Project name: Low-intensity exercise with blood flow restriction (BFR): a viable training method for older adults?

Primary Investigator: A/Prof Brendan Scott

Associate Investigators: A/Prof Belinda Brown, Prof Jeremiah Peiffer and Mr Michael Beere (PhD Candidate)

Brief overview of the project (50-100 words): This study is investigating the long-term effects of using inflatable cuffs for blood flow restriction (BFR) during low-intensity exercise training. Specifically, we are examining the effects of BFR walking on several measures of health and fitness (cardiovascular, muscular, and cognitive) in older adults across a 12-week training program. The research also includes an acute project investigating the optimal methods to measure and apply BFR for older adults. NOTE: This research is funded by the National Health and Medical Research Council (NHMRC).

Brief overview of the expectations and of a scholarship student on the project (50-100 words): A successful scholarship recipient in this project will receive training in assessments physical function (both laboratory-based and field-based assessments) and cognitive performance (Cogstate testing battery). They will also be trained in acute laboratory skills for the assessment and implementation of BFR protocols. Students will be mentored on key research skills (fortnightly meetings with research team). During their 60-hour scholarship, students will assist with tasks including laboratory set-up, calibrating equipment, recording and entering data. Students will be expected to attend data collection and training sessions and research meetings as available.

Project name: WantToWearble: Adaptation of usability and acceptability tools to assess wearable technology for measuring real-world physical activity in neurodivergent and neurodegenerative cohorts.

Primary Investigator: A/Prof Brook Galna

Associate Investigators: A/Pro Yvonne Learmonth, Dr Gaston Antezana Ortiz, Ms Emily Woods (PhD Candidate)

Brief overview of the project (50-100 words): This will be embedded as part of the broader WantToWearable project, a project designed to make wearable technology in research comfortable, user friendly and beneficial to participants. Wearable technology allows researchers to objectively measure physical activity continuously over many days. Wearable devices vary in size, shape, the data they collect, how they are worn, and where they are worn – all of which affect how comfortable they are, ease of use, and their perceived benefits. Moreover, differences in sensation, cognition or ability to move can affect how usable or acceptable wearable devices are to people who are neurodivergent (e.g. autism) or who live with neurodegenerative conditions (e.g. multiple sclerosis). Therefore, it is important to assess the acceptability and usability of wearable devices in the cohorts and contexts they are intended to be used to ensure good adherence and high-quality data. In this study, we will i) identify appropriate tools to assess the acceptability and usability of wearable devices to measure physical activity; and ii) interview a selection of researchers and clinicians who work with a range people who are neurodivergent or have neurodegenerative conditions to identify how the acceptability and usability tools may need to be adjusted.

4. Brief overview of the expectations of a scholarship student on the project (50-100 words): The successful student(s) working on this project will: i) search the research literature for existing tools to measure usability and acceptability of wearable technology; ii) interview a range of researcher and clinicians who work with participants from a range of ages and abilities; iii) pilot test some wearable technology to measure physical activity. There will be scope for the student to tailor their involvement with the project to pursue their specific interests and motivations for doing the SAH scholarship.