

**Accelerated ageing and effects of psychotherapy on DNA strand break accumulation in individuals suffering from posttraumatic stress disorders**

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The prevalence of age related diseases is increased in individuals with Posttraumatic Stress Disorder (PTSD). At the molecular level, *N* Glycosylation is an age dependent process, identified as a biomarker for physiological aging (GlycoAge Test). Individuals with PTSD and trauma exposed individuals presented an upward shift in the GlycoAge Test, equivalent to an advancement of the aging process by 15 additional years.

On the other hand traumatic stress may increase carcinogenesis via increased DNA damage and impaired DNA repair mechanisms. We found higher levels of basal DNA breakage in individuals with PTSD and trauma exposed subjects than in controls. However, single strand break repair was unimpaired in individuals with PTSD.

In conclusion, our results suggest that cumulative exposure to traumatic stressors accelerates the process of physiological aging and show for the first time in vivo an association between traumatic stress and DNA breakage. Moreover, we demonstrate changes at the molecular level, i.e. the integrity of DNA, after psychotherapeutic interventions.