暴力的なビデオゲームは脳機能を変化させる（Abstract # SST11-06）

暴力的なビデオゲームで1週間遊ぶことにより認知機能および感情コントロールに関連した脳領域が変化する

One week of violent video game play alters brain regions associated with cognitive function and emotional control

暴力的なビデオゲーム遊びの長期的な脳への影響を若年男性において機能的磁気共鳴画像（fMRI）で解析した結果、認知機能および感情コントロールに関連した脳領域の変化が認められた、と2011年Radiological Society of North America学会で発表された。過去に暴力的なビデオゲームへの接触の少ない18～29歳の健康な成人男性を2群に無作為割り付けした。1つ目の群は家で10時間のシューティングゲームを1週間行い、次の週はゲームを止めた。もう2つ目の群は暴力的なゲームを全く行わなかった。各参加者は、感情的干渉課題および認知阻害計算課題を行っている間のfMRIを、スタディ開始時に加えフォローアップの1および2週後に施行された。1週後に、ビデオゲーム群においては、彼らのベースライン時およびコントロール群と比較し、感情的な課題を行っている間の左下前頭葉の活性化が少なく、計算課題施行中の前帯状皮質の活性化が少なかった。ゲームを止めてから2週後にはこの高次領域の変化は消失していた。

Full Text

A functional magnetic resonance imaging (fMRI) analysis of long-term effects of violent video game play on the brain has found changes in brain regions associated with cognitive function and emotional control in young adult men after one week of game play. The results of the study were presented at the 2011 annual meeting of the Radiological Society of North America (RSNA).

The controversy over whether or not violent video games are potentially harmful to users has raged for many years. But there has been little scientific evidence demonstrating that the games have a prolonged negative neurological effect.

"For the first time, we have found that a sample of randomly assigned young adults showed less activation in certain frontal brain regions following a week of playing violent video games at home," said Yang Wang, M.D., assistant research professor in the Department of Radiology and Imaging Sciences at Indiana University School of Medicine in Indianapolis. "These brain regions are important for controlling emotion and aggressive behavior."

For the study, 22 healthy adult males, age 18 to 29, with low past exposure to violent video games were randomly assigned to two groups of 11. Members of the first group were instructed to play a shooting video game for 10 hours at home for one week and refrain from playing the following week. The second group did not play a violent video game at all during the two-week period.

Each of the 22 men underwent fMRI at the beginning of the study, with follow-up exams at one and two weeks. During fMRI, the participants completed an emotional interference task, pressing buttons according to the color of visually presented words. Words indicating violent actions were interspersed among nonviolent action words. In addition, the participants completed a cognitive inhibition counting task.

The results showed that after one week of violent game play, the video game group members showed less activation in the left inferior frontal lobe during the emotional task and less activation in the anterior cingulate cortex during the counting task, compared to their baseline results and the results of the control group after one week. After the second week without game play, the changes to the executive regions of the brain were diminished.

"These findings indicate that violent video game play has a long-term effect on brain functioning," Dr. Wang said.

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