

Abstract

In esports, where the outcome is less dependent on physical factors, the importance of mental preparation for the match is considered to be significant. In particular, skilled esports players have superior strategic decision to optimize their behavioral patterns according to their opponents, and emotional control to stay calm under pressure at a critical phase. However, it is not known how the aforementioned abilities affect the outcome of a match. Through EEG measurements during a match and post-match questionnaires, we found that **strategic decision is important at the beginning of the match** and **emotional control is important at the end of the match**. In addition, **neural oscillations in relation to strategic decision and emotional control were observed at the frontal brain region**. By applying these findings, we aim to establish a new training method to bring the mental state of esports players closer to the ideal state for matches.

Importance of mental preparation in esports

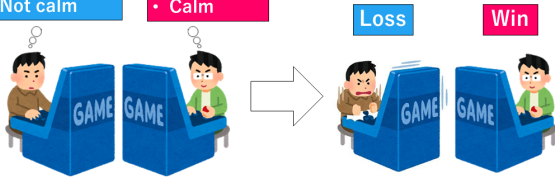
- **Mental preparation** is important in esports
- Skilled players have superior **strategic decisions** and **emotional control**

Strategic decision: Inferring in advance the most effective behavioral patterns to take during a round based on the opponent's characteristics

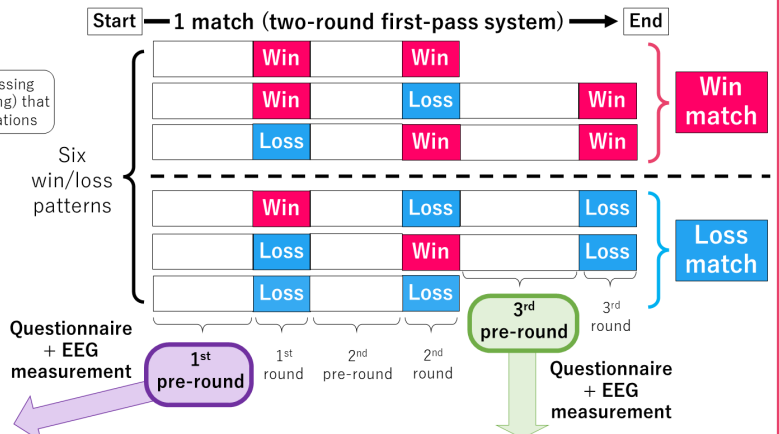
Emotional control: Consciously suppressing the mental agitation (anxiety about losing) that occurs before a round in important situations

To investigate how these two abilities affect match performance, we focused on a **fighting video game (FVG)**, where the necessary abilities change depending on the situation of a match

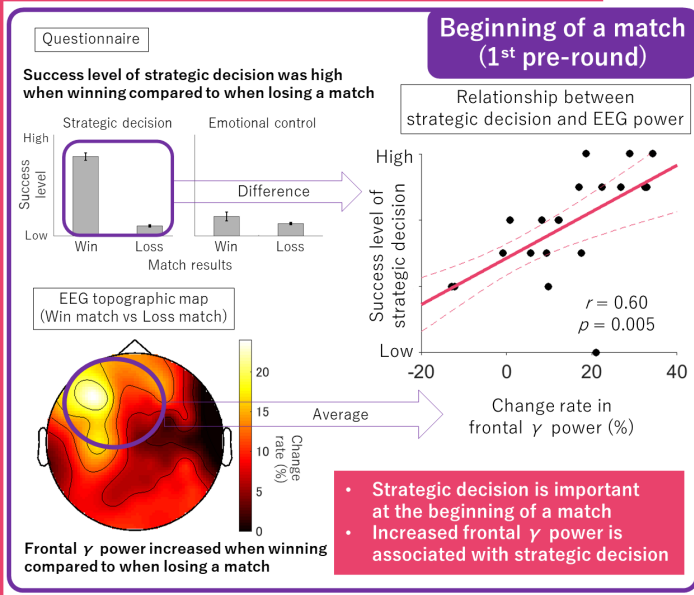
- No good plan
- Not calm
- Good plan
- Calm



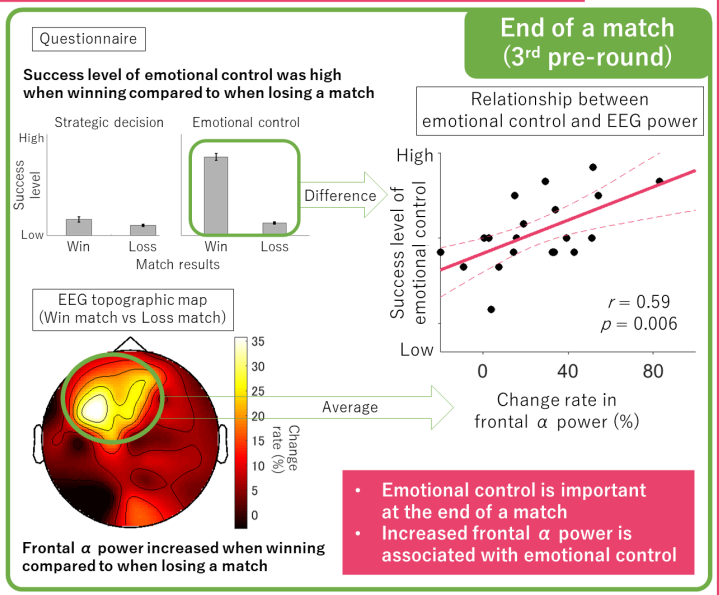
Match format and win/loss patterns of a FVG



Strategic decision and related neural oscillations at the beginning of a match



Emotional control and related neural oscillations at the end of a match



References

[1] S. Minami, K. Watanabe, N. Saijo, M. Kashino, "Amplitude of neural oscillations in the parietal area is associated with the results of esports competitions," in *Proc. IEEE Conference on Games (CoG)*, 2021 (in press).

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