

power was not influenced by a single session of FAM, even when preceded by training with the meditation technique.

Conclusions: Three weeks of FAM training appears to progressively increase theta power across the entire scalp, but neither single-session FAM nor control listening task practise did so. Future work could focus on how these effects are linked with mechanisms of attention and cognitive control benefits often observed from FAM training.

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Effect of Excessive Use of Internet Games on Inhibitory Control and Resting-State EEG

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Background: Excessive use of Internet games (EUG) depicts a form of psychological dependence that has not yet developed into Internet gaming disorder (IGD). Previous studies have found impaired inhibitory control and abnormal Electroencephalogram (EEG) activity in individuals with IGD, nevertheless, how the individuals with EUG behave remains unclear. This study aimed to investigate inhibitory control and resting-state EEG in individuals with EUG compared to individuals who never used Internet games (NUG).

Methods: The classic color-word Stroop task and resting-state EEG recordings with 4 min eyes open and 4 min eyes closed were performed among 15 participants with EUG and 15 participants with NUG. The accuracy and reaction time were taken as the measures of Stroop performance. The relative power in delta (0.5–4 Hz), theta (4–8 Hz), alpha, sigma (12–16 Hz), beta1 (16–20 Hz), beta2 (20–30 Hz), and gamma (30–45 Hz) were used as EEG measures, computed by the mean power of each band divided by the mean power of full frequency band (0.5–45 Hz). Moreover, the alpha band was personalized for each participant, named as individual alpha band (IAB). To determine the IAB, peak alpha frequency (PAF) was first determined as the frequency (7.5–12.5 Hz) with the largest power in the EEG power spectrum in eyes-closed resting state. Referring to the PAF, IAB was set from PAF–2 Hz to PAF+2 Hz, the lower individual alpha band (LIAB) from PAF–2 Hz to PAF, and the upper individual alpha band (HIAB) from PAF to PAF+2 Hz.

Results: The behavioral results revealed the accuracy, reaction time, and Stroop effect had no significant differences between groups, suggesting that the inhibitory control of participants with EUG was normal. However, the EEG results showed significant between-group differences. More specifically, compared to NUG, the EUG group exhibited significantly reduced EEG power in the LIAB under eyes-closed condition and beta1 under eyes-open condition, whereas their gamma power and beta2 power with eyes closed significantly increased.

Conclusions: These results provide insight into understanding the gaming effects on brain oscillations and help to develop more reliable criteria to distinguish EUG and IGD.

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Interoception Modulates the Processing of Self and Other-Related Information

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Background: Self-related information is processed faster and more accurately (self-prioritization effect; SPE). Considering that the self is at least partially founded on the sense of internal bodily states; interoception may be related to this effect. Regarding interoception, the ability to perceive is known to vary among individuals. Besides, interoceptive information is transmitted to the brain at the systole in the cardiac cycle, and the timing is known to modulate the processing of external stimuli. In this study, we investigated whether these interoceptive factors are related to the SPE.

Methods: Thirty-five university students (16 women, aged 20.6 ± 1.9 years) participated. They were given two tasks: 1) a perceptual matching task with presentation timing manipulated based on cardiac cycles, and 2) a heartbeat counting task. The electrocardiogram was recorded during both tasks. 1) The perceptual matching task was conducted to assess the SPE. Participants were first asked to learn three associations between geometrical shapes and personal labels (e.g., circle-self, triangle-friend, and square-stranger). They were then required to determine whether the shape-label pairings presented were correct from learned associations. The stimulus pair was presented according to the participant's cardiac cycle (systole and diastole). For each reaction time (RT) and sensitivity (d'), we assessed the degree of SPE based on dividing the difference between the self and stranger conditions by the sum of the two conditions. We calculated the SPE measurements separately in systole and diastole conditions. 2) The heartbeat counting task was conducted to assess the interoceptive accuracy (IAC) that reflects the ability to detect interoception correctly. Participants were asked to count their heartbeats over several periods. The IAC was indexed by a perception score calculating the difference between the actual and reported heartbeat numbers.

Results: For d' , participant with higher IAC showed smaller SPE in both timing conditions (systole: $\rho = -0.28, p < .05$; diastole: $\rho = -0.24, p < .10$). Besides, the IAC was correlated negatively with d' of self-condition in systole ($\rho = -0.30, p < .05$) and positively with that of stranger-condition in diastole ($\rho = 0.23, p < .10$). No significant correlation was found for RT.

Conclusions: This study demonstrated that the SPE is less likely to occur in individuals with high IAC. Furthermore, our results revealed that the cardiac cycle differently affects ways of processing external stimuli depending on whether discrimination concerns the self- or other relatedness of external stimuli.

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Effect of tDCS on Effort-Related Cardiovascular Measures

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Background: Research in the context of Transcranial Direct Current Stimulation (tDCS) previously highlighted that anodal stimulation of Dorsolateral Prefrontal Cortex (DLPFC) increased task performance during a working memory task. In addition, works in the context of