Manuscript #459

1. Full Title: The relationship of physical activity to incident hypertension: The ARIC Study.
   Abbreviated Title (length 26): Physical activity and incident hypertension

2. Writing Group (list individual with lead responsibility first):
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3. Timeline:
   The data are currently available. Analysis and writing will take place during 1997.

4. Rationale:
   Physical activity is associated with reduce total and cardiovascular mortality (6). One mechanism by which physical activity may influence mortality is through hypertension. Those who are physically active tend to have lower systolic and diastolic blood pressure when compared to those who are inactive. The relationship of physical activity to the incidence of hypertension has been studied in two cohorts. First, University of Pennsylvania alumni and Harvard male college alumni were followed for incident hypertension (3-5). Participation in vigorous exercise was associated with lower incidence of hypertension. Secondly, the relationship between 2 year incidence of hypertension and physical activity was reported on a sample of women from Iowa (2). When comparing the highest to the lowest physical activity levels, a statistically significant 30% reduction in incident hypertension was found. The effect of physical fitness on hypertension incidence has also been examined in the Cooper Clinic population (1). Lower levels of fitness were related to increased risk of developing hypertension over a median of 4 years.

   These current studies have lacked minority representation. Also, the studies have relied on self reported hypertension, which will inherently lead to underascertainment. These limitations can be overcome within the ARIC cohort.

5. Main Hypothesis:
   Being physically active is associated with lower incident hypertension.
Design: The proposed study will utilize the first three examination data from the ARIC study. We will examine prospectively the relationship of physical activity to incidence of hypertension. Physical activity status will be determined from visit 1. Incident hypertension will be defined as a blood pressure greater than or equal to 140/90 mm Hg or taking hypertensive medications at visit 2 or 3 for those normotensive at baseline. Normotensive individuals will be defined as blood pressure less than or equal to 136/86 mm Hg at visit 1. Factors that may modify, confound, or lie in the causal pathway in the association of blood pressure to physical activity will be examined, including age, gender, race, body mass index, smoking, body weight, socioeconomic status, alcohol consumption, and diabetes mellitus.

6. Data Requirements:
Visit 1, 2, and 3 data will be required for these analyses. Please consider this to be exempt from statistical analyses. This proposal does not overlap with Manuscript #296, which explores predictors of incident hypertension but does not list physical activity as a covariate.

REFERENCES CITED:


