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[1] Healthy behaviours may reduce wear and tear of stress on the body

DOI: 10.1038/MP.2014.70

A healthy lifestyle could protect post-menopausal women against some aspects of cellular aging,
according to a study published in Molecular Psychiatry. The findings suggest that a combination of eating
a balanced diet, exercising, and getting adequate sleep may moderate the stress-induced degradation of
telomeres—the ends of DNA that protect genes and shorten as we age—and could potentially reduce the
risk of diseases associated with aging.

Shortened telomeres have been linked to numerous diseases of aging, including cardiovascular
and Alzheimer’s disease. A common factor in these diseases is long-term chronic stress, which is
thought to speed-up aging of the immune system by accelerating the shortening of these cells’ telomeres,
and thus wearing down the systems that protect against disease. It is unclear if new stressors have the
same effect over shorter time periods.
Eli Puterman and colleagues investigated the effects of stressful events on immune cell telomere length in 239 post-menopausal, non-smoking women with no age-related diseases over a period of one year. They found that for every major life stressor, such as death of a family member or major financial difficulties, there was a significant greater decline in telomere length over the year. Yet, this relationship between major life stressors and telomere shortening was moderated by the woman’s lifestyle. In women who engaged in lower levels of healthy behaviours, telomeres shortened by 76.5 base pairs per stressor on average, while telomere shortening was unrelated to adverse events in women who maintained a high level of healthy behaviours. These results suggest that keeping an active lifestyle, as well as eating and sleeping well, during periods of high stress is particularly important to attenuate the accelerated aging of our immune cells.

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Please link to the scientific paper in online versions of your report (the URL will go live after the embargo ends): http://dx.doi.org/10.1038/MP.2014.70

[2] Oxytocin’s neurochemical effects may alleviate some difficulties associated with autism

DOI: 10.1038/MP.2014.74

The neurochemical basis for administering the hormone oxytocin to adults with autism spectrum disorder (ASD) to alleviate some of the socio-communication difficulties associated with the disorder is reported this week in Molecular Psychiatry. The findings could help with designing better therapeutic strategies in the disorder.

Oxytocin has previously been shown to have significant effects on behaviour, particularly in the ventro medial prefrontal cortex (vmPFC), an area in the front of the brain. This area is involved in empathy and emotion recognition, both of which are disturbed in individuals with ASD. Individuals with ASD are reported to have lower activity in their vmPFC, though previous studies show that administering oxytocin led to a restoration of activity in the vmPFC. However, it was unclear how the hormone acted in the brain.

In a clinical trial with 40 high-functioning men with ASD, Hidnenori Yamasue and colleagues administered a single dose of oxytocin and then 90 minutes later measured N-acetylaspartate (NAA) levels—a marker for neuronal energy demand—in the vmPFC. They found that administering oxytocin induced a change in NAA levels, which produced an increase in brain signals in the vmPFC, detected using functional magnetic resonance imaging (fMRI). The authors found that this increase in NAA levels corresponded with an improvement in socio-communication difficulties as reported by better performances in a psychological task, in which participants were asked to judge if an actor in a movie was a “friend or foe” based on conflicting verbal and non-verbal information. By identifying an effect at the neuronal level, the authors suggest that oxytocin could be a useful therapeutic strategy for a number of autistic behavioural problems associated with the vmPFC.

While a single dose of oxytocin may have benefits for some individuals, the authors note that studies involving women and children, as well as longitudinal trials, should take place before the results can be applied in a clinical setting.

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GEOGRAPHICAL LISTING OF AUTHORS...

The following list of places refers to the whereabouts of authors on the papers numbered in this release. For example, London: 4 - this means that on paper number four, there will be at least one author affiliated to an institute or company in London. The listing may be for an author’s main affiliation, or for a place where they are working temporarily. Please see the PDF of the paper for full details.

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