Sympathetic nervous system responses during fear conditioning predict PTSD avoidance symptoms

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Posttraumatic stress disorder (PTSD) occurs in some people after exposure to traumatic events. This is a heterogeneous disorder that is defined by three major symptom clusters: intrusive symptoms, avoidance of reminders of the event, and hyper-arousal. Individual patients can vary in the degree to which they present with the different symptoms. The purpose of this study was to examine the relationship between physiological responses and specific PTSD symptoms to gain insight into biological endophenotypes of PTSD. We measured psychophysiological responding during a fear conditioning discrimination task. This paradigm independently assesses responses to danger and safety cues using electrodermal activity (EDA) and skin conductance responses (SCR). We used these measures to predict ratings on individual items on the PTSD symptom scale (PSS) using linear regression analyses. The study sample (n=104) was recruited from a highly traumatized civilian population seeking treatment at the Grady Health system in Atlanta, GA. Results show that PTSD subjects have lower skin conductance responses than controls, F(1,102)=11.91, p<0.001, with PTSD subjects showing exaggerated habituation after the first block of conditioning. Higher SCR during the last block of conditioning predicted avoidance symptoms on the PSS F(1,102)=13.31,p<0.001, accounting for 11.5% of the variance in PTSD symptoms.