

Childhood adversity may promote cellular aging

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Children who suffer physical or emotional abuse could be faced with accelerated cellular aging as adults, according to new research published by Elsevier in *Biological Psychiatry*.

It's an easy fact to forget - the aging process begins at birth. Despite this, cellular aging remains somewhat of a mystery, although there is growing evidence that over time, the DNA within cells begins to show signs of aging. One of these signs is the shortening of [telomeres](#), which are DNA "caps" at the end of chromosomes that promote cellular stability.

Telomere length is a measure of biological aging because telomeres shorten progressively with each cell division. Shorter telomere lengths have been linked to a variety of aging-related medical conditions including cardiovascular disease and cancer.

Stress and trauma, such as childhood abuse and neglect, are risk factors for several medical and psychiatric illnesses, and stress is known to promote cellular aging. So, Audrey Tyrka and her colleagues from Butler Hospital and Brown University examined the DNA of healthy adults who had a history of childhood maltreatment and found they had shorter telomeres than those who did not experience child maltreatment.

Dr. Tyrka explained that the findings "suggest the possibility that early developmental experiences may have profound effects on biology that can influence cellular mechanisms at a very basic level and even lead to accelerated aging."

Dr. John Krystal, Editor of [Biological Psychiatry](#), agreed: "This study illustrates a new way that early childhood adversity may leave its mark on traumatized individuals. Our limited insight into the functional significance of telomere shortening makes it difficult to know whether there are some adaptive consequences of these changes. Yet the association of telomere shortening and [cellular aging](#) suggests that there might be long-term health implications of exposure to early childhood adversity."

More information: The article is "Childhood Maltreatment and Telomere Shortening: Preliminary Support for an Effect of Early Stress on Cellular Aging" by Audrey R. Tyrka, Lawrence H. Price, Hung-Teh Kao, Barbara Porton, Sarah A. Marsella, and Linda L. Carpenter. The authors are affiliated with Butler Hospital, Providence, Rhode Island. Tyrka, Price, Kao, Porton, and Carpenter are also affiliated with Alpert Medical School of Brown University, Providence, Rhode Island. The article appears in *Biological Psychiatry*, Volume 67, Issue 6 (March 15, 2010).

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