

AL & VAL ROSENSTRAUSS FELLOWSHIP RECIPIENT

DR SHELLEY GORMAN

Dr Shelley Gorman is a Senior Research Fellow at the Telethon Kids Institute. Her research aims to better understand the health effects of sun exposure and vitamin D. She is focused on determining how ultraviolet radiation modulates metabolic dysfunction, inflammation, and immunity. Dr Gorman was awarded the Rebecca L. Cooper Medical Research Foundation Al and Val Rosenstrauss Fellowship beginning in 2016 to investigate how safe sun exposure might be harnessed to reduce obesity development.

Research

Sunlight, and in particular ultraviolet radiation, is essential for life, and has shaped the way organisms acquire energy and synthesize essential mediators like vitamin D. Ultraviolet radiation is an important environmental agent, which is plentiful in sun-soaked Australia. While we have evolved under the influence of sunlight, our lifestyles have dramatically changed in recent times, perhaps paradoxically contributing to the high prevalence of many 'westernised' disorders. These include obesity and diabetes, diseases that are national health priorities. Dr Gorman's novel findings, published in the leading endocrinology journal *Diabetes*, suggest that routine low-level (non-burning) sun exposure may reduce the development of obesity. These studies describe how ongoing exposure to non-burning doses of ultraviolet radiation attenuated the development of obesity and diabetes in mice fed a high fat diet.

The overarching aim of Dr Gorman's research program is to determine how ongoing exposure to ultraviolet radiation throughout life restricts the development of obesity and type-2 diabetes. More specifically, she will determine how ultraviolet radiation limits the development of obesity and type-2 diabetes through pre-clinical modeling. A further aim will be to determine whether inadequate sun exposure throughout life contributes towards obesity and type-2 diabetes using data from population-based studies, in which serial measurements of sun exposure and body composition have been measured. Finally, Dr Gorman will assess the capacity of sun exposure to be used for weight loss and reducing the risk for type-2 diabetes and/or heart disease through both pre-clinical modeling and clinical studies.

Obesity affects social wellbeing, and decreases quality of life and lifespan. Obesity has a substantial cost on our health system such that even a modest effect could translate into significant savings. Sun exposure is a novel, accessible, equitable, and inexpensive preventive and therapeutic tool that could restrict the development of obesity and risk of type-2 diabetes. Sun exposure has the potential to improve the wellbeing of many overweight/obese Australians; it could be particularly beneficial for people who spend most of their time indoors, such as office workers, the chronically ill and those living in residential care. The results gathered will contribute towards the evidence-base for health policies promoting activity and exercise outdoors, where sun exposure may become a key element in a framework to address lifestyle changes for the prevention and treatment of obesity and associated disorders like type-2 diabetes.