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## Cardiovascular Regulation During Social Stress Induction - Sympathetic and Vagal Reactivity Co-vary Positively With Experienced State Anxiety

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# Cardiovascular Regulation During Social Stress Induction

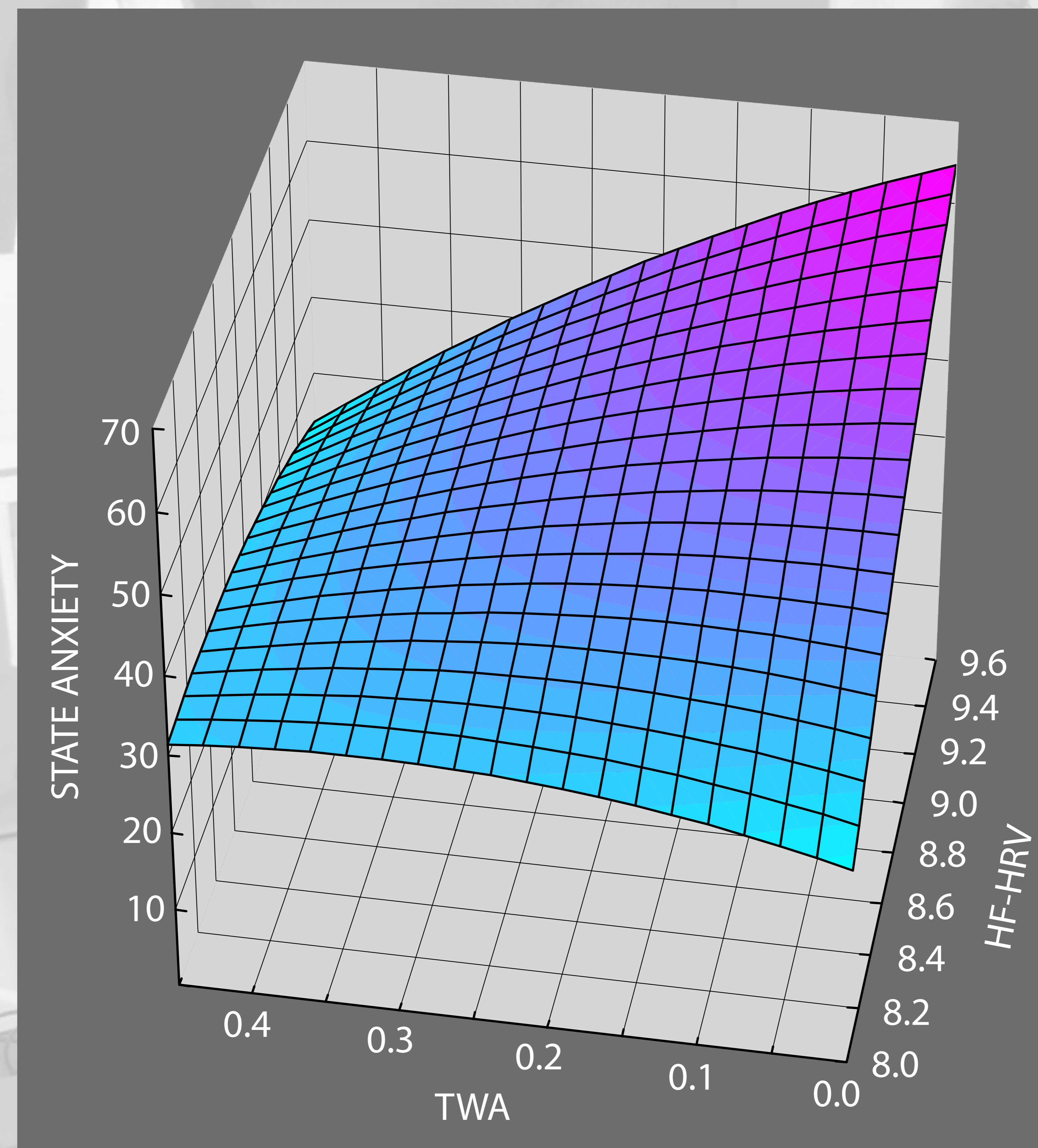
:: SYMPATHETIC AND VAGAL REACTIVITY CO-VARY POSITIVELY  
WITH EXPERIENCED STATE ANXIETY ::

## AIM

In a previous study we found that individuals higher in state anxiety before an experimental task have increased vagally mediated high frequency heart rate variability (HF-HRV), compared to individuals with lower state anxiety. In this study cardiovascular regulation and state anxiety was examined during social stress induction.

## METHOD

14 healthy men were confronted with a Virtual Reality-version (VR) of the Trier Social Stress Test, involving a speech task and a math task. The VR equipment was a fully immersive CAVE™ system with stereoscopy and head tracking. Heart rate (HR), HF-HRV, and T-wave amplitude (TWA, inversely related to SNS-activity) was assessed. HR was recorded for 5 min during the speech task. After the TSST the participants completed a slightly modified version of the Spielberger State Anxiety Inventory estimating subjectively perceived anxiety during the task.

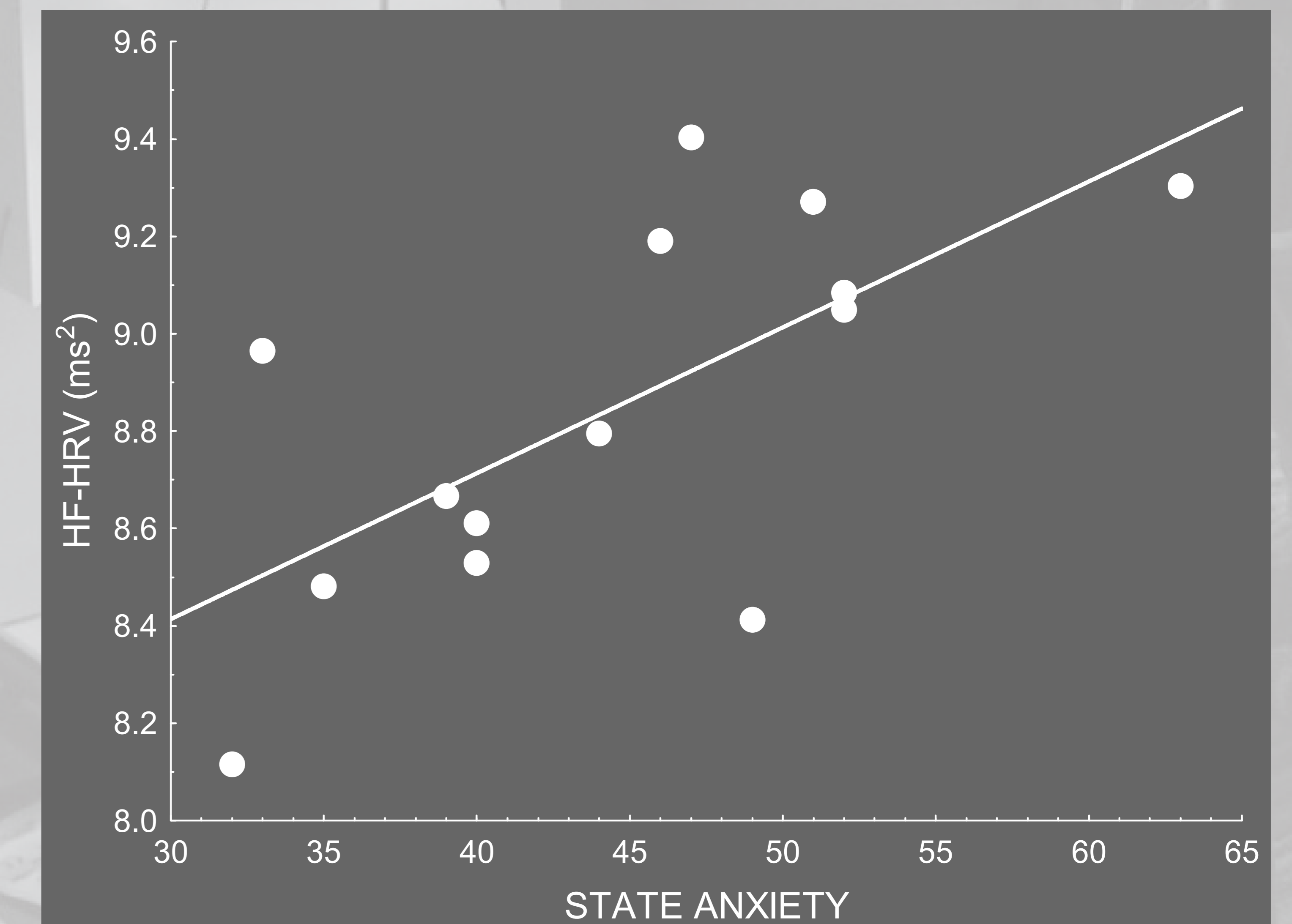
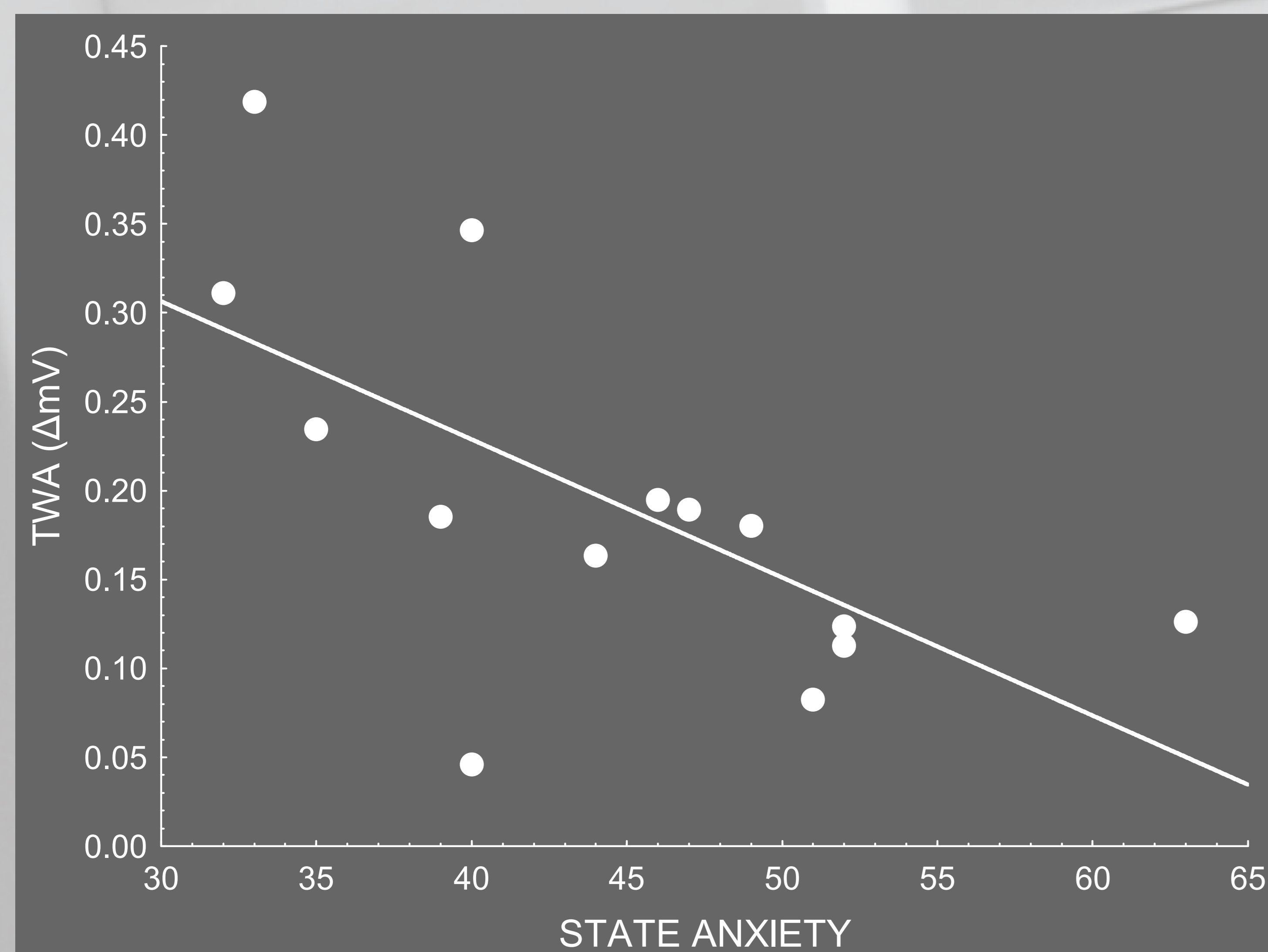


## RESULTS

State anxiety correlated positively with HF-HRV ( $r=.67$ ,  $p<.01$ ) and negatively with TWA ( $r=-.65$ ,  $p<.05$ ), indicating a positive correlation with both parasympathetic and sympathetic activity. There was a non-significant positive correlation between state anxiety and HR ( $r=.39$ , n.s.).

## DISCUSSION

State anxiety during social stress co-varied positively both with vagal and SNS activation. A possible explanation might be that in healthy individuals who experience stressful situations as more anxiety provoking, the vagal system inhibits sympathetic activation in order to adequately cope with the situation.



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