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PHYSICAL ACTIVITY

In collaboration with the Behavioural Epidemiology Laboratory, the laboratory’s focus is on understanding health consequences, dose-response and biological mechanisms; and identifying ways to influence physical activity and sedentary behaviour, through clinical/experimental and broad-reach intervention trials.

Research Brief

Our work relates to the primary prevention of diabetes, heart disease and cancer, dealing with health consequences of physical inactivity and sedentary behaviour. A key focus is the linking of 1) epidemiological evidence on sedentary behaviour-health relationships; with 2) clinical/experimental investigations of the relationships of sedentary time to cardio-metabolic risk biomarkers and adverse health outcomes; with 3) findings from behavioural research involving novel interventions to change sitting time. This 3-way integration aims to provide much-needed evidence to inform new policy directions in public health in order to reduce Australia’s disease burden from excessive sedentary time and physical inactivity.

Methodologies

The laboratory has developed the capacity to investigate the cardio-metabolic and physiological effects of sitting time experimentally manipulated within simulated office and domestic environments. We also conduct field-based intervention trials in workplaces and the general community.

Selected Publications

The Need For Experimental Evidence To Understand Causality Of The Hazards Of Sitting

The highest priority for the new sedentary behaviour and health research agenda is to gather new evidence from human experimental work and intervention trials. Understanding the biological mechanisms that underlie associations of prolonged sitting with adverse health outcomes is required in order to identify the specific causal nature of these relationships. Recently we have developed working protocols and techniques for a laboratory based ‘sitting time’ experimental model to examine the acute and cumulative effects of excessive sitting in overweight adults. This has led to the first laboratory-based trial demonstrating that uninterrupted sitting can have adverse effects on glucose metabolism, and that even light-intensity breaks may ameliorate these adverse effects.

The effect of the three trial conditions on postprandial glucose levels (mean SE) – activity break conditions led to a significant attenuation in the glucose response relative to uninterrupted sitting


Sedentary Work Practices: Serious Implications For The Health Of Australian Workers, Australian Workplaces And Economic Prosperity

For most working adults, time spent sitting in the workplace is a major contributor to overall sitting time. As such, the workplace has recently been identified as a key setting in which to reduce adults’ sitting time to improve health. Our Stand Up Australia research initiative is a program of research investigating the benefits of reducing sitting time in the workplace. This work is headlined by the NHMRC and VicHealth-funded Stand Up Victoria, that is assessing the effectiveness of an innovative workplace program aimed at reducing and breaking up sitting time in over 300 desk-bound office workers. Based on the use of inclinometers, initial piloting of the intervention has shown that an approximate 2 hr/day reduction in sitting time was achieved in intervention participants.