**EXERCISE DOSE AND METABOLIC RISK FACTORS IN YOUNG WOMEN**

*Funded by the National Institutes of Health, National Heart, Lung, and Blood Institute, 2004-2007*

Although public health recommendations exist concerning the amount of physical activity necessary to improve health, these recommendations represent more of a "threshold" versus an "optimal" amount, are not specific to certain diseases or individual risk factors for those diseases, and are not specific to different demographic groups (gender, age, etc.) who may possess differing risk profiles. Young adult women have traditionally received limited public health attention regarding the primary prevention of diabetes mellitus and cardiovascular disease (CVD). However, as obesity prevalence increases and physical activity participation remains low, the metabolic profiles of young women are expected to worsen, placing them at higher risk for diabetes and premature cardiovascular disease. The broad, long-term objective of the proposed research is to develop a thorough understanding of the relationship between the amount of physical activity practiced and alteration of diabetic/CVD risk profiles, particularly in understudied populations. This particular project is designed to define the relationship between the overall dose of endurance exercise training and the corresponding response of metabolic risk factors in overweight and obese young women. The Specific Aims of the project are to: 1) recruit an ethnically-diverse cohort of overweight and obese young women (age: 18-30 years; body mass index: 25-35 $kg \cdot m^{-2}$; waist circumference >88 cm) and identify their status regarding metabolic syndrome risk factors, and 2) assess the values of traditional metabolic syndrome factors, as well as those of fat cell-associated cytokines (adipocytokines), in response to 6 months of endurance exercise training (5 days per week) of two different durations (uniform, moderate intensity). Sixty sedentary women will be randomly assigned to one of three groups: 1) exercise of 30 minutes per day, 2) exercise of 60 minute per day, or 3) a non-exercising control group. It is expected that both traditional metabolic syndrome factors and adipocytokines will respond favorably to exercise training in a dose-dependent manner and that changes in these variables will be related to abdominal adiposity, as measured by waist circumference. Completion of the proposed investigation will provide important information regarding alteration of an important collection of diabetic/CVD risk factors in a group of potentially high-risk individuals who have not been extensively studied in the past.