

## Modulation of interoceptive processing by hypnotizability

Imaging studies have shown lower insular grey matter volume in highly hypnotizable individuals (highs) compared to low hypnotizable individuals (lows), which may account for their lower interoceptive accuracy and lower heartbeat-evoked cortical potential (HEP) amplitudes already reported in previous studies. As medium hypnotizable individuals (mediums) represent the majority of the population, we aimed to examine interoceptive processing in all three hypnotizability groups. Stanford Hypnotic Susceptibility Scale: Form A was used to measure hypnotizability level of the participants. EEG and ECG signals were recorded in 14 highs, 14 mediums and 18 lows during two experimental phases. The first consisted of an open-eye baseline condition (10 min), while the second consisted of consecutive open-eye (2 min), closed-eye (2 min) and heartbeat counting (2 min) conditions, repeated three times, followed by a single open-eye post-counting condition (2 min). The interoceptive accuracy index, calculated as the correspondence between measured and counted heartbeats, didn't show any significant group difference, however it negatively correlated with hypnotizability scores in the first counting trial. During the first phase of the experiment, HEP amplitudes were lower in highs and mediums compared to lows in the right central region for both early and late HEP components, whereas during the second phase the same difference was observed only for the early HEP component. During the second phase, a significant interaction between hypnotizability group and condition was also observed in the left/midline regions for the late HEP component, with only mediums showing higher amplitudes during counting compared to open/closed-eye conditions and only highs showing higher amplitudes during post-counting rest compared to counting. Baseline interoceptive processing of mediums thus seems to be more similar to that of highs than to that of lows. Moreover, the effect of attention to the heartbeat on interoceptive processing may only be present in mediums, whereas interoceptive learning may be more efficient in highs.

**Primary author:** ZELIČ, Žan (University of Trento, Department of Physics, Trento, Italy; University of Pisa, Department of Translational Research and New Technologies in Medicine and Surgery, Pisa, Italy)

**Co-authors:** GIUSTI, Gioia (University of Pisa, Department of Translational Research and New Technologies in Medicine and Surgery, Pisa, Italy); SANTARCANGELO, Enrica Laura (University of Pisa, Department of Translational Research and New Technologies in Medicine and Surgery, Pisa, Italy)