

# Abstract

Am J Clin Nutr. 2010 May;91(5):1273-80.

## Associations between diet, lifestyle factors, and telomere length in women.

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**BACKGROUND:** Leukocyte telomere length is associated with diseases of aging, but there is limited knowledge of diet and lifestyle determinants.

**OBJECTIVE:** The objective was to examine cross-sectionally the association between diet, body composition, and lifestyle factors on leukocyte telomere length in women.

**DESIGN:** Leukocyte telomere length was measured by quantitative polymerase chain reaction in 2284 female participants from the Nurses' Health Study, who were selected as controls for an investigation of biological predictors of cancer. Diet, lifestyle, and anthropometric data were assessed by questionnaire.

**RESULTS:** After multivariate adjustment, dietary fiber intake was positively associated with telomere length (z score), specifically cereal fiber, with an increase of 0.19 units between the lowest and highest quintiles ( $P = 0.007$ ,  $P$  for trend = 0.03). Although total fat intake was not associated with telomere length, polyunsaturated fatty acid intake (-0.26 units, quintile 5 compared with quintile 1:  $P = 0.002$ ,  $P$  for trend = 0.02), specifically linoleic acid intake, was inversely associated with telomere length after multivariate adjustment (-0.32 units;  $P = 0.001$ ,  $P$  for trend = 0.05). Waist circumference was inversely associated with telomere length [0.15-unit difference in z score in a comparison of the highest ( $> \text{ or } = 32 \text{ in, } 81.28 \text{ cm}$ ) with the lowest ( $< \text{ or } = 28 \text{ in, } 71.12 \text{ cm}$ ) category ( $P = 0.01$ ,  $P$  for trend = 0.02) in the multivariate model]. We found no association between telomere length and smoking, physical activity, or postmenopausal hormone use.

**CONCLUSION:** Although the strength of the associations was modest in this population of middle- and older-age women, our results support the hypothesis that body composition and dietary factors are related to leukocyte telomere length, which is a potential biomarker of chronic disease risk.

PMID: 20219960

