

Abstract

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Rise in insulin resistance is associated with escalated telomere attrition.

Gardner JP, Li S, Srinivasan SR, Chen W, Kimura M, Lu X, Berenson GS, Aviv A.

Hypertension Research Center, Cardiovascular Research Institute, University of Medicine and Dentistry of New Jersey, New Jersey Medical School, Newark, NJ 07103, USA.

BACKGROUND: Insulin resistance predisposes to cardiovascular disease and shortens human lifespan. We therefore tested the hypothesis that a rise in insulin resistance in concert with gain in body mass is associated with accelerated white blood cell telomere attrition.

METHODS AND RESULTS: We measured white blood cell telomere dynamics and age-related changes in insulin resistance and body mass index in young adults of the Bogalusa Heart Study. Over 10.1 to 12.8 years, the relative changes in telomere length were correlated with the homeostasis model assessment of insulin resistance ($r=-0.531$, $P<0.001$) and changes in the body mass index ($r=-0.423$, $P<0.001$).

CONCLUSIONS: These findings provide the first tangible nexus of telomere biology with insulin resistance and adiposity in humans.

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