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This press release contains:
• Summaries of newsworthy papers:
  - Linking childhood adversity to cellular aging
  - Gene-environment interaction connects childhood stress and depression

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Linking childhood adversity to cellular aging

DOI: 10.1038/mp.2011.53

Early childhood stress and neglect has an effect on telomere length, a biological marker of aging, reports a study published online this week in Molecular Psychiatry. These results could provide a greater understanding of the impact of early adversity on cellular fitness throughout life.

Naturally telomeres, a region at the end of the chromosomes, shorten during chromosome replication. Recent studies have also found that environmental factors, such as stress, are associated with telomere shortening during adulthood; such accelerated shortening of telomere length has been linked to negative health problems such as heart disease and cognitive decline. How childhood adversity affects telomere length has been unclear.

Stacy Drury and colleagues looked at 136 children in the Bucharest Early Intervention Project—a longitudinal clinical trial of foster care children aged 6 to 30 months. They found that the more time a child younger than five years spent in group institutional care, where they experienced emotional and physical neglect, the shorter the child's telomere length during middle childhood.

These findings highlight the importance of early intervention in young and vulnerable children. The authors do caution that future studies should assess prenatal exposure as well.

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Gene-environment interaction connects childhood stress and depression

DOI: 10.1038/mp.2011.51

A gene-environment interaction may explain the relationship between early life stress, genetic vulnerability, and depression, reports a study in Molecular Psychiatry this week.

The protein brain-derived neurotrophic factor (BDNF) acts on specific neurons, supporting the survival of neurons and promoting the growth and differentiation of new neurons.

Lotte Gerritsen and colleagues looked at the brain volume of a region critical to the development of depression, the subgenual anterior cingulate cortex, in 568 adults who experienced adversity during childhood. They found that a common variation in the gene for BDNF modifies how early life stresses effect the subgenual anterior cingulate cortex.

The authors concluded that reduced regional brain volume due to the variation in the BDNF gene coupled with childhood stress may serve as a risk factor for depression. However, Gerritsen and colleagues do caution that future studies are necessary to fully understand the relationship between the susceptibility of those with the variation in the BDNF gene and stress on the brain.

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