

Playing Video Games Enhances Visual Attention in Children

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Abstract

Previous research has documented specific changes in visual attention as a result of playing action-based video games (Green and Bavelier, 2003). Typically, these games require players to make responses to selected stimuli, distribute their attention across the visual field, and orient to multiple moving targets. We sought to extend these findings by examining whether children who play these types of video games display changes in visual spatial attention relative to non-game playing children. A total of 114 children between the ages of 7 and 17 years were tested. Children were classified post-hoc as 'game players' if they reported playing first-person perspective action video games or ball-based sports video games in the 12 months prior to testing. The effect of age on the measures tested was first assessed by comparing 7-10, 11-13 and 14-17 years old. The impact of game playing was then assessed by comparing gamers and non gamers across these age ranges. Consistent with previous findings in the literature, game players demonstrated faster processing in a selective visual search task. More interestingly, game players exhibited a larger flanker compatibility effects (administered as part of the Attentional Network Test – Fan et al., 2002) and better performance on a children friendly version of the Useful Field of View (Ball et al., 1993), similarly to what Green and Bavelier (2003) have observed in adult gamers. These findings indicate enhanced visuo-spatial attention in young gamers compared to non-gamers. Furthermore, game players could apprehend more objects as measured by a ball tracking task (Pylyshyn and Storm, 1988), indicating an increase in the number of objects that can be attended. This confirmed our hypothesis that playing video games enhances different aspects of visual spatial attention in children as well as in adults. Thus, the normal developmental time course of visual spatial attention skills appears to be not only determined by maturational factors, but also quite plastic in the face of activities such as action or ball-sports gaming. This opens the possibility of using video gaming as a tool to potentiate visual attention skills in patients, young or old, with visual deficits.

Keywords

Visual attention, video games, UFOV, ball tracking, children

References

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