Physical activity is a key modifiable factor that controls the body’s energy metabolism, regulates body weight and is a major determinate of health. Many modern diseases arise from physical inactivity. The impact of physical inactivity includes obesity and cardiovascular disease, which leads to low level chronic inflammation of vital organs including the heart, blood vessels and central nervous system. Obesity and inflammation prevents the natural action of insulin to lower blood glucose leading to Type 2 diabetes, and an elevated risk of cardiovascular disease manifests as premature heart attacks and strokes. Using an integrated approach, the Metabolism, Exercise and Disease Program applies the latest techniques in biochemistry, cell biology and physiology to animal models of disease and human studies of exercise and metabolism.

Research in the program focuses on:

- Vascular complications in diabetes (Professor Peter Little)
- Novel pharmacological approaches to vascular disease (Professor Owen Woodman)
- The central nervous system in heart failure, obesity and diabetes (Professor Emilio Badoer)
- Energy metabolism related to exercise training and health (Professor John Hawley and Professor Stephen Bird)
- Molecular Pharmacology for Diabetes (Associate Professor Jining Ye)
- Membrane transport and signalling in health and disease (Professor Phil Poronnik)
- Immune modulation and toxicity by allergens and nanoparticles (Associate Professor Paul Wright)

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Selected key publications


External funding


ARC Discovery Grant: ‘Unravelling transthyretin amyloid, bounding ahead using wallabies.’ 2010-2012, Dr S Richardson (CI), Dr L Pattenden (CI).

ARC Linkage Grant: ‘Optimising exercise and nutrition throughout the life cycle.’ 2010-2013, Prof J Hawley (CI).


National Heart Foundation Grant-in-Aid: ‘PDGF receptor tyrosine kinase activity in the regulation of proteoglycan synthesis in vascular smooth muscle.’ 2010/2011, Prof P Little (CI), Dr N Osman (CI).

Nestec Ltd Project Grant: ‘Concurrent resistance and endurance exercise with protein supplementation: can nutrient availability enhance the adaptive response?’ 2010/2011, Prof J Hawley (CI), Dr V Coffey (CI).
