

Possible link studied between childhood abuse and early cellular aging

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Audrey Tyrka is an assistant professor of psychiatry and human behavior at Brown University. Credit: Photo Provided

Children who suffer physical or emotional abuse may be faced with accelerated cellular aging as adults, according to new research from Butler Hospital and Brown University.

The findings, which are published online in the journal [Biological Psychiatry](#), draw a direct connection between childhood [psychological trauma](#) and accelerated reduction in the size of telomeres, the "caps" on the end of chromosomes that promote cellular stability. Telomeres typically shorten with age.

After measuring DNA extracted from blood samples of 31 adults, researchers found accelerated shortening of telomeres in those who reported suffering maltreatment as children, compared to study participants who did not.

"It tells us something. It gives us a hint that early developmental experiences may have profound effects on biology that can influence cellular mechanisms at a very basic level, said Dr. Audrey Tyrka, the study's lead author. Tyrka is assistant professor of psychiatry and human behavior at The Warren Alpert Medical School of Brown University, and associate chief of the mood disorders program at Butler Hospital in Providence, R.I.

The work of Tyrka and the other authors builds on previous research that established [psychological stress](#) and trauma as risk factors for a number of medical and psychiatric illnesses. Other work has linked some of these psychiatric and medical problems with shortened telomere length. This study now establishes a link between early psychosocial stress and shorter telomere length.

Researchers have also found that telomeres shorten at a higher rate when exposed to toxins, such as radiation or [cigarette smoke](#). Other studies have looked at adult female caregivers who are responsible for children with developmental delays, determining a link between accelerated telomere shortening and the higher stress levels the caregivers faced.

This may be the first attempt to look at telomere length in relation to childhood mistreatment.

Researchers said the early findings are compelling, because they looked at adults who were otherwise healthy and had not had any current or past psychiatric disorders. The early data shows strong links between childhood stress and the accelerated shortening of telomeres.

More work is needed, Tyrka said. "We don't know what the full implications of this are yet. Shorter telomere lengths are linked to aging and certain diseases, so it is possible that this is a mechanism of risk for illness following childhood abuse," she said. "But the precise role of telomeres in this process remains to be determined."

Shorter telomere lengths have been linked to a variety of aging-related medical conditions including cardiovascular disease and cancer.

For this study, the scientists looked at 22 women and nine men between ages 18 and 64. Some of the subjects had no history of childhood maltreatment, but others said they had endured either moderate or severe mistreatment as children.

The adults who endured mistreatment as children varied in terms of the type of trauma they reported. They suffered individually from [emotional abuse](#), emotional neglect, physical neglect, physical abuse and sexual abuse.

Source: Brown University ([news](#) : [web](#))

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