

# Know your body by heart: a taVNS study on body awareness

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## Abstract

Non-invasive vagus nerve stimulation has proven effective in modulating parasympathetic autonomic nervous system activity and various cognitive functions. This study investigated the effects of transauricular vagus nerve stimulation (taVNS) on body ownership and interoception in healthy subjects using a within-subjects experimental design (active taVNS/sham). The rubber hand illusion (RHI) and the Heartbeat Counting Task (HCT) were employed. Cardiac activity was recorded throughout the procedure to measure physiological indices of heart rate (HR) and heart rate variability (HRV). Ownership for the fake hand was observed in both active and sham stimulation, as indicated by drift and scores on illusion-relevant items (Q1-Q3). HR and HRV showed no variations between synchronous/asynchronous RHI or between stimulation conditions. Active taVNS resulted in decreased interoceptive meta-awareness. Individuals with lower interoceptive abilities exhibited heightened susceptibility to RHI during active taVNS, possibly due to perturbation of interoceptive signals and increased reliance on exteroceptive signals in constructing body representation.