

**Cardiac Signals Influence Cortical Motor Excitability and Muscle Activity** 

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E AND BRAIN SCIENCES

## INTRODUCTION **Somatosensory perception** Following high heartbeat-evoked potentials (HEPs) During systole Al et al., 2020; 2021





- TMS over the right primary motor cortex of 36
- The size of the motor response to TMS in their left hand, i.e., motor-evoked potential (MEP) indexes
- Their cortical responses to TMS, the TMS-evoked potential (TEP) reflects cortical excitability.
- After the TMS blocks, subjects performed a motor





DISCUSSION

## Facilitatory cardiac effects on motor activity

- During systole, motor excitability and muscle force increase.
- Following high HEP amplitudes, motor excitability increases.

## Inhibitory cardiac effects on perception

- During systole, somatosensory perception decreases.
- Following strong HEP amplitudes, somatosensory perception • is attenuated.

Distinct time windows may exist across the cardiac cycle that either optimize perception or action!

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