

Faculty of Science and Health

FACULTY RESEARCH COMMITTEE



Undergraduate Summer Research Internship Scheme 2017

Project Title: *An evaluation of aerobic fitness, metabolic and vascular health in overweight and obese boys and girls*

Principal Investigator: *Dr. Niall Moyna*

School/Research Centre: *School of Health and Human Performance*

Project Description

Healthy individuals can effectively switch from burning fat to burning carbohydrates, and vice versa. In contrast, metabolic inflexibility refers to the inability (or limited ability) to switch from one fuel source to the other, and is related to a number of chronic diseases including cardiovascular disease.

Children and youths who are obese and have low fitness levels are more likely their normal weight counterparts to be metabolically inflexible and to have a build-up of fatty plaque that causes cardiovascular disease. The study will compare physical activity/sedentary behaviour, aerobic fitness, metabolic flexibility and vascular health between obese children and youth and normal weight, age-matched controls.

The study will use a cross-sectional research design involving children between the ages of 8-15 years. Participants will wear an accelerometer for 7 days to record their physical activity/sedentary behaviour levels, and will make two separate visits to the Vascular Health Research Unit. Metabolic flexibility will be measured during the first visit. The second visit will be used to measure vascular structure (carotid intima media thickness), vascular function (brachial artery flow mediated dilation), submaximal fitness indices, VO_2 max and fatmax (exercise intensity at which fat burning is maximal).