Manuscript #321

**Title:** Physical Activity Patterns and the Risk of Stroke and All-Cause Mortality

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**Timeline:** The timeline is conditional on identification and classification of clinical stroke events among cohort participants.

**Rationale:**
Previous studies have reported physical inactivity to be a risk factor for clinical manifestations of coronary heart disease, especially myocardial infarction and sudden death. Currently, there is less direct evidence relating physical activity to stroke risk. Two recent studies were able to document an inverse relationship between physical inactivity and stroke risk (Abbott et al, 1994 and Manson et al, 1995). Physical activity favorably influences many stroke determinants including blood pressure, plasma glucose, smoking, and clotting factors. However, it has not yet been established whether or not physical inactivity is an independent stroke risk factor.

A paucity of studies have tested this relationship in African-Americans. Past studies have suffered from inadequate assessment of confounding and crude assessments of physical activity. The advantages of using ARIC data are many. First, ARIC is population based and will add to the understanding of stroke and physical activity for both men and women, and for both African-Americans and Whites. Second, ARIC provides two measures of physical activity, which will allow a change score to be computed. Thirdly, confounders in ARIC are assessed through a rigorous quality control system, such as laboratory and body composition measurements.

Proportional hazards regression models will be used to examine the independent effect physical activity has on stroke incidence, stroke mortality, and all-cause mortality. Incident rates will be calculated for both thromboembolic and ischemic stroke, if there is sufficient data available. It is thought that ischemic strokes are due to atherosclerosis, whereas pure hemorrhagic strokes are due primarily to hypertensive disease; physical activity may play different roles in each type of stroke. We have investigated Manuscript #251 (Racial Comparison of Physical Activity) and found no overlap with it.

**Main Hypotheses:**
This study will prospectively examine the relationship between physical activity and stroke among the ARIC participants. It is hypothesized that stroke incidence, stroke mortality, and all-cause mortality are higher in those who are physically inactive.

A second major hypothesis relates to the relationship of physical activity to MRI documented cerebral infarcts. It is hypothesized that cerebral infarctions are higher in those who are physically inactive.

**Data:**
Physical activity was assessed at visit 1 and visit 3 in ARIC by the modified Baecke questionnaire. Stroke cases are currently being validated in the ARIC surveillance system. The association of MRI determined cerebral infarcts and physical activity will be investigated among participants at Jackson, MS and Forsyth County, NC.

<table>
<thead>
<tr>
<th>Exposure:</th>
<th>physical activity as determined by the Baecke questionnaire</th>
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<tbody>
<tr>
<td>Outcomes:</td>
<td>clinical and MRI defined cerebral infarction</td>
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<tr>
<td></td>
<td>cause-specific stroke mortality</td>
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<td></td>
<td>all-cause mortality</td>
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**Proposed Covariates:**
- age
- blood pressure
- plasma glucose
- uric acid
- clotting factors
- alcohol intake
- lipids
- hematocrit
- smoking status
- gender
- socioeconomic status
- body mass index
- ECG defined LVH
- waist:hip ratio

**References Cited:**