

テレビゲーム熟達者の脳活動に関するケーススタディ

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脳活動とテレビゲームの関係に着目した関連研究の多くで、テレビゲーム実施時の前頭前野活動の低下が報告されてきた。しかし、これらはゲーム初中級者を対象としたものに限られ、熟達者の脳活動の活動様相および熟達にともなう変化については未解明の点が多い。本研究では 2 名の熟達者が「未熟達のゲーム」に訓練を重ねて熟達していく過程で脳活動にどのような変化が起こるのかを運動技能とあわせて検討を行った。その結果、当該熟達者の前頭前野活動は、学習初期に上昇し、学習中期には低下し、学習後期には再び上昇するという U-shape を示した。

A Case Study on the Brain Activity of Video Game Masters

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Previous studies have focused on the relation between playing video games and brain activity. Most of these studies have reported that the prefrontal cortex shows decrease in its activity during playing video games. However, it seems reasonable to assume that the effect of playing games on the brain activity is dependent on the player's mastery level. As an initial step to address this issue, we examined brain activity at the prefrontal cortex while two top-level game players ("masters") were learning to master video games using functional near-infrared spectroscopy (fNIRS). Results demonstrated that their prefrontal activity during playing the game varied with the stage of learning; it increased at the early stage of learning, then decreased, and increased again at the later stage. These findings imply that prefrontal activity during playing the game might change in relation to learning stage and expertise, presumably which would provide implication for designing and programming a novel video game.