s advocacy for increased research funding, speaking at their “Investing in Impactful Arthritis Research” launch at Parliament House in Canberra and meeting with a number of senators.





# CHESM Knowledge Translation Network



## Do you want to

- ✓ find out about the latest research?
- ✓ collaborate with us on new projects?
- ✓ access evidence-based resources?



THE UNIVERSITY OF  
MELBOURNE

Centre for Health, Exercise and Sports Medicine

We have **established a network** from around the world in order to:

- **Share research findings.**
- Provide opportunities for the **general public and clinicians to volunteer/participate in CHESM studies.**
- **Collaborate with CHESM on research** activities.
- Disseminate **patient and clinician resources developed by CHESM** as a result of our research.

We are excited to have **>4,500 clinicians** and **>4,600 people** from **over 85 different countries** involved in the network already!

<https://healthsciences.unimelb.edu.au/departments/physiotherapy/chesm/join>

### CHESM Retreat 2022

After having so many face-to-face events cancelled, rescheduled or shifted to virtual meetings, CHESM held a retreat in May 2022. The team met at Lancemore - Macedon Ranges where we were able to discuss various topics including past achievements, current initiatives, driving impact, consumer involvement and engagement, research higher degree student experience, and teaching/research opportunities in the physiotherapy department.



# Committee Membership

CHESM team members are active on numerous committees both within and external to the University, acting in both chair and membership roles.

## University

### Department of Physiotherapy

Executive Committee  
Executive Committee  
PhD Advisory Committees  
CHESM Special Interest Group  
CHESM Consumer Involvement Strategy Action Group  
Doctor of Physiotherapy Selection Committee  
Doctor of Physiotherapy Board of Examiners  
Doctor of Physiotherapy First Year Co-ordinator  
MUSQImpact Early Career Researcher Training and Mentoring Committee  
Research Higher Degree Co-ordinator  
Research and Research Higher Degree Committee  
Physiotherapy Selection Committee  
Chair of Examiners for Research Higher Degrees  
Post graduate enrolment applications committee  
Honours Committee

### School of Health Sciences

Executive Committee  
Ethics Committee  
Triennial Performance Review Panels  
Faculty Infrastructure Program  
Faculty Research Committee  
Early & Mid-Career Researcher Network  
Early & Mid-Career Academic Association  
Graduate Research Committee

### Faculty of Medicine, Dentistry and Health Sciences

Appointments and Promotions Committee  
Levels D and E Promotions Committees  
Deans Fellowship Review Committee  
Early Career Academic Network  
Centre for Digital Transformation of Health, Workforce, and Education  
ThinkBIG! Workshop series organising committee  
SWiM (Supporting Women in MDHS) Mentor  
Peer Support & Mentoring Program for NHMRC Investigator Grants

## Central

Human Research Ethics Committee Greater Than Low Risk - STEM  
Human Research Ethics Advisor  
Academic Board Member  
Academic Board Appeals Panels  
University of Melbourne Dame Kate Campbell Fellowships Review Committee  
University of Melbourne Mid-career Seed Grants peer review  
Faculty of Engineering Investigator Grants panel  
UoM Early & Mid-Career Researcher grants review  
UoM Faculty Trust Fellowships

## External

### Council of Physiotherapy Deans Australia & New Zealand

Board member

### Australian Physiotherapy Association

Telehealth Advisory Committee  
Physiotherapy Research Foundation Group Strategic Review Panel  
Collaborative Australian Physiotherapy Research Initiative Advisory board  
Conference Planning for Musculoskeletal Physiotherapy Australia  
Sports & Exercise Physiotherapy National Group Committee

### Australia & New Zealand Musculoskeletal Clinical Trials Network (ANZMUSC)

Executive Committee  
Osteoarthritis Special Interest Steering Committee  
Chair - Early Career Committee

### Australian Foot and Ankle Research Network

Steering Committee

### Australasian Institute of Digital Health

Institute Fellow

### Arthritis Australia

Scientific Advisory Board

### The Florey Institute

Promotions Committee

### Exercise and Sports Science Australia

Exercise and Arthritis Expert Advisory Group

### Sports Medicine Australia

Victorian Council  
Awards judging committee – SMA National Conference  
Member Education Advisory Committee



## **Australian and New Zealand Society of Biomechanics**

Executive Committee

ABC14 Scientific Committee

## **Sports and Exercise Podiatry Australia**

President

## **Medibank**

“Better Knee, Better Me” Clinical Advisory group

## **Osteoarthritis Research Society International (OARSI)**

Board of Director

Osteoarthritis Management Programs: Joint Effort Initiative  
Steering Committee and taskforces

Diversity, Equity, and Inclusion Task Force

Exercise & Rehabilitation Discussion Group Committee

Early Career Researcher Sub-committee

Ethics & Governance Committee

International Foot and Ankle Consortium Steering Committee

Early-stage OA initiative Advisory Committee

Early Career Investigator Committee - Chair

Sport, Exercise, Physical Activity and Prevention of Osteoarthritis -  
Discussion Group Steering Committee

## **Royal Australian College of General Practitioners**

Handbook of Non-Drug Interventions (HANDI)

## **Australian Podiatry Association**

National sports podiatry certification group

National Conference Organizing Committee

Chair, National Conference Judging committee

## **Australian Academy of Health and Medical Sciences**

Victorian Group events Committee

Conference Organising Committee

Elected Fellows

## **‘Alliance For Optimizing Knee Health After Injury’ (OptiKnee)**

## **Australian Clinical Trials Alliance**

## **Vic Gov Dept of Health & Human Services**

“Digital Health Capability Framework for Allied Health  
Professionals” governance committee

## **BrainSTEM**

Board of Directors

## **Centre for Arthritis Research, University College Dublin**

Steering committee

Steering committee – Patient & Public Involvement Rheumatology  
Conference

## **Journal editorial boards**

CHESM team members held positions on the editorial boards of the following journals:

- Chiropractic & Manual Therapies
- Annals of Physical and Rehabilitation Medicine (Scientific Committee)
- Osteoarthritis and Cartilage
- Frontiers in Sports and Active Living
- Frontiers in Pain Research
- Journal of Foot and Ankle Research
- BMC Musculoskeletal Disorders
- Journal of Physiotherapy
- Clinical Journal of Sport Medicine
- Journal of Science and Medicine in Sport

## **Grant application review**

CHESM team members have reviewed grants for the following organisations/funding bodies in 2022:

### **National**

- Australian Institute for Musculoskeletal Science Seed grants
- Australian Research Council Discovery Early Career Researcher Award
- Australian Research Council Early Career Industry Fellowship
- MDHS Early Career Researcher Conference Support Scheme
- National Health and Medical Research Council Centre of Research Excellence
- National Health and Medical Research Council Investigator grants
- National Health and Medical Research Council Medical Research Future Fund
- National Health and Medical Research Council peer review of Postgraduate Scholarships
- Arthritis Australia Grants Review Panel member

### **International**

- Canadian Institute of Health Canada Chair grants
- La Caixa Foundation Health Research Grants (Spain)
- Deutsche Forschungsgemeinschaft | German Research Foundation
- Dutch Research Council
- Versus Arthritis UK
- Hong Kong Health and Medical Research Fund
- Organisation for Health Research and Development, The Netherlands
- Bath Institute for Rheumatic Diseases, UK
- Rheumafonds, Netherlands
- National Medical Research Council, Singapore

# Media

CHESM had another year of success in the media. The RESTORE platelet rich plasma and COPE yoga studies generated a high amount of news outlet and social media interest that reflected in their high altmetric scores. CHESM investigators were also interviewed and featured across multiple iterations of the Australian Physiotherapy Association's In Motion magazine sent monthly out across it's members.

## CHESM in the Media

### The Guardian “How to move: with foot pain”

– A/Prof Kade Paterson and Prof Kim Bennell

### ABC News Broadcast “Surgery may not be best option for ACL injury”

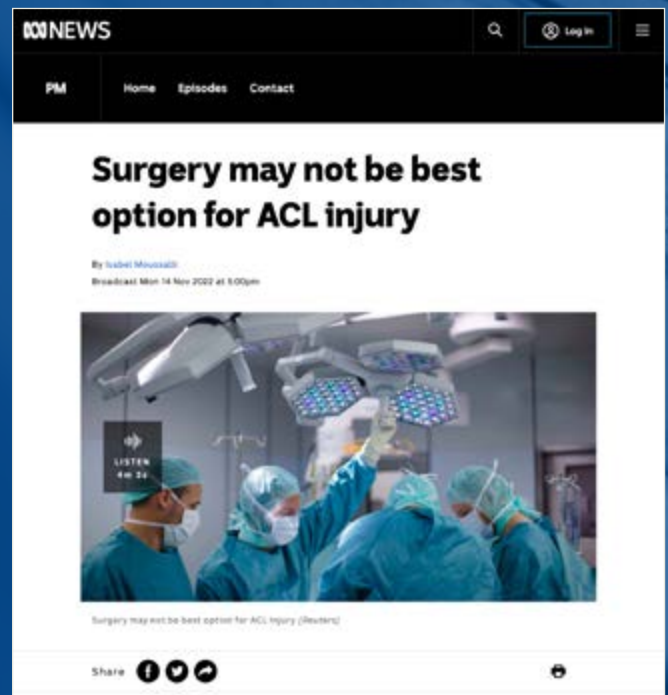
- Dr Stephanie Filbay

### RESTORE PRP Clinical Trial mentioned in:

Pursuit article “Cutting through the hype on platelet-rich plasma” – A/Prof Kade Paterson

**Australian Physiotherapy Association's In Motion** had multiple features from CHESM throughout 2022:

- “Free resources support exercise for knee osteoarthritis” Feb 2022 - Dr Rachel Nelligan
- “Physiotherapist capabilities for delivering telephone-based care” May 2022 – Luke Davies
- “Telehealth diet and exercise programs deliver for knee osteoarthritis” Feb 2022 – Prof Kim Bennell
- “Optimising anterior cruciate ligament (CCL) injury outcomes: What can we learn from ACL research in humans?” Feb 2022 – Dr Stephanie Filbay





## Podcasts

### Joint Action podcast by Dr David Hunter

- Dr Michelle Hall – [What is the difference between hip and knee osteoarthritis?](#)
- Prof Rana Hinman – [How can shoes or insoles help with knee osteoarthritis?](#)

### Adventuring with Osteoarthritis podcast by Dr Alyssa Kuhn

- Prof Rana Hinman – [Chatting with Rana Hinman, an Australian research physiotherapist on the latest knee osteoarthritis research](#)

### Shoulder Physio podcast by Jared Powell

- Dr Stephanie Filbay – [Can the ACL heal?](#)

### The E3Rehab podcast

- Dr Stephanie Filbay – [Surgery or rehabilitation for anterior cruciate ligament injury](#)

### Taking Care by The Australian Health Practitioner Regulation Agency

- Prof Kim Bennell and Dr Rachel Nelligan - [Physiotherapy and person-centred care](#)

### Let's talk OA osteoarthritis by Laboratoires Expanscience

- Prof Kim Bennell – [Physical exercise and Osteoarthritis](#)



# Postgraduate Students

During 2022, CHESM staff supervised 10 research higher degree (PhD) students

## Current Students

NAME	POSITION	MEMBER
<b>My-Linh Nguyen (PhD)</b>	Using behavioural economics and health behaviour theory to improve participation in physical activity Completion seminar: 5 December 2022	Prof Rana Hinman Prof Kim Bennell Prof Anthony Harris Dr Michelle Hall Dr Amanda Rebar
<b>Sam Kayll (PhD)</b>	The effects of foot-based interventions on patellofemoral joint loads in people with and without patellofemoral disorders	A/Prof Kade Paterson A/Prof Adam Bryant Prof Kim Bennell Prof Rana Hinman
<b>Ehsan Lohrasbi (PhD)</b>	The effects of dual tasking and anterior cruciate ligament (ACL) status on knee forces during a provocative landing task in young females	A/Prof Kade Paterson A/Prof Adam Bryant
<b>Patrick Rowe (PhD)</b>	The prevention and management of ankle sprains and chronic ankle instability in netball Confirmation seminar: 31st May 2022	A/Prof Kade Paterson A/Prof Adam Bryant Prof Rana Hinman
<b>Emma Searle (PhD)</b>	A digital health intervention to increase physical activity participation in individuals with knee osteoarthritis	Dr Stephanie Filbay Prof Kim Bennell Dr Mark Merolli
<b>Travis Haber (PhD)</b>	Factors informing the conservative management of middle-aged and older adults with chronic hip pain	Prof Rana Hinman A/Prof Fiona Dobson Dr Michelle Hall
<b>Scott Starkey (PhD)</b>	Effect of neuromuscular exercise on joint contact forces in at risk and established knee osteoarthritis: secondary analyses of two randomized controlled trials Completion seminar: 15 March 2022 Passed November 2022	Dr Michelle Hall Prof Rana Hinman Dr David Saxby Mr Tim Wrigley
<b>Pei Wei Chi (PhD)</b>	Effect of modifiable athletic footwear features on knee joint contact forces in healthy young females and older adults with knee osteoarthritis	A/Prof Adam Bryant Prof Rana Hinman A/Prof Kade Paterson Dr Wen Wu
<b>Luke Davies (PhD)</b>	Enhancing physiotherapy care delivered via telehealth	Prof Kim Bennell Prof Rana Hinman Dr Belinda Lawford Prof Trevor Russell
<b>Julia Zhu (PhD)</b>	Development of implementation strategies and more impactful physiotherapy for individuals with knee osteoarthritis	Prof Kim Bennell Prof Rana Hinman Dr Rachel Nelligan

## Graduation

Dr Pek Ling Teo attended her graduation ceremony in 2022. She briefly continued to work with CHESM as a post-doctoral Research scientist before pursuing further work and promotion to regional manager with a physiotherapy clinical provider.





# Research Grants

New grants in 2022. CHESM Researchers are indicated in bold.

GRANTING BODY	INVESTIGATORS	PROJECT TITLE	DURATION	TOTAL GRANT
Australian Physiotherapy Association Physiotherapy Research Foundation	<b>Nelligan R</b> <b>Bennell K</b> <b>Hinman RS</b> <b>Egerton T</b> <b>Kimp A</b> <b>Lawford B</b>	Effects of a patient-focused e-Learning course about osteoarthritis and its management on knowledge and pain self-efficacy: a randomised controlled trial	2022	\$12,000
The University of Melbourne Early Career Research Grant	<b>Nelligan RK</b>	Acceptability of an e-Learning course about osteoarthritis and its management	2022	\$39,874
Medical Research Future Fund - 2021 Chronic Musculoskeletal Conditions in Children and Adolescents Grant Opportunity scheme	<b>Paterson K</b> <b>Hinman R,</b> <b>Bryant A</b> <b>Bennell K</b> <b>Lamb K</b> Manski-Nankervis J	Force-reducing minimalist footwear for adolescents with chronic knee pain: a randomised clinical trial  In kind support: Royal College of General Practitioners Australian Physiotherapy Association Australian Podiatry Association Asics Oceania Sports Medicine Australia	2022 - 2026	\$994,740
University of Melbourne Researcher Development Initiative Grant	Magee, M <b>Hall, M</b> Hayward, K McKibben, G Diemer, K Jarden, R	Innovate. Ignite. Initiate – The ThinkBIG! Initiative	2022	\$25,000
Universitas 21	<b>Merolli M</b>	“Digital Physiotherapy Practice: A Capabilities Framework for Education and Workforce Development”	2021-2022	\$10,000
ANZMUSC Clinical Trials Network	<b>Filbay S</b> <b>Hinman RS</b> Ganderton C Rooney J Hoffman T <b>Bennell KL</b>	“Development of a patient decision aid to inform evidence-based management of ACL injury”	2021 -2022	\$19,997
Medical Research Future Fund	<b>Bennell K</b> <b>Hinman R</b> <b>Hall M</b> <b>Lawford B</b> Francis J Simpson J Sumithran P	HipHealth – a pilot-tested telehealth program that incorporates education, exercise, and weight loss programs	2021 - 2026	\$1,120,000

## Continuing grants

GRANTING BODY	INVESTIGATORS	PROJECT TITLE	DURATION	TOTAL GRANT
National Health and Medical Research Council Centre of Research Excellence (CRE)	Buchbinder R Maher C March L Day R <b>Hinman R</b> Harris I Ferreira M Glasziou P Green S Billot L	Australia & New Zealand Musculoskeletal (ANZMUSC) Clinical Trials Network	2018-2022 <i>Extended</i> 2022-2027	\$2.5 million
National Health and Medical Research Council Senior Research Fellowship	<b>Hinman RS</b>	Lifestyle management of knee osteoarthritis: closing the gaps to reduce disease burden	2019 – 2023	\$724,175
National Health and Medical Research Council 2019 Project Grant	<b>Hinman RS</b> Russell T Foster N <b>Kasza J</b> Harris A	Technology vs tradition: a non-inferiority trial comparing video to face-to-face consultations with a physiotherapist for people with knee osteoarthritis.	2019 - 2023	\$1.24 million
National Health and Medical Research Council 2019 Project Grant	<b>Hall M</b> <b>Dobson F</b> <b>Allison K</b>	Strengthening exercise or combined strengthening and aerobic exercise for hip osteoarthritis: a RCT	2019 - 2222	\$50,000
Versus Arthritis UK (formerly Arthritis Research UK)	Conaghan P McHugh G Kingsbury S Hensor E <b>Bennell K</b> Comer C	Evaluation and implementation of electronic rehabilitation programmes for chronic knee pain in the UK	\$868,134	GBP £238,317 \$437,503AUD
NHMRC Medical Research Future Fund Grant	Shields N <b>Bennell K</b> Taylor N Rice L Markovic T Bigby C Watts J Prendergast L	Improving muscle strength in young people with Prader-Willi syndrome	2019-2023	\$869,140



## Continuing grants

GRANTING BODY	INVESTIGATORS	PROJECT TITLE	DURATION	TOTAL GRANT
Women in STEM and Entrepreneurship Grant, Department of Industry, Science, Energy and Resources	Celeste, C <b>Hall M</b> Diamond L Dick T Kean C Maharaj J Barzan, M Verma S	Biomechanics Research Innovation Challenge: 100 girls, 100 days 100 stories	2021-2022	\$246,173
NHMRC Project Grant	<b>Hall M</b> <b>Dobson F</b> <b>Allison K</b>	Strengthening exercise or combined strengthening and aerobic exercise for hip osteoarthritis: a RCT.	2019-2023	\$868,134
NHMRC Emerging Leadership Investigator Grant.	<b>Paterson K</b>	Closing the evidence gaps to boost clinical outcomes for people living with disabling foot osteoarthritis.	2019-2023	\$632,475.41
Melbourne Disability Institute	<b>Lawford BJ</b> <b>Bennell KL</b> Spittle A <b>Hinman R</b>	The impact of the COVID-19 pandemic on the National Disability Insurance Scheme allied healthcare services and consumer experiences transitioning to telehealth	2020 – 2021	\$20,000
National Disability Insurance Agency in combination with Melbourne Disability Institute	<b>Lawford BJ</b> <b>Bennell KL</b> Spittle A <b>Hinman R</b>	National Disability Insurance Scheme participant experiences accessing services during the COVID-19 pandemic: a qualitative study	2020 - 2021	\$16,000
Allied Health Professions Australia	<b>Bennell KL</b> <b>Hinman RS</b> <b>Lawford BJ</b>	Telehealth by allied health practitioners in Australia during the COVID-19 pandemic	2020-2021	\$45,000
University of Melbourne, Mid-Career Seeding Ideas Grant Faculty of Medicine, Dentistry and Health Sciences	Egorova N <b>Hall M</b> <b>Dobson F</b>	From hip to hippocampus: using brain imaging to reveal the effect of exercise in hip osteoarthritis	2020-2021	\$24,180
Australian Physiotherapy Association – Physiotherapy Research Foundation	<b>Bennell K</b> <b>Hinman R</b> Russell T	Telehealth by physiotherapists in Australia during the COVID-19 pandemic	2021-2022	\$10,000

## Continuing grants

GRANTING BODY	INVESTIGATORS	PROJECT TITLE	DURATION	TOTAL GRANT
NHMRC Investigator Grant	<b>Bennell K</b>	Improving outcomes for people with knee osteoarthritis: overcoming patient and clinician barriers	2020-2024	\$2,848,640
National Health and Medical Research Council Emerging Leader Fellowship	<b>Filbay SR</b>	NHMRC Emerging Leadership Fellow	2021-2025	\$645,205
University of Melbourne Learning and Teaching Initiative Funding	Marino R <b>Merolli M</b> Capurro D Denehy L Sloan A	Telehealth education for entry to practice health professional students: A suite of core elements	2021	\$29,995
U/21 International Project Funds – Health Sciences	Marino R <b>Merolli M</b> Capurro D Denehy L Sloan A	Telehealth education for entry practice health professional students: A suite of core elements	2021	\$20,000
Department of Health Public Health & Chronic Disease Program Arthritis - Health Professional Education and Training	Consortium lead: Arthritis Australia (Mills A)  Consortium members: Uni of Sydney (Hunter DJ), Uni of Melbourne (Hinman RS; Bennell KL), Arthritis & Osteoporosis Australia (Forlano R), Curtin Uni (Briggs A), Monash Uni (Buchbinder R), Australian Rheumatology Association (Hill C; Whittle S)	Building health professional knowledge and skills in arthritis diagnosis, management and care	2020-2023	\$2,000,000

# Award Highlights

## Melbourne Laureate Professor

CHESM director, Prof Kim Bennell, was honoured as a Melbourne Laureate Professor in December of 2022. Melbourne Laureate Professor appointments recognise exceptional academic distinction and performance and represent a significant honour.

## Research.com Best Female Scientists in Australia 2022 Ranking

Prof Kim Bennell was ranked 15th nationally as a part of the 1st edition of Research.com ranking of top female scientists in Australia based on data collected from Microsoft Academic Graph on 06 Dec 2021. Position in the ranking was based on the scientist's general H-index.

## ACTA (Australian Clinical Trials Alliance) industry partnership award

The Better Knee Better Me trial conducted in partnership with Austin Health and Medibank was awarded the inaugural ACTA industry partnership award in May 2022 with an awards ceremony in Sydney.

## Premier's Award for Clinical Researcher in the Victorian Premier's Award for Health and Medical Research

Dr Rachel Nelligan was awarded the prestigious Victorian Premier's Award for Health and Medical Research in the clinical researcher category in April 2022. Rachel and her team developed My Knee Exercise, a 24-week, self-directed digital exercise program, that can be independently managed by the patient with no professional supervision required

## ANZMUSC Early Career Researcher Paper of the Year

Dr Rachel Nelligan was awarded the Early Career Researcher 2021 Paper of the Year at the ANZMUSC Scientific Meeting in October 2022 for her paper "The effects of a self-directed web-based exercise program with text messages for knee osteoarthritis" published in JAMA Internal Medicine.



Professor Kim Bennell and Dr Catherine Keating (Medibank) accepting ACTA industry partnership award



Prof Anne Kelso and The Hon Brad Hazzard MP present the ACTA Industry Partnership Award to Dr Catherine Keating, Medibank and Prof Kim Bennell, The University of Melbourne.



Dr Rachel Nelligan accepting Premier's Award alongside Prof Jenny McGinley and Prof Kim Bennell





Prof Rana Hinman accepting Marles Medal alongside Deputy Prime Minister Richard Marles MP



Prof Rana Hinman accepting Marles Medal alongside Prof Jenny McGinley and A/Prof Fiona Dobson

### University of Melbourne Marles Medal

Prof Kim Bennell and Prof Rana Hinman were awarded the Marles Medal in Science, Technology, Engineering, Mathematics, Medicine in November 2022. The Medal recognise excellence in research impact, including research that effects, changes or benefits the economy, society, culture, public policy, public services, health and wellbeing, the environment or quality of life beyond academia. The Award was celebrated by the Deputy Prime Minister Richard Marles MP.

### Academic Promotions

A/Prof Fiona Dobson advanced her academic career and was promoted to the Head of the Department of Physiotherapy as of May 2022 at the University of Melbourne. A/Prof Fiona Dobson replaces Prof Jenny McGinley who CHESM thanks for all her support during her time as Head.

CHESM researchers, Dr Kade Paterson and Dr Michelle Hall were both promoted to Associate Professor along with 4 other staff members in the Department of Physiotherapy.

### 2022 Dame Kate Campbell Fellow

The Dame Kate Campbell Fellowships were designed to recognise and reward outstanding research performance and demonstration of Faculty values. Dr Stephanie Filbay was announced as a Dame Kate Campbell Fellow in September 2022.



Prof Rana Hinman accepting Marles Medal alongside Deputy Prime Minister Richard Marles MP

### Congratulations on your Promotion to Associate Professor Department of Physiotherapy, School of Health Science, University of Melbourne



Dr Selina Parry, Dr Karen Donald, Dr Kade Paterson,  
Dr Kate Hayward, Dr Michelle Hall, Dr Camille Short

### 2022 Research Australia Awards

Dr Rachel Nelligan was announced as a finalist and received a highly commended award as part of the Research Australia Griffith University Discovery Award category in December 2022.

### CASS Travel Award

Dr Belinda Lawford was awarded a travel grant by the CASS (Contributing to Australian Scholarship and Science) Foundation to attend the Osteoarthritis Research Society International 2022 World Congress in Denver, Colorado (United States).

### Women and Leadership Australia 'Leading Edge' program

Dr Belinda Lawford was awarded a scholarship to undertake the Women and Leadership Australia 'Leading Edge' program.

### Women in Sport Congress Best Paper in Injury Prevention and Rehabilitation

PhD candidate, Patrick Rowe was awarded by the Women in Sport Congress for best paper in injury prevention and rehabilitation for his publication "Management practices and return to play decisions after an ankle sprain in non-elite netball: an international cross-sectional survey".

### Best research infographic Awards

Dr Belinda Lawford was the winner of the Department of Physiotherapy Early Career Researcher prize for the best research infographic as well as the winner of the Osteoarthritis Research Society International infographic competition.



Dr Rachel Nelligan accepting highly commended award at Research Australia



Dr Rachel Nelligan attending Research Australia Awards alongside Associate Dean of Research Prof Alicia Spittle and Prof Kim Bennell



# Invited Presentations

A summary of the presentations given by CHESM team members are shown below.

## Conference presentations

- Asia-Pacific League of Associations for Rheumatology Congress (APLAR 2022), Hong Kong, China – December 2022
  - ‘Self-management concepts of hip and knee osteoarthritis’
  - ‘Application, indications and limitations of technology based self-management on hip and bone knee osteoarthritis’
  - ‘How to prescribe exercise via on-line modes for knee osteoarthritis’
  - ‘Platelet rich plasma injections for knee osteoarthritis: Do they work?’
- 13th Australasian Biomechanics Conference, Brisbane, Australia – November 2022
  - ‘Understanding mechanisms to optimise treatments for osteoarthritis’
- Sports Medicine Australia (SMA) annual conference, Gold Coast, Australia. – November 2022
  - ‘Enhancing rehabilitation to prevent post-traumatic osteoarthritis after knee injury: the 2022 OPTIKNEE international consensus statement’
  - ‘Healing of ACL rupture and patient reported outcomes following management with a novel non-surgical bracing protocol’
  - ‘Influence of female pubertal development on knee and lower limb biomechanics’
  - ‘Effects of athletic footwear on knee and lower limb biomechanics of young females’
- American College of Rheumatology, Philadelphia, USA – November 2022
  - ‘Real-time telehealth consultations to support lifestyle management of people with osteoarthritis’
- Australia and New Zealand Musculoskeletal Clinical Trials Network Biannual Scientific Meeting, Melbourne, Australia – October 2022
  - ‘ECR Grant writing workshop’
- Asian Conference of Cartilage and Osteoarthritis (ACCO), Seoul, South Korea - October 2022
  - ‘Anterior cruciate ligament injury: a one-way ticket to knee osteoarthritis?’
  - ‘Telehealth’ session
- The Australian Physiotherapy Association and the Australian College of Physiotherapists, The Great Debate: To operate, or not to operate?, Online – October 2022
  - ‘Management of ACL injury in Australia: Where are we now and what needs to change?’
- University of Melbourne Medicine, Dentistry, and Health Sciences Learning and Teaching Conference, Melbourne, Australia – October 2022
  - ‘Digital health literacy in physiotherapy education’
- Australian Physiotherapy Association (APA) National Conference (FOCUS), Melbourne, Australia – September 2022
  - ‘Digital physiotherapy practice: enacting capabilities for education and workforce development through entrustable professional activities’
- 9th World Congress of Biomechanics, Taipei, Taiwan – July 2022
  - ‘Biomechanics outcomes in hip and knee osteoarthritis’
- Australasian Musculoskeletal Imaging Group Annual Scientific Meeting 2022: Imaging in Sport, Melbourne, Australia – May 2022
  - ‘Platelet Rich plasma injections for osteoarthritis’
- Australian Rheumatology Association Conference, Hybrid Meeting with Satellite Hubs - May 2022:
  - ‘Upskilling workforce in OA care using digital technology’
- Arthritis and Osteoporosis Western Australia, 2022 Consumer conference, Online – May 2022
  - ‘Telehealth diet and exercise programs for knee osteoarthritis’
- Sports Chiropractic Symposium, May 2022
  - Plantar heel pain
- Osteoarthritis Research Society International (OARSI) World Congress, Berlin, Germany – April 2022
  - ‘Spontaneous healing of the ruptured anterior cruciate ligament: observations from the KANON trial’
  - ‘Year in Review: Rehabilitation and Outcomes’ – *declined secondary to COVID restrictions.*
- Australian Podiatry Association National conference series - April 2022
  - ‘Optimal footwear to reduce pain and other symptoms in people with knee osteoarthritis’
  - ‘Assessment and modification of footwear characteristics to improve knee function and reduce knee injury risk during running and landing’
- Disability Research Community of Practice, Online - March 2022
  - ‘Participant experiences with National Disability Insurance Scheme funded allied healthcare services during COVID-19’
- Danish Society for Physiotherapy Congress, Odense, Denmark – March 2022
  - ‘Digital physiotherapy care for musculoskeletal conditions- current scope and future directions’
  - ‘Digital physiotherapy care for chronic conditions-scope, user experiences and preferences’
- 9th IEEE RAS EMBS International Conference for Biomedical Robotics and Biomechatronics, Seoul, Korea – August 2022
  - ‘Electromyogram- and Magnetic Resonance Imaging-informed Neuromusculoskeletal Modelling in Knee Osteoarthritis’



### International webinars

- Alliance For Optimizing Knee Health After Injury (OptiKnee) – Consensus meeting, Denmark, Online –
  - ‘Long-term burden of ACL and meniscal injury’
- CHESM World Arthritis Day for Clinicians – October 2022
  - ‘Take-home messages for clinical practice from osteoarthritis research’
- PEAK-Chinese eLearning course launch. Hybrid: Online & First Affiliated Hospital of Xiamen University, China – October 2022
  - Collaboration with First Affiliated Hospital of Xiamen University
- PEAK-Portuguese eLearning course launch. Online – August 2022
  - Collaboration with Postgraduate Program in Physical Therapy at the Federal University of São Carlos (PPGFT/UFSCar)
- PEAK-Espanol eLearning course launch. Online – March 2022
  - Collaboration with Colegio de Kinesiólogos de Chile and Facultad de Medicina Clínica Alemana – Universidad del Desarrollo
- OARSI Osteoarthritis Action Alliance (OAAA) lunch and learn – June 2022
  - ‘International invited presentation to US clinicians, researchers, and policy makers’
- Osteoarthritis Research Society International (OARSI) Live Webinar – March 2022
  - ‘Osteoarthritis & Cartilage special issue on osteoarthritis prevention’
- The International Federation of Orthopaedic Manipulative Physical Therapists Incorporated (IFOMPT) Webinar – February 2022
  - ‘ACL injury: Debunking misconceptions and improving physiotherapy management’
- Webinar for Osteoarthritis Research Society International Seminar Series - February 2022
  - ‘Platelet-rich plasma for management of osteoarthritis’
- ASPETAR (specialised orthopaedic and sports medicine hospital in Doha, Qatar) Lecture Series – February 2022
  - ‘Spontaneous and facilitated healing of acute ACL rupture’
- Osteoarthritis Action Alliance (OAAA) lunch and learn series - July 2022
  - ‘Developing an effective infographic for policymakers’

### National webinars

- Healthia Group including AllSports Physiotherapy – October 2022
  - ‘Communication strategies for people with knee osteoarthritis’
- CoviU lunch webinar for healthcare providers - March 2022
  - ‘Participant experiences with National Disability Insurance Scheme funded allied healthcare services during COVID-19’
- Australian Health Practitioner Regulation Agency (AHPRA) - Sept 2022
  - ‘Osteoarthritis update for World Physiotherapy Day’

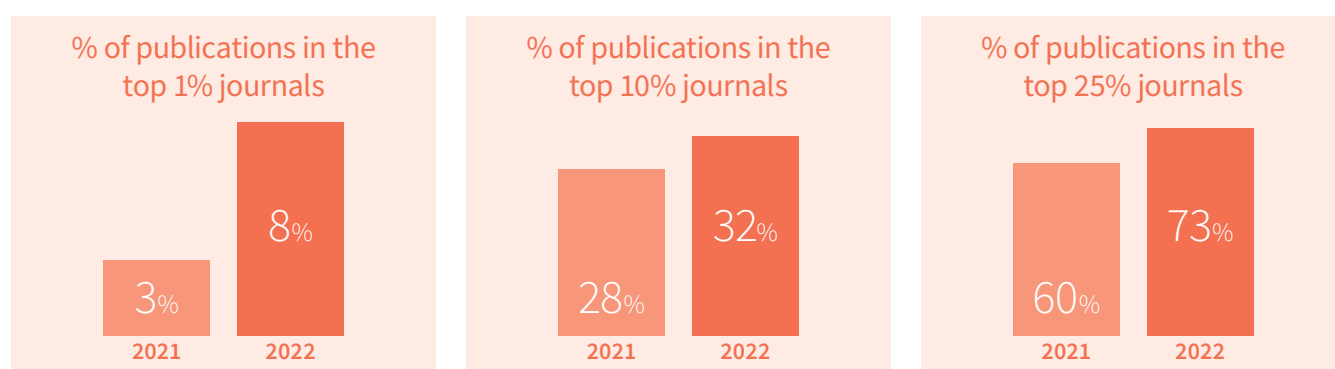
# Publications

CHESM had a very productive 2022 with 88 publications. Of these, 45 (51%) had a CHESM team member as first- or last-named author. The quality of the journals in which CHESM team members publish is excellent and has improved from 2021.

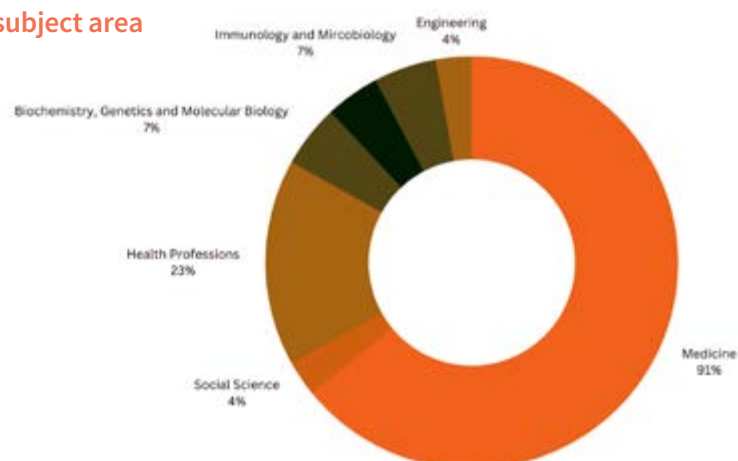
## Common journals in which CHESM team members published their work in 2022

Journal Name	Publication number
PLoS ONE	7
Osteoarthritis and Cartilage	6
BMC Musculoskeletal Disorders	4
BMJ Open	4
Arthritis Care and Research	3
British Journal of Sports Medicine	3
Journal of Physiotherapy	3
Musculoskeletal Care	3
Physiotherapy Theory and Practice	3
Annals of Internal Medicine	2
Journal of Foot and Ankle Research	2
Medicine and Science in Sports and Exercise	2
Physical Therapy	2
Sports Medicine	2

## Percentage of publications



## Publication shares per subject area



## Refereed journal articles

1. Akhundov, R, Bryant, AL, Sayer, T, Paterson, K, Saxby, DJ, & Nasser, A. (2022). Effects of Footwear on Anterior Cruciate Ligament Forces during Landing in Young Adult Females. *Life*, 12(8). doi:10.3390/life12081119
2. Albeshier, RA, Spittle, AJ, Dobson, FL, Mentiplay, BF, FitzGerald, TL, Cameron, KL, Zannino, D, Josev, EK, Doyle, LW, Cheong, JLY, & McGinley, JL. (2022). Spatiotemporal gait variables and step-to-step variability in preschool-aged children born < 30 weeks' gestation and at term in preferred speed, dual-task paradigm, and tandem walking. *Gait and Posture*, 92, 236-242. doi:10.1016/j.gaitpost.2021.11.027
3. Allison, K, Jones, S, Hinman, RS, Briggs, AM, Sumithran, P, Quicke, J, Holden, M, Chiavaroli, N, Crofts, S, George, E, Foster, N, & Bennell, K. (2022). Effects of an online education program on physiotherapists' confidence in weight management for people with osteoarthritis: a randomized controlled trial. *Arthritis Care and Research*. doi:10.1002/acr.24828
4. Arnold, JB, Bowen, CJ, Chapman, LS, Gates, LS, Golightly, YM, Halstead, J, Hannan, MT, Menz, HB, Munteanu, SE, Paterson, KL, Roddy, E, Siddle, HJ, & Thomas, MJ. (2022). International Foot and Ankle Osteoarthritis Consortium review and research agenda for diagnosis, epidemiology, burden, outcome assessment and treatment. *Osteoarthritis and Cartilage*, 30(7), 945-955. doi:10.1016/j.joca.2022.02.603
5. Barton, CJ, Ezzat, AM, Merolli, M, Williams, CM, Haines, T, Mehta, N, & Malliaras, P. (2022). "It's second best": A mixed-methods evaluation of the experiences and attitudes of people with musculoskeletal pain towards physiotherapist delivered telehealth during the COVID-19 pandemic. *Musculoskeletal Science and Practice*, 58. doi:10.1016/j.msksp.2021.102500
6. Bennell, KL, Jones, SE, Hinman, RS, McManus, F, Lamb, KE, Quicke, JG, Sumithran, P, Prendergast, J, George, ES, Holden, MA, Foster, NE, & Allison, K. (2022). Effectiveness of a telehealth physiotherapist-delivered intensive dietary weight loss program combined with exercise in people with knee osteoarthritis and overweight or obesity: study protocol for the POWER randomized controlled trial. *BMC Musculoskeletal Disorders*, 23(1). doi:10.1186/s12891-022-05685-z
7. Bennell, KL, Lawford, BJ, Keating, C, Brown, C, Kasza, J, Mackenzie, D, Metcalf, B, Kimp, AJ, Egerton, T, Spiers, L, Proietto, J, Sumithran, P, Harris, A, Quicke, JG, & Hinman, RS. (2022). Comparing Video-Based, Telehealth-Delivered Exercise and Weight Loss Programs With Online Education on Outcomes of Knee Osteoarthritis. *Annals of Internal Medicine*, 175(2), 198-209. doi:10.7326/M21-2388
8. Bennell, KL, Paterson, KL, & Hunter, DJ. (2022). Intra-articular Platelet-Rich Plasma vs Placebo Injection and Pain and Medial Tibial Cartilage Volume in Patients with Knee Osteoarthritis-Reply. *JAMA*, 327(12), 1187. doi:10.1001/jama.2022.1315
9. Bennell, KL, Schwartz, S, Teo, PL, Hawkins, S, Mackenzie, D, McManus, F, Lamb, KE, Kimp, AJ, Metcalf, B, Hunter, DJ, & Hinman, RS. (2022). Effectiveness of an Unsupervised Online Yoga Program on Pain and Function in People With Knee Osteoarthritis A Randomized Clinical Trial. *Annals of Internal Medicine*, 175(10), 1345-1355. doi:10.7326/M22-1761
10. Boyle, EM, Evans, K, Coates, S, Fary, RE, Bennell, K, Sterling, M, Rebbeck, T, & Beales, DJ. (2022). Patient experiences of referral practices and primary care physiotherapy for chronic nonspecific low back pain. *Physiotherapy Theory and Practice*. doi:10.1080/09593985.2022.2141599
11. Bullock, GS, Perera, N, Murray, A, Orchard, J, Arden, NA, & Filbay, SR. (2022). The Relationship Between Cricket Participation, Health, and Wellbeing: A Systematic Scoping Review. *International Journal of Sports Medicine*, 43(5), 401-410. doi:10.1055/a-1686-6632
12. Bullock, GS, Sell, TC, Zarega, R, Reiter, C, King, V, Wrona, H, Mills, N, Ganderton, C, Duhig, S, Räisänen, A, Ledbetter, L, Collins, GS, Kvist, J, & Filbay, SR. (2022). Kinesiophobia, Knee Self-Efficacy, and Fear Avoidance Beliefs in People with ACL Injury: A Systematic Review and Meta-Analysis. *Sports Medicine*, 52(12), 3001-3019. doi:10.1007/s40279-022-01739-3
13. Choo, D, Dushyanthen, S, Gray, K, Capurro, D, Merolli, M, Chapman, BE, Pires, D, Hart, GK, Huckvale, K, Chapman, WW, & Lyons, K. (2022). Designing a professional development online short course to foster Learning Healthcare Systems. *International Journal of Medical Informatics*, 158. doi:10.1016/j.ijmedinf.2021.104666
14. Davies, L, Hinman, RS, Russell, T, Lawford, B, & Bennell, K. (2022). An international core capability framework for physiotherapists delivering telephone-based care. *Journal of Physiotherapy*, 68(2), 136-141. doi:10.1016/j.jphys.2022.02.002
15. Davies, L, Hinman, RS, Russell, T, Lawford, B, Merolli, M, & Bennell, KL. (2022). Self-reported confidence of final year Australian physiotherapy entry-to-practice students and recent graduates in their capability to deliver care via videoconferencing. *European Journal of Physiotherapy*. doi:10.1080/21679169.2022.2100928
16. Davies, L, Lawford, B, Bennell, KL, Russell, T, & Hinman, RS. (2022). Telehealth education and training in entry-to-practice physiotherapy programs in Australian universities: A qualitative study with university educators. *Musculoskeletal Care*. doi:10.1002/msc.1723



17. de Zwart, AH, Dekker, J, Roorda, LD, van der Esch, M, Lips, P, van Schoor, NM, Heijboer, AC, Turkstra, F, Gerritsen, M, Häkkinen, A, Bennell, K, Steultjens, MPM, Lems, WF, & van der Leeden, M. (2022). High-intensity versus low-intensity resistance training in patients with knee osteoarthritis: A randomized controlled trial. *Clinical Rehabilitation*, 36(7), 952-967. doi:10.1177/02692155211073039
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