

Jennifer Sumner, PhD

PROJECT SUMMARY

Posttraumatic stress disorder (PTSD) increases risk of incident cardiovascular disease (CVD) by 25-50%. Most individuals (50-90%) experience a traumatic event in their lifetime, and PTSD is the fifth most common psychiatric disorder. Experts have now called for increased CVD surveillance after trauma and for PTSD treatment trials powered to reduce CVD risk. However, both CVD risk and PTSD are complex phenomena that likely interact in nuanced ways.

Therefore, for such efforts to be successful, we must first identify the mechanisms by which PTSD influences incident CVD risk. Further, we must understand which of the dimensions underlying PTSD activate those CVD risk mechanisms. This study will determine which PTSD dimension(s) contribute to endothelial dysfunction, one of the earliest modifiable precursors to CVD. Only three studies in select trauma-exposed populations (male veterans and police officers) have tested the association of PTSD symptoms with flow-mediated dilation, a functional measure of endothelial dysfunction. This early work points to endothelial dysfunction as a potential mechanism of the PTSD-CVD link, but the limited generalizability and lack of nuanced measurement of both posttraumatic stress and endothelial dysfunction in those studies has limited their impact. Indeed, we still do not know whether PTSD and endothelial dysfunction are associated in individuals from the broader community. Knowledge of which aspects of PTSD are most “cardiotoxic” is also lacking, so we do not know which posttraumatic stress dimensions to target. Fear responses are a core component of PTSD with direct biological relevance to cardiovascular function, whereas the dysphoria dimension of PTSD is considered more auxiliary. In this study, we will examine cross-sectional and longitudinal associations of PTSD and its underlying dimensions with functional and cellular measures of endothelial dysfunction in a community-dwelling sample of CVD-free adult men and women with a history of trauma (50% with current PTSD).