Abstract Title: The influence of obesity on health outcomes, and physical activity and body composition measurement.

Student name: Arsh Randhawa

My research includes three studies examining how obesity influence health outcomes, and physical activity and body composition measurement. The first study determined the secular changes in how obesity relates with chronic conditions after accounting for factors including abdominal obesity, total caloric intake, physical activity, and medications. Data from the National Health and Nutrition Examination Survey (NHANES) between 1999 and 2014 was analyzed. The prevalence for dyslipidemia, and hypertension has remained similar over time (p>0.05) despite increases in obesity. The prevalence for type 2 diabetes has increased a greater degree over time in women with overweight/obesity but only women with abdominal obesity (p<0.05).

The second study determined the importance of the commonly held BIA assumptions in the assessment of BIA measured body fat (%BF) and if this varied by BMI. We observed that violating commonly held BIA assumptions (water intake, dehydration, food intake, exercise, and voided bladder) were associated with no differences in %BF (0.5 to 2%, P>0.05) compared to the control trial for each BIA machine (Tanita Model: BC-418, Tanita, Model TBF-314, Omron, Model: HBF-306CN) and with no differences by BMI categories.

Finally, the third study explores the discrepancies between established CPM (counts per minute) and individual CPM values that correspond to individual’s perceived effort (%VO₂max) in populations with different BMI categories. Repeated measures ANOVA will be used to compare the differences between established and individual CPM values. We propose that the individual CPM values would be different from the established CPM values and the discrepancies would be larger among those with overweight/obesity.