

Traumatic stress may affect DNA, but psychotherapy may heal it

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A new study published in the current issue of *Psychotherapy and Psychosomatics* for the first time demonstrates that traumatic stress may induce DNA breakage, but psychotherapy may heal it. Previous research reveals an association between traumatic stress and an increased risk for numerous diseases, including cancer. At the molecular level, stress may increase carcinogenesis via increased DNA damage and impaired DNA repair mechanisms. The authors assessed DNA breakage in peripheral blood mononuclear cells from individuals with post-traumatic stress disorder (PTSD) and measured the cellular capacity to repair single-strand breaks after exposure to ionizing X-radiation. They also investigated the effect of psychotherapy on both DNA breakage and DNA repair.

In a first study we investigated DNA breakage and repair in 34 individuals with PTSD and 31 controls. Controls were subdivided into 11 trauma-exposed subjects and 20 individuals without trauma exposure. In a second study, we analysed the effect of psychotherapy (Narrative Exposure Therapy) on DNA breakage and repair. Thirty-eight individuals with PTSD were randomly assigned to either a treatment or a waitlist control condition. Follow-up was performed 4 months and 1 year after therapy.

In study 1 we found higher levels of basal DNA breakage in individuals with PTSD and trauma-exposed subjects than in controls, indicating that traumatic stress is associated with DNA breakage. However, single-strand break repair was unimpaired in individuals with PTSD. In study 2,

we found that [psychotherapy](#) reversed not only PTSD symptoms, but also DNA strand break accumulation. The results of the study showed - for the first time in vivo - an association between traumatic stress and DNA breakage; they also demonstrate changes at the [molecular level](#), i.e., the integrity of DNA, after psychotherapeutic interventions.

More information: Morath J., Moreno-Villanueva M., Hamuni G., Kolassa S., Ruf-Leuschner M., Schauer M., Elbert T., Bürkle A., Kolassa I.T." Effects of Psychotherapy on DNA Strand Break Accumulation Originating from Traumatic Stress." *Psychother Psychosom* 2014;83:289-297

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