

Publication

Acute Stress Improves Concentration Performance.

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Acute stress can have both detrimental and beneficial effects on cognitive processing, but effects on concentration performance remain unclear. Here, we investigate the effects of acute psychosocial stress on concentration performance and possible underlying physiological and psychological mechanisms. The study sample comprised 47 healthy male participants who were randomly assigned either to a psychosocial stress situation (Trier Social Stress Test) or a neutral control task. Concentration performance was assessed using the d2 Test of Attention before and 30 min after the stress or control task. Salivary cortisol and alpha-amylase were repeatedly measured before and up to 1 hr after stress. We repeatedly assessed state anxiety using the State-Trait Anxiety Inventory and anticipatory cognitive stress appraisal using the Primary Appraisal Secondary Appraisal questionnaire. The stress group showed a significantly stronger improvement of concentration performance compared to the control group (; $p = .042$). Concentration performance improvement was predicted by increased state anxiety (; $p = .020$) and lower cortisol (stress) changes (; $p = .043$). Neither changes in alpha-amylase nor cognitive stress appraisal did relate to concentration performance. Our results show improved concentration performance after acute psychosocial stress induction that was predicted by higher state anxiety increases and lower cortisol increases. This points to a potential modulating role of specific psycho-emotional and physiological factors with opposite effects.

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