1. Professional Summary

The purpose of this study is to elucidate the most optimal exercise training intensity for cigarette smokers who have antioxidant imbalance and immune suppression. So far we do not have any exercise guideline for smokers other than "quit smoking". We need to find out optimal exercise intensity which enhances antioxidant defense systems and immune function in cigarette smokers before determining exercise guideline for smokers. Total twenty, apparently healthy, untrained males between the ages of 23-30 yr will be recruited from city of Laredo, TX [Twenty nonsmokers and twenty smokers (≥ 10 cigarettes/day, ≥ 5 yrs)]. Each subject will perform VO₂max test and three runs at different moderate intensity (50,60, and 70% VO₂max). Subjects will run 30 minutes at 60% VO₂max and run equal distance at 50 and 70% VO₂max. VO₂max and each run will be separated by two weeks. Blood samples will be obtained four times in each trial, i.e., Before exercise (PRE), immediately post (POST), and at 2 h, and 24 h of recovery. To elucidate optimal training intensity for cigarette smokers, levels of antioxidants and number of immune cell death will be measured in this study.