

Does depression contribute to the aging process?

February 21 2012

Stress has numerous detrimental effects on the human body. Many of these effects are acutely felt by the sufferer, but many more go 'unseen', one of which is shortening of telomere length.

Telomeres are protective caps on the ends of chromosomes and are indicators of aging, as they naturally shorten over time. However, telomeres are also highly susceptible to stress and depression, both of which have repeatedly been linked with premature telomere shortening.

The human stress response is regulated by the hypothalamic-pituitary-adrenal axis, or HPA axis. This axis controls the body's levels of cortisol, the primary stress hormone, and it generally does not function normally in individuals with depression- and stress-related illnesses.

Scientists of a new study published this week in *Biological Psychiatry* sought to bring all this prior work together by studying the relationships between telomere length, stress, and depression.

They did so by measuring telomere length in patients with [major depressive disorder](#) and in healthy individuals. They also measured stress, both biologically, by measuring cortisol levels, and subjectively, through a questionnaire.

They found that telomere length was shorter in the [depressed patients](#), which confirmed prior findings. Importantly, they also discovered that shorter telomere length was associated with a low cortisol state in both

the depressed and healthy groups.

First author Dr. Mikael Wikgren further explained, "Our findings suggest that stress plays an important role in depression, as telomere length was especially shortened in patients exhibiting an overly sensitive HPA axis. This HPA axis response is something which has been linked to [chronic stress](#) and with poor ability to cope with stress."

"The link between stress and telomere shortening is growing stronger. The current findings suggest that [cortisol levels](#) may be a contributor to this process, but it is not yet clear whether telomere length has significance beyond that of a biomarker," commented Dr. John Krystal, editor of [Biological Psychiatry](#).

Future studies will be needed to determine whether normalizing telomere length is an important component of the treatment process.

More information: The article is "Short Telomeres in Depression and the General Population Are Associated with a Hypocortisolemic State" by Mikael Wikgren, Martin Maripuu, Thomas Karlsson, Katarina Nordfjäll, Jan Bergdahl, Johan Hultdin, Jurgen Del-Favero, Göran Roos, Lars-Göran Nilsson, Rolf Adolfsson, and Karl-Fredrik Norrback ([doi:10.1016/j.biopsych.2011.09.015](https://doi.org/10.1016/j.biopsych.2011.09.015)). The article appears in *Biological Psychiatry*, Volume 71, Issue 4 (February 15, 2012).

Provided by Elsevier

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