

The Impact of Mobile HRV Training on Depression in Military Personnel With Post- Traumatic Stress Disorder

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Background

According to the United States Department of Veterans Affairs (2016), between 11 and 20 percent of veterans have Post-Traumatic Stress Disorder (PTSD).

Symptoms of depression are a major contributor to PTSD and common among military personnel occurring at a similar rate, roughly 12 percent (Gandermann et al., 2012).

Background (continued)

According to a 2014 report from the Institute of Medicine of the National Academies, approximately 77% of veterans hospitalized for PTSD also had comorbid mental or physical health concerns.

Additionally, between 19.5% and 22.8% of veterans tested positive for TBI symptoms (Institute of Medicine of the National Academies, 2014).

Individuals who have a TBI are far more likely to have PTSD (US Department of Veterans Affairs, 2016).

Depression

Depression often is comorbid with PTSD, and is often more severe than in individuals without PTSD (Campbell, et. al., 2007).

Additional links between depressive symptoms and individuals with PTSD occur when the individual has experienced a traumatic brain injury as well. TBI has been shown to exacerbate depression (Bryan et al., 2013).

Depression not only causes significant psychological distress but also physiological changes, notably in heart rate variability (Agelink et al., 2002).

Depression and the Autonomic Nervous System

Depression contributes to decreased autonomic functioning due to decreased parasympathetic activity in combination with overactivity of the sympathetic nervous system, increasing physiological stress on the body (Udupa et al., 2007).

There is a link between decreased HRV and depression (Kop, et al., 2010).

Purpose of the Study

To evaluate the impact of HRV training on depression symptoms using a randomized, controlled study.

Prediction: After completing the training program, participants will show a significant decrease of depressive symptoms.

Considerations: How does comorbid TBI impact these outcomes?

Methods

There will be 2 cohorts, consisting of a total of 60 participants. Each cohort will be split into 15 control participants and 15 experimental participants.

Inclusion criteria: Combat exposure and score 33 or higher on the PCL-5.

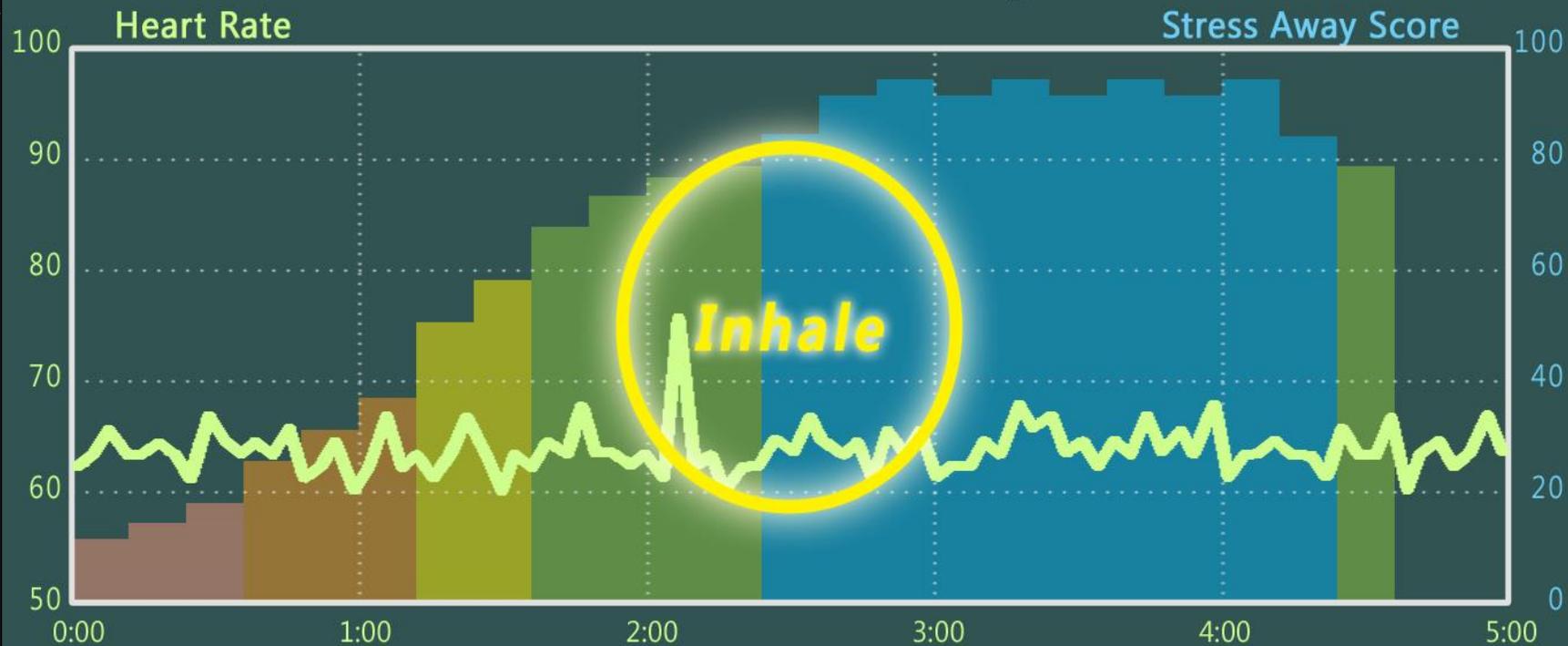
Experimental participants will train at home for 10 minutes in both the morning and evening every other day for 30 days. The participants will use the same tablet and PPG ear-clip.

All participants will be evaluated for depressive symptoms using the Patient Health Questionnaire-9. A 5-minute baseline of HRV will be conducted using a mobile telehealth system on a tablet and PPG ear-clip.

00:02

Stress Away

79



Abort Test



Restart Test

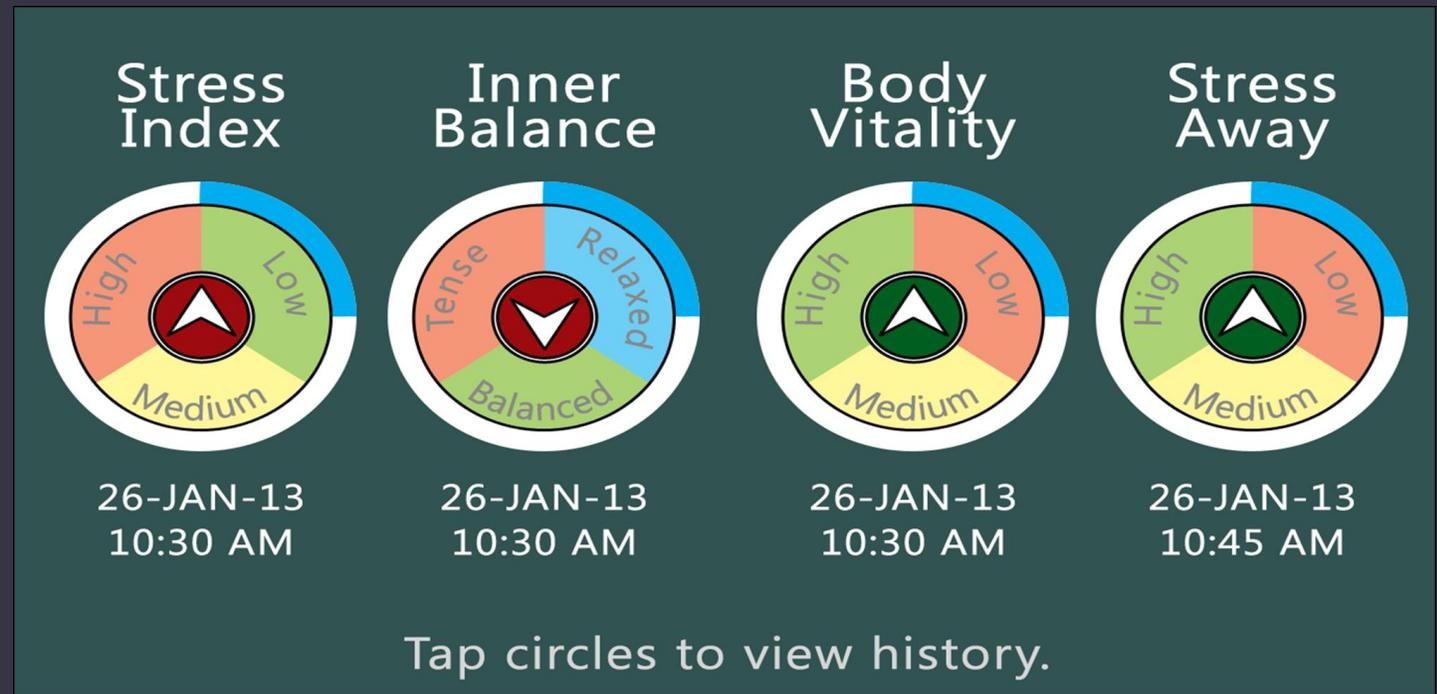


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Methods (continued)

At the conclusion of their training, the subjects will be reassessed with the PHQ-9. Data will be analyzed using a repeated measures ANOVA and correlation statistics, using a significance value of $p < .05$.

Results are pending.



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