

Abstract

Neurobiol Aging. 2010 May;31(5):765-71.

Shorter telomeres may indicate dementia status in older individuals with Down syndrome.

Jenkins EC, Ye L, Gu H, Ni SA, Velinov M, Pang D, Krinsky-McHale SJ, Zigman WB, Schupf N, Silverman WP.

New York State Institute for Basic Research in Developmental Disabilities, 1050 Forest Hill Road, Staten Island, NY 10314, USA.

BACKGROUND: We have recently reported reduced telomere length in T lymphocytes of individuals with Down syndrome (DS) and dementia due to Alzheimer's disease (AD). We have now replicated and extended that study by finding that people with DS and mild cognitive impairment (MCI-DS) also have shorter telomeres than people with DS without MCI-DS.

FINDINGS: Additional new findings demonstrated that light intensity measurements from chromosome 21 alone, or in concert with chromosomes 1, 2, and 16, exhibited shorter telomeres in adults with DS and with either dementia or MCI-DS compared to aging per se. Chromosome 21 measurements appeared to be especially promising for use as a biomarker because there was no overlap in the distribution of light intensity measurement scores between demented or MCI-DS and non-demented participants. Given that early clinical symptoms of AD can be very difficult to recognize in this population of adults due to their pre-existing cognitive impairments, a valid biomarker would be of great value. Early detection is especially important because it would allow treatments to begin before significant damage to the central nervous system has occurred.

CONCLUSION: Our findings suggest that it may be feasible to use telomere shortening as a biomarker for accurately inferring dementia status.

PMID: 18635289

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