6. SWACSM Abstract

Time Spent Jogging/Running and Telomere Length in 5805 U.S. Adults

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ABSTRACT

A scientifically accepted measure of biological aging is the length of telomeres. Telomeres shorten with each year of life. Although age is the primary driving force, lifestyle can also have a substantial effect on telomere length. **PURPOSE**: The aim of this study was to investigate the degree to which minutes spent jogging or running per week accounted for differences in leukocyte telomere length (LTL) in a randomly selected sample of 5805 U.S. adults. **METHODS**: A cross-sectional design was employed using data from the National Health and Nutrition Examination Survey (NHANES) and findings are generalizable to the U.S. adult population. Time spent jogging and/or running, both vigorous physical activities (PA), was compiled from duration and frequency measures reported by each participant. NHANES used the quantitative polymerase chain reaction technique to quantify LTL. Multiple regression was performed using SAS software to interpret the data. Partial correlation was used to control for potential confounders. **RESULTS**: Telomere lengths were 15.6 base pairs shorter for every year of chronological age (F=414.3. p<0.0001). Weekly PA was divided into 3 categories: 1) No regular PA, 2) Some jogging/running, but less than the minimum recommendation of at least 75 min/wk for vigorous PA, and 3) ≥ 75 min/wk of jogging/running. After controlling for age, sex, income, and race, telomere lengths differed across the three categories (F=5.8, P=0.0074). Specifically, adults in category 3 exhibited significantly longer telomeres, 5999 base pairs (bp), than those not engaging in any regular PA (5799 bp). After adjusting for smoking, BMI, PA minutes other than jogging/running, diabetes, and heart disease, along with age, sex, income, and race, differences in LTL across the 3 categories remained significant (F=3.9, P=0.0315). Inactive adults had telomeres that were 170 bp shorter than those meeting the guidelines using jogging/running. This LTL difference was equal to 10.9 yrs of extra biological aging (170/15.6=10.9). Adults performing some jogging/running, but did not meet the guidelines, had LTL that were 105 bp longer than inactive adults. **CONCLUSION**: The present study indicates that ≥ 75 min/wk of jogging/running accounts for almost 11 yrs less cellular aging compared to being physically inactive.