

## PhD Research Projects Available

Projects are open to Australian Domestic and International PhD students who meet the admission requirements for University of Western Australia and hold funding/scholarship to complete a PhD. Particular skill sets and previous experience may be required for certain projects and can be discussed with the MHEX team.

- Please check your eligibility to study at UWA:
  - <https://www.uwa.edu.au/study/higher-degree-by-research>
- If you are eligible, please reach out to the team and indicate which of the studies you are interested in - [mhex@uwa.edu.au](mailto:mhex@uwa.edu.au)

### Developing a Peer-Based Exercise Model in AYA Cancer Survivorship: A Co-Design Approach

**Research Team:** Claire Munsie, Bonnie Furzer + Collaborators

*Objective/s:* To co-design a peer-based exercise program with AYAs, and healthcare professionals, defining program content, structure, delivery methods, and peer roles.

The end goal of this large collaborative project is to design and deliver a peer-based community-based, exercise program for adolescent and young adult cancer survivors. This project will focus on the co-design of the intervention.

Adolescent and young adult (AYA; 15–25 years) cancer survivors often face long-term side effects post treatment including fatigue, physical deconditioning, and social isolation, which negatively affect recovery and quality of life (Adams et al. 2021). Exercise interventions have demonstrated efficacy in improving fitness, function and well-being across diverse cancer populations (Hayes et al. 2019). Emerging evidence now supports the role of exercise in AYA cancer survivorship; however, few programs are specifically designed by AYAs, with peer support is rarely embedded. Social connectedness is a critical motivator in this age group, with peer involvement shown to enhance engagement and psychosocial outcomes (Zebrack et al. 2014). Despite this, the optimal structure and acceptability of peer-based exercise models in AYAs remain unclear. Co-design approaches, such as experience-based co-design (EBCD), integrate survivor perspectives with clinical expertise to generate interventions that are contextually relevant, acceptable, and sustainable (Bate & Robert 2006). Applying co-design to exercise oncology in AYAs provides a developmentally appropriate strategy to establish peer-supported programs that address unmet survivorship needs and promote long-term health.



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## Sensory Processing & Cued Exercise (SPaCE) Therapy

**Research Team:** Bonnie Furzer, Robyn Choi, Kemi Wright + Collaborators

SPaCE therapy program is a novel approach tailored to the specific needs of children who experience sensory processing difficulties – central auditory processing disorder or visual processing disorder. Visual and auditory processing disorders impact a child's ability to process sensory inputs and make sense of them, including understanding context and communication cues. The cooccurring challenges experienced by these children increases their vulnerability to poor physical and mental health, and wellbeing.

Sensory processing impairments directly affect academic, health and social outcomes with their impact on learning and understanding, engagement in physically active recreation, mental health, feelings about themselves (i.e., self-efficacy) and their ability to build social connections. Currently, there are limited treatment options, and none that are strengths-based, community embedded and engage children in age-appropriate fun activity.

The aim of SPaCE therapy is to enhance brain function through exercise but also targets cognition and sensory processing at the neurological level, while simultaneously addressing the co-occurring challenges described above. The play-based, group program aims to increase physical fitness (cardiorespiratory and muscle function) and motor skill ability (catching, throwing, balancing) in a fun and non-competitive setting.

Indicative Studies Include:

- Evaluation of 6-mth Auditory Cued Exercise impact on auditory processing, quality of life, physical activity and school performance
- Development, delivery and evaluation of Visual Cued Exercise program
- Explore visual processing disorders, physical activity, physical function and wellbeing in adults at risk of sensory processing difficulties



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Auditory  
Laboratory



## Physical Literacy, Physical Activity and Wellbeing in Children and Adolescents with Hypothalamic Dysfunction

**Research Team:** Bonnie Furzer, Felicity Austin, Ben Kramer + Collaborators from PCH Endocrinology (Prof Cathy Choong, Dr David Cullingford, A/Prof Jenny Downs, Dr Marie Blackmore)

The goal of this collaborative project is to design and deliver a community-based, multidisciplinary lifestyle support program for children and adolescents with hypothalamic dysfunction and related endocrine disorders.

Our project focuses on hypothalamic dysfunction induced weight changes (also referred to as hypothalamic obesity), a serious and complex condition resulting from hypothalamic damage due to various causes, such as tumours and/or their treatment, inflammatory diseases, congenital disorders with midline malformations (e.g., septo-optic dysplasia) and genetic syndromes (e.g., Prader Willi syndrome). This damage disrupts the hypothalamus' ability to regulate hunger, energy expenditure, and fat storage, often leading to rapid and severe obesity in children (Tessaris, 2022). There is currently no effective treatment, and the condition remains difficult to manage (Johnson, 2021).



Lifestyle interventions using a multidisciplinary approach incorporating physical activity, nutritional and psychological support are becoming widely advocated due to their simultaneous impact on a number of related health outcomes and quality of life. In children with HD, physical activity, nutrition and mental well-being interventions, have the potential to prevent or reverse weight changes whilst also offering a counterbalance to the cooccurring negative side-effects of HD (e.g., decreased self-efficacy, decreased cardiorespiratory fitness, blood glucose level fluctuations, mental ill-health).

### Indicative Study Design:

- Phase 1a: Cross sectional assessment of physical literacy, QOL/wellbeing, physical activity of kids and adolescents with HD
- Phase 1b: Investigate the needs and preferences of families with HD with regards to community-based multidisciplinary health support
- Phase 2: Delivery and evaluation of a multidisciplinary, community-based lifestyle support program for kids and adolescents with HD

Working alongside medical and allied health teams, and families this project aims to design and deliver a community-based MDT (exercise, nutrition, psych) lifestyle support program for children and adolescents with hypothalamic dysfunction induced weight gain (or risk of weight gain). Leading to improvements in key health outcomes (e.g., prevent, or reverse weight gain; increased physical activity), and improved knowledge and confidence of families to support the health and wellbeing of their children with hypothalamic obesity.



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## Moving Minds: Enhancing Physical Health & Recovery in Mental Health

**Research Team:** Bonnie Furzer, Kemi Wright, Team at Fremantle Hospital Mental Health Service + Collaborators

The complexity of the relationship between mental and physical health is ever present for those with mental illness and is a significant challenge for individuals and mental health services. People who live with mental illness have significantly poorer physical health when compared to the general population, with an estimated 10-20 year reduction in life expectancy due to cardiovascular and metabolic diseases, and poor lifestyle behaviours (e.g., low physical activity, poor nutrition, high smoking rates). As a result, the World Psychiatric Association's 2023-2026 Action Plan has identified the promotion of healthy lifestyle choices, including physical activity, as a key priority for the preservation and improvement of mental health.

Exercise has consistently been shown to reduce life span via improvements in physical health markers. Additionally, moderate to large effects of exercise are seen on reducing symptoms of depression, anxiety, and psychological distress comparable to first line psychological and pharmacological treatments. In people living with severe mental illness, including schizophrenia and bipolar disorder, exercise also improves cognitive function and social participation.

Various strategies have been advocated for and implemented within mental health services to support physical health alongside mental health treatment; however significant challenges still exist in preventing and reversing physical health decline, and optimising treatment outcomes and health service provision

Currently we don't have a good understanding of how to implement and embed exercise and health promoting behavioural strategies within mental health services to improve, support and sustain patient outcomes.

Indicative Study Opportunities:

- Implementation and evaluation of health technology to support health outcomes and address modifiable health risk factors of patients within mental health services
- Improving access, implementation and outcomes of therapeutic exercise within mental health services: a national collaborative study



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Government of Western Australia  
South Metropolitan Health Service  
Fremantle Hospital and Health Service



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## Move With Me: exercise buddies to support youth mental health

**Research Team:** Bonnie Furzer, Kemi Wright, Michael Kyron, Claire Willis, Craig Thompson, Claire Munsie, Aaron Simpson, Ben Jackson + More

Physical activity(PA) is an established strategy to enhance mental health, reducing symptoms of anxiety and depression while supporting resilience and wellbeing, however traditional exercise programs often fail to engage young people, especially those experiencing psychological distress or disadvantage. 83% of Australians 15-17yrs are not meeting PA guidelines and 4/5 of the leading burdens of disease in 12–25-year-olds are mental health-related – with approximately 72,000 WA youth living with mental health challenges. Increasing pressure is being placed on health systems and community services with youth facing barriers to care including lack of youth-appropriate services and service shortage.

This project will address the pressure on youth mental health services through *Move with Me*, a program that pairs youth experiencing or at elevated risk of mental ill health, with a chosen exercise buddy to facilitate timely mental health support and promote wellbeing through PA. Exercise buddies promote activity participation and mental wellbeing by offering motivation, accountability, and social connection, and through informal conversations aid early identification of mental health concerns. Given 1 in 3 WA youth report feeling lonely and struggle to reach out for when need help, this social component is a vital and novel strength of the project.

*Move with Me* positions PA as a dual-purpose tool: preventive for mental distress and proactive for wellbeing, while acting as a gateway to early mental health support. This project will co-design, deliver, and evaluate the feasibility and impact of the intervention with young people, buddies and community partners. As the first of its kind, it provides a scalable, strengths-based solution to address urgent needs in youth mental health and PA engagement grounded in accessibility, inclusivity, trust, and community connection. Importantly, it reduces the burden on already stretched support services, through early recognition and response to signs of worsening youth mental health.

This project will co-design and deliver a community based, physical activity program to support mental health and wellbeing of youth (12-25yrs). Research objectives include:

- Engage with youth, families, peers, support persons, stakeholders, and community organisations to **co-design *Move with Me***, including the key outcomes and measurement processes, education package, support frameworks, and resources
- **Evaluate the implementation** of *Move with Me* at an individual (n=100 youth and buddy pairs) and organisational (n=25 community partners) level, including exploring the experiences of knowledge users to inform translation and scalability
- **Assess the effectiveness** of *Move with Me* to improve the physical activity participation rates, mental health, social inclusion and wellbeing of youth participants (n=100)
- **Assess the effectiveness** of *Move with Me* education, supports and resources to improve the knowledge and confidence of exercise buddies (n=100) to support youth physical activity participation and mental health.



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and 20+ community collaborators