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- **Summaries of newsworthy papers:**
  - Brain’s reward system may be altered in excessive video-game players
  - Less intrusive therapy for Tourette’s Syndrome

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**Brain’s reward system may be altered in excessive video-game players**

DOI: 10.1038/TP.2011.53

The structure and activity in a part of the brain associated with reward processing is altered in frequent video-game players, according to research published online in this week’s *Translational Psychiatry*. These results suggest that rewarding stimuli are processed differently in frequent gamers.

The dopamine-related ventral striatum, a structure of the brain’s reward system, has been implicated in gaming and computer gambling in previous studies; however, structural brain correlates of videogame playing have not been investigated. Analyzing MRI scans of 154 14-year-olds, Simone
Kühn, Jürgen Gallinat and colleagues find that frequent gamers have higher left striatal grey matter volume compared to moderate gamers. In addition, frequent gamers display enhanced functional MRI activity overlapping with the high-volume grey matter region when not winning in a gambling task.

The observed volumetric differences in ventral striatum could likewise be a precondition rather than consequence of frequent gaming. Thus, individuals with higher ventral striatal volume might experience video-gaming as more rewarding than those with lower ventral striatal volume, facilitating skill acquisition and leading to further reward. These findings demonstrate that the ventral striatum plays a significant role in excessive video-game playing and contributes to our understanding of behavioral addiction.

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Less intrusive therapy for Tourette's Syndrome

DOI: 10.1038/TP.2011.51

Deep brain stimulation to just one hemisphere of two patients with Tourette's Syndrome proved effective by significantly diminishing their repetitive symptoms, reports a study published this week in Translational Psychiatry. Though this kind of stimulation to both sides of the brain has been shown to reduce tics and repetitive symptoms of Tourette’s, this is the first time that unilateral stimulation has been shown to be just as effective.

For over a decade, deep brain stimulation has been therapeutically used to reduce Tourette’s symptoms in patients who have not been helped by medication or other forms of therapy. By stimulating the thalamus—important in motor function—as well as other areas on both sides of the brain, tic frequency and severity can be reduced, though there is concern about the intrusiveness of such a surgery.

Jens Kuhn and colleagues show the unilateral thalamic stimulation is just as effective in two patients, while being less invasive. One year after the deep brain stimulation, one patient had a 100% symptom reduction, and the other a 63% symptom reduction, with similar improvements in motor and vocal tics. Next to its potential benefits on motor and vocal tics, Kuhn and colleagues discuss the ethical implications of the intervention, including positive effects on mood and global functioning but also less desirable cognitive side effect.

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