

Project Title	Physical activity and brain health in prostate cancer: analysis of a prospective dataset
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Lead discipline (please select one)

Nursing and Midwifery

Allied Health

Medicine

Pre-clinical

Health Policy

Health Economics

Biostatistics

Value-based Healthcare

Epidemiology

Other

Outline of the project 250 words max

You will work with an experienced multidisciplinary team to undertake an initial exploratory analysis of a large population-based study which includes data on cancer, physical activity and neurocognition. The aim of the project is to develop your skills in population-based research including data management, analysis, and interpretation which are highly desired skills for future study, policy development, or clinical practice. This project will provide important clinical evidence on the neurocognitive changes experienced by men over time and will identify its relationship with objectively measured physical activity.

Prostate cancer is the most commonly diagnosed type of cancer in Australian males, with estimates that it will become the second most common type of cancer in all Australians by 2020 (AIHW 2020). Although negative changes to neurocognition are a commonly reported side effect of prostate cancer and its treatment, there is still a lack of understanding on the patterns and causes of this decline and the potentially protective role of behavioural risk factors like physical activity. The aim of this prospective analysis is to investigate changes to neurocognitive health in men with prostate cancer and whether physical activity levels, measured objectively with an accelerometer, are associated with a reduction in adverse effects on the brain.

Proposed research methods

This observational study will investigate objective measures of physical activity and neurocognition in men with prostate cancer. This project will utilise an existing dataset from a large prospective study conducted on ~500,000 participants aged 37-73 years between 2006 and 2010. At baseline, these participants underwent comprehensive physical and self-reported health testing, including cognitive assessment, as well as matching of data to health records. Since this baseline testing, data collection has been ongoing, with a number of extensions added to the study. These have included objective measurements of physical activity using an accelerometer and an imaging sub-study which has conducted structural MRI scans.

The student project will utilise this comprehensive data set which includes repeat testing to investigate the associations between physical activity and neurocognitive function in men with prostate cancer.

As part of the program you will undertake activities including:

- Search, appraise and summarise the background literature in the area
- Calculate descriptive statistics on data instances and provide a brief report on the structure and availability of data
- With assistance from the supervisory team, run statistical analysis to investigate the associations between physical activity and an aspect of neurocognition in men diagnosed with prostate cancer
- Develop a final report, formatted for a peer-reviewed journal
- Develop research questions for further investigation in this dataset

Preferred study discipline being undertaken by the student

This project is suited to any student with a background in allied health. A strong background in exercise science/physiology or psychology would be advantageous.

Benefits to the student and to the department

The successful applicant will develop skills in research and data analysis. This student will receive supervision by a strong multidisciplinary team comprised of medical oncology, exercise science, and neuroscience using a large population-based data set. Where possible, the student will be supported and encouraged to present the results of this project at internal and external symposia. This project will help inform the development of interventions designed to support brain health for people diagnosed with cancer.

Alignment with Government Research Priorities

This project has alignment with National and State Research Priorities including cancer, dementia, healthy ageing, and enabling active living.

Department within ACT Health Directorate / Canberra Health Services where the student will be based

The successful applicant will conduct the program at the University of Canberra. They will be provided with a workspace and access to any equipment required for the project.

Typically, the student would be based within the Department of Medical Oncology, however, given the current environment the team has taken a cautious approach by basing the study at UC.

Please submit form to preclinical.research@act.gov.au