

THE RELATIONSHIP BETWEEN AGE, COGNITIVE FUNCTION,  
CARDIOVASCULAR FITNESS, AND SERUM BLOOD MARKERS OF COGNITIVE  
FUNCTION IN HEALTHY OLDER ADULTS (255 pp.)

Director of Dissertation: Ellen L. Glickman, Ph.D.

Approximately twenty percent of all adults have cardiovascular disease. There are well-established links between cardiovascular disease and reduced cognitive function in older adults. There are also established links between serum blood markers such as Brain-derived Neurotrophic Factor (BDNF), Ghrelin and cognitive function in older adults. The purpose of the investigation was to determine the relationships between cardiovascular fitness and BDNF, Ghrelin and cognitive function in healthy, older adults. Participants were 28 healthy older adults (age:  $70.8 \pm 9.3$  yrs, BMI:  $27.3 \pm 5.7$ ) Participants reported to the laboratory and basic anthropometric data were collected (height and weight) followed by a blood draw to quantify serum Ghrelin and BDNF levels. Participants were then given a snack and underwent cognitive testing that included the Letter Number Sequence Test (LNS), as well as the Hopkins Verbal Learning Test-revised (HVLRT). From these data a relationship emerged for both BDNF and Ghrelin. Serum Ghrelin levels was found to positively correlated to a component of the HVLRT, indicating a relationship with verbal learning ability. BDNF was found to be negatively associated with one score on the letter number sequence test. Though often associated with increased performance in other cognitive domains, recent work in animal models has resulted in a similar finding of a negative relationship between BDNF levels and memory performance.