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HEALTH CARE

## REHABILITATION, AGEING AND INDEPENDENT LIVING (RAIL) RESEARCH CENTRE

### Member eBulletin #26

#### A message from the Director

Another extremely busy month, and a lot of information in our eBulletin below for RAIL Members and Partners.

I am extremely pleased to see the outcomes from one of RAIL's first round of seed grants by Em Bould and her team titled *Fostering and suPAWting engagement in meaningful activity and social connection: Dogs as a conduit to community inclusion for people with cognitive disabilities* (awarded at the end of 2019) has been completed and published (see below). All of our first round of seed grants had funds frozen as part of the University's covid management in 2020, which has resulted in moderate delays. But we should see completion of our other three initial seed grants by the end of this year. **It is also timely, as we are now announcing our 3<sup>rd</sup> round of RAIL seed grants (up to \$15,000 funding per grant, for three grants)** – the grant round is now open, and closes on Monday 9<sup>th</sup> May (see below for more details and link to guidelines and application form).

Another excellent opportunity for the promotion of the RAIL narrative portraits which were developed for our 2 years exhibition at the end of last year, is

through the upcoming National Gallery of Victoria Melbourne Design Week 2022 (with a couple of new narrative portraits as well), aligning with the theme of our exhibition being conducted jointly with the National Centre for Healthy Ageing, 'Benefiting everyone: Good design features for healthy ageing'. RAIL and NCHA are running a forum as part of the event on the 17<sup>th</sup> March at Monash University Peninsula Campus (invited speakers include: Dr Jane Bringolf, Chair of the Centre for Universal Design Australia; Mayor Cr Nathan Conroy, Frankston City Council; Mr Andrew Dick, Head of Strategy, St Kilda Football Club; and Associate Professor Gabby Brand, School of Nursing and Midwifery, Monash University). The narrative portraits will then be on exhibition for a week in Building A at Peninsula Campus, and open for public viewing. Special thanks to Aislinn Lalor, Libby Callaway, Gabby Brand and Karine Fortin who have done the enormous amount of behind the scenes work to achieve this event as part of the NGV calendar. Further details below.

Congratulations also to RAIL staff Dr Natasha Layton for being selected to be featured in Connectivity Traumatic Brain Injury Australia's recent celebration of women in science, as part of the United Nations Day for Women and Girls in Science; and to Dr Natasha Brusco for having her paper (on exercise self management approach for patients with cognitive impairment undergoing rehabilitation), featured as Editor's Choice in the Journal of Rehabilitation Medicine - Clinical Communications.

Finally, if you have colleagues, or people new to Monash who would like to become a Member of RAIL, and thereby be on our email communications and e-bulletin distribution list, please complete the Member survey [online](#).

Stay safe and well.

Professor Keith Hill

**Member profile**



**Dr Darshini Ayton** is an NHMRC Emerging Leader Fellow and Deputy Head of the Health and Social Care Unit at the School of Public Health and Preventive Medicine, Monash University. She is interested in all things health services and public health and applies diverse research approaches to her research in chronic health conditions, patient experiences of care, and healthcare improvement initiatives.

Current main projects include:

- MyCare Ageing stepped wedge randomised controlled trial –trained volunteers provide practical and social support to older adults in hospital and the transition home.
- Dementia Model of Care for Residential Aged Care – in partnership with Bapcare addressing domains of person-centred care, dementia friendly environments, workforce, clinical care and integration and coordination of care.
- Centre of Research Excellence in Enhanced Dementia Diagnosis (CREEDD) –implementation and evaluation of the Enhanced Dementia Diagnosis (EDD) program - blood biomarkers, optimised MRI protocols, and digital cognitive assessments in clinical dementia services.
- BetterBrains Randomised controlled trial – Person-Centred, Multi-Domain, Primary Prevention Strategies to Delay Memory Decline.

Darsh is the Bachelor of Health Sciences Honours coordinator and the course director of a number of short courses including Qualitative Research Methods for Public Health.

On weekends you can find Darsh walking around the botanical gardens with her husband Scott and her bossy dachshund Peduncle.

## RAIL & NCHA Melbourne Design Week 2022 Narrative Portrait Exhibition Opening



Monash University Rehabilitation, Ageing, and Independent Living (RAIL) Research Centre and the National Centre for Healthy Ageing (NCHA) are pleased to invite you to their Keynote Event and Narrative Portrait Exhibition Opening titled, 'Benefiting everyone: Good design features for healthy ageing'.

### KEYNOTE EVENT

We welcome special guest speakers who will present on the theme of design for Civic Good:

- **Professor Keith Hill**, RAIL Research Centre Director and Ageing Stream Lead, School of Primary and Allied Health Care, Monash University
- **Professor Velandai Srikanth**, Director, National Centre for Healthy Ageing (NCHA) and Chair of Medicine, Peninsula Health
- **Dr Jane Bringolf**, Chair of the Centre for Universal Design Australia
- **Mayor Cr Nathan Conroy**, Frankston City Council
- **Mr Andrew Dick**, Head of Strategy, St Kilda Football Club
- **Associate Professor Gabby Brand**, School of Nursing and Midwifery, Monash University

Guests will then be invited to view our exhibition, curated by Associate Professor Gabby Brand and the RAIL Research Centre team at Monash University.

## **DATE**

Thursday 17 March 2022

Keynote event: 1pm – 3.30pm AEDT

Exhibition opening and afternoon tea: 3.30pm - 4.30pm AEDT

## **VENUE**

Main Theatre, Building F (F1.01). Exhibition opening and afternoon tea to follow at Building A (Level 2). Monash University Peninsula Campus, 47-49 Moorooduc Highway, Frankston VIC 3199

**ONLINE REGISTRATION ESSENTIAL. [Register](#) by 10 March 2022.**

**The RAIL & NCHA narrative portrait exhibition is open for general public viewing between 17-25 March 2022 at Building A, Level 1 and 2 (Monash University Peninsula Campus) between 9am - 5pm, Monday-Friday (closed on the weekend).**

For more information on the keynote event and exhibition and other Melbourne Design Week 2022 events, please visit <https://designweek.melbourne/>.

**This event is part of Melbourne Design Week 2022, an initiative of the Victorian Government in collaboration with the NGV.**

**Member and Partner forum**

## **Upcoming RAIL forum**

The RAIL team is currently organising the March 2022 forum. More information to come soon!

## **Previous RAIL forum**

In our most recent RAIL forum held on 17th February 2022 (71 registrants), we had the opportunity to hear Associate Professor Libby Callaway describe her inspiring career journey and present her work on the **My Allied Space suite**.

## RAIL paper Editor's Choice - Journal of Rehabilitation Medicine - Clinical Communications

### Editors' Choice JRM-CC

**Including exercise self-management as part of inpatient rehabilitation is feasible, safe and effective for patients with cognitive impairment**

*Natasha K. Brusco, Helen Kugler, Fiona Duffie, Annemarie L. Lee, Brianna Walpole, Meg E. Morris, Keith D. Hill, Christina L. Ekegren, Sara L. Whittaker, Nicholas F. Taylor*

#### Author comments

This pilot study has shown that including exercise self-management as part of inpatient rehabilitation is practical, safe and effective for patients with a cognitive impairment, (i.e. memory or thinking problems). The self-management program, called My Therapy, is currently being implemented and evaluated via a multi-site clinical trial in Melbourne, Australia, and the trial is inclusive of patients with and without a cognitive impairment.

The importance of this study goes beyond this particular self-management program, as it advocates for the inclusion of people with a cognitive impairment in clinical research conducted within rehabilitation settings.



*Natasha Brusco*

JRM-CC Volume 5 (2022)

## United Nations Day of Women and Girls in Science



To show their admiration of women in science, Connectivity Traumatic Brain Injury Australia recently celebrated a woman in science every day for a week as part of the United Nations Day for Women and Girls in Science.

Please click [HERE](#) to learn more about RAIL member **Dr. Natasha Layton's** background and research.

## RAIL paper of the month

### Effectiveness of the Wearable Sensor-based Ambient Intelligent Geriatric Management (AmbIGeM) System in Preventing Falls in Older People in Hospitals

Visvanathan, R., Ranasinghe, D. C., Lange, K., Wilson, A., Dollard, J., Boyle, E., Jones, K., Chesser, M., Ingram, K., Hoskins, S., Pham, C., Karnon, J., & Hill, K. D.

#### Abstract

#### Background

The Ambient Intelligent Geriatric Management (AmbIGeM) system augments best practice and involves a novel wearable sensor (accelerometer and gyroscope) worn by patients where the data captured by the sensor are interpreted by algorithms to trigger alerts on clinician handheld mobile devices when risk movements are detected.

## **Methods**

A 3-cluster stepped-wedge pragmatic trial investigating the effect on the primary outcome of falls rate and secondary outcome of injurious fall and proportion of fallers. Three wards across 2 states were included. Patients aged  $\geq 65$  years were eligible. Patients requiring palliative care were excluded. The trial was registered with the Australia and New Zealand Clinical Trials registry, number 12617000981325.

## **Results**

A total of 4924 older patients were admitted to the study wards with 1076 excluded and 3240 (1995 control, 1245 intervention) enrolled. The median proportion of study duration with valid readings per patient was 49% ((interquartile range [IQR] 25%-67%)). There was no significant difference between intervention and control relating to the falls rate (adjusted rate ratio = 1.41, 95% confidence interval [0.85, 2.34];  $p = .192$ ), proportion of fallers (odds ratio = 1.54, 95% confidence interval [0.91, 2.61];  $p = .105$ ), and injurious falls rate (adjusted rate ratio = 0.90, 95% confidence interval [0.38, 2.14];  $p = .807$ ). In a post hoc analysis, falls and injurious falls rate were reduced in the Geriatric Evaluation and Management Unit wards when the intervention period was compared to the control period.

## **Conclusions**

The AmbIGeM system did not reduce the rate of falls, rate of injurious falls, or proportion of fallers. There remains a case for further exploration and refinement of this technology given the post hoc analysis findings with the Geriatric Evaluation and Management Unit wards.

**Clinical Trials Registration Number:** 12617000981325

Visvanathan, R., Ranasinghe, D. C., Lange, K., Wilson, A., Dollard, J., Boyle, E., Jones, K., Chesser, M., Ingram, K., Hoskins, S., Pham, C., Karnon, J., & Hill, K. D. (2022, Jan 7). Effectiveness of the Wearable Sensor-based

Ambient Intelligent Geriatric Management (AmbIGeM) System in Preventing Falls in Older People in Hospitals. *J Gerontol A Biol Sci Med Sci*, 77(1), 155-163.

<https://doi.org/10.1093/gerona/glab174>

## Collaborative student project

### **Message from Tarsh Brusco, RAIL Rehabilitation Stream Lead:**

Over the summary holidays I had the opportunity to collaborate with the Monash Institute of Medical Engineering through the 2021 / 2022 Monash Healthcare Innovation Summer Scholarship (HISS) Program. Engineering student Judy Li lead the project with the support of Professor Dana Kulic, Pamela Carreno-Medrano, Yasir Sultani and myself. Our project was titled Project Motion and it aimed to reduce the risk of musculoskeletal conditions developed in workers who regularly engage in long periods of sedentary work. The intervention was an assistive robot who recognised poor posture and provided strategies in real time to counter the poor posture. At the end of this project the team had achieved proof of concept. Although the HISS program has concluded, the team will progress this project into the next phase which is a small scale user study while looking for funding opportunities for an effectiveness study.

**Project Motion**

Current Team: Judy Li  
 Clinical Champions: Dr Natasha (Tarsh) Brusco, Dr Pamela Carreno-Medrano, Professor Dana Kulic  
 Affiliation/s: MIME, Monash Partners

**MONASH YOUNG MEDTECH INNOVATORS**

**Mission statement**

Project Motion aims to reduce the risk of musculoskeletal condition development in workers who regularly engage in long periods of sedentary work by providing personalised interventions using socially assistive robots. Furthermore, we aim to raise awareness and promote education about musculoskeletal conditions, and improve general public health literacy.

**Introduction of Unmet Clinical Need**

- 1.71 billion people worldwide have at least one musculoskeletal condition as of 2021
- 1 in 3 Australians have at least 1 musculoskeletal condition
- Musculoskeletal conditions accounted for 87% of serious work claims in Australia from 2019 to 2020 according to Safe Work Australia
- Major risk factors of musculoskeletal conditions are poor posture and prolonged periods of sedentary work, both of which are particularly concerning for sedentary workers such as office workers, university students and staff, receptionists, and many other employees with the current COVID situation

**Impact of Solution**

*Through Project Motion, we aim to:*

- Improve users' quality of life
- Assist physiotherapy clinics with at home patient therapy
- Reduce the burden of musculoskeletal conditions on healthcare workers in the future

4 out of 6 sedentary workers interviewed said that their current work **does not** provide any long-term strategies for reducing the risk of musculoskeletal condition development

71.4% of healthcare workers interviewed said that low health literacy was one of the biggest setbacks to musculoskeletal condition management

85.7% of healthcare workers interviewed said that making the solution personalisable is a critical component for encouraging long-term adherence

**Solution**

- Consists of a socially assistive robot, camera sensor, posture tracking system and hand gesture feedback system
- Non-invasive method of analysing users' posture and providing real-time personalised audio and visual feedback on how to adjust their posture to reduce the risk of developing a condition
- Portable and accessible, and can be used in any workspace with an internet connection and laptop or computer

Posture tracking on an upright posture (L) compared to a slouching posture (R)

**Timeline**

Following the conclusion of the HISS program, we aim to improve our solution and feedback system based on user feedback from the small scale study. Then, we aim to apply for external grants to conduct more research and a larger user study with a larger pool of participants and a more refined solution system.

Small scale user study → Improve solution based on user study feedback → External grant applications → Larger scale user study → Product validation and development → Introduce to end users and stakeholders

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To access the Poster PDF, click [HERE](#).

**RAIL Early to Mid Career Seed grant - Now open**

We are pleased to announce that the 2022 round of RAIL seeding grants is now open and **will close on COB Monday 9th May 2022**.

A total of \$45,000 is available for this round of RAIL EMCR research grants, with individual applications able to apply for up to \$15,000.

The objectives of this scheme are to:

- Support early-mid career researchers with high research potential to progress their research careers by funding high quality research projects and pilot research projects on a competitive basis
- Encourage cross disciplinary research collaboration

- Enhance the staff member's competitiveness in bidding for external research funds
- Provide experience in preparing a grant application for peer review
- Provide research funding for projects that are strategically aligned with RAIL's research priorities
- Provide an opportunity for research mentorship

Given RAIL's focus on building research on the Peninsula campus, projects need to include at least one researcher based at the Peninsula campus of Monash University.

Chief Investigators from the successful grants from the previous grant scheme are ineligible to apply as Chief Investigator in this round, but can be an Associate Investigator in this round.

To obtain a copy of the guidelines and application form please click [HERE](#).

## **RAIL Early-Mid Career Researcher Grant – Outputs from a funded project**

**Fostering and suPAWting engagement in meaningful activity and social connection: Dogs as a conduit to community inclusion for people with cognitive disabilities**



The research team thought it was timely to provide a 'Pupdate' on the findings of this project, which received funding from the first round of RAIL Early-Mid Career Research grants in October 2019. The project tested an animal-assisted activity, developed by Dr Em Bould, known as 'Dog Buddies' to answer the question: *Does community dog walking foster social interaction for people with cognitive disabilities?*

Single-case experimental design was used with four adults (three with intellectual disability; one with Acquired Brain Injury (ABI)), recruited via two disability service providers in Victoria. The Dog Buddies program offered regular, 1-hour outings into the community. At baseline (without the dog present) participants had limited or no encounters with others in the community. During the intervention phase, there was evidence that the dog acted as a catalyst for encounters; community members were found to be more welcoming; and some participants were recognised or acknowledged by name over time.

You can read the published article from this project via: [Pilot of a dog-walking program to foster and support community inclusion for people with cognitive disabilities](#)

You can also watch a 3-minute video summary of the paper via: [https://www.tandfonline.com/doi/suppl/10.1080/09638288.2022.2034993/suppl\\_file/idre\\_a\\_2034993\\_sm0526.mp4](https://www.tandfonline.com/doi/suppl/10.1080/09638288.2022.2034993/suppl_file/idre_a_2034993_sm0526.mp4)

If you have questions about this project, please email [em.bould@monash.edu](mailto:em.bould@monash.edu)

Bould, E., Callaway, L., Warren, N., Lalor, A., & Burke, J. (2022). Pilot of a dog-

walking program to foster and support community inclusion for people with cognitive disabilities. Disability and Rehabilitation. [DOI: 10.1080/09638288.2022.2034993](https://doi.org/10.1080/09638288.2022.2034993)

## RAIL RESEARCH PROJECTS - Research participants required

### Live Up Research Project



**LiveUp research – evaluating a digital suite of solutions aimed at improving functional abilities in older Australians**

Building on UK research into compressing functional decline (LifeCurve), the Commonwealth Department of Health has funded research, conducted by the Rehabilitation Ageing and Independent Living (RAIL) Research Centre at Monash University, and Curtin University, into an exciting set of digital solutions developed by Independent Living Assessment (iLA), an initiative of Indigo (Formerly Independent Living Centre WA).

This research is targeted at older people who live at home and are beginning to experience some functional difficulties, or who are keen to stay healthy and active.

RAIL researchers **Dr Natasha Layton**, **Dr Natasha Brusco** and **Professor Keith Hill** in partnership with Dr Elissa Burton of Curtin University, will be conducting the early implementation evaluation with participants from Victoria and from Western Australia.

The LiveUp website will be launched early February, at which time RAIL members are invited to view LiveUp and use the LifeCurve tool at <http://www.liveup.org.au>.

Participants from Frankston and the Mornington Peninsula region (Victoria) **who are over 65 (or over 55 for indigenous Australians), living at home and experiencing some functional difficulties are sought** – for further information please contact **Dr Natasha Layton** [natasha.layton@monash.edu](mailto:natasha.layton@monash.edu).

## **A home-based walking aid-training program for people with dementia or cognitive impairment and their carers**

We are seeking people with dementia or cognitive impairment and those who care for them to participate in a 6-week walking aid-training program at home.

### **What are the eligibility criteria?**

- are aged 65 years or older
- formally diagnosed with dementia, or have a cognitive impairment (assessed by a cognitive test, the researcher can assess this if you have not had one done recently), or if you receive a dementia supplement in your home care package.
- had at least one fall in the preceding 12 months, or report unsteadiness when walking or turning.
- are not already using a walking aid or if using a walking stick but would like to try out a more supportive walking aid e.g. a wheeled walker
- are willing to participate in a 6-week walking aid-training program.
- have a carer who is available to support and reinforce correct walking aid use.
- live in metropolitan Melbourne.

### **What will I receive?**

- Free home visits and training by an experienced physiotherapist.
- Free walking aid if using one is safe for you.

**Further information and enrolment:**

Please contact Dr Angel Lee at [Angel.Lee@monash.edu](mailto:Angel.Lee@monash.edu).

**Early and mid-career research support activities**

Although the staffing level for RAIL at this point is small, we are keen to provide support for any early or mid career researcher that we can. We are happy to provide an external review perspective of grants you are preparing as one avenue of support. If you would like to discuss possibly accessing this service, please email Karine in the first instance ([spahc.rail@monash.edu](mailto:spahc.rail@monash.edu)).

**Member contributions**

We would love to showcase current research from our members. We invite you to submit a short story (and relevant images) about any research you are working on that aligns with RAIL. Submissions are due by the 30th of each month to [spahc.rail@monash.edu](mailto:spahc.rail@monash.edu).