

Prenatal smoke exposure impacts reward processing

June 25 2013



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Kathrin U. Müller, from Technische Universität Dresden in Germany, and colleagues assessed data from a subsample of 177 healthy adolescents (aged 13 to 15 years) exposed to prenatal maternal cigarette smoking and 177 matched, nonexposed peers from the multicenter European IMAGEN study to compare [brain responses](#) during reward processing. Functional [magnetic resonance imaging](#) was used to measure reward response.

The researchers found that there was a significantly weaker response in the [ventral striatum](#) during reward anticipation in both the left and right sides among prenatally exposed adolescents compared with their nonexposed peers. During reward receipt there were no differences found in the responsivity of the right or left side of the ventral striatum.

"The weaker responsivity of the ventral striatum to reward anticipation in prenatally exposed adolescents may represent a risk factor for substance use and development of addiction later in life," the authors write. "Future analyses should assess whether prenatally exposed adolescents develop an increased risk for substance use and addiction and which role the reported neuronal differences during reward anticipation plays in this development."

Several authors disclosed financial ties to the pharmaceutical industry.

More information: [Abstract](#)
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Citation: Prenatal smoke exposure impacts reward processing (2013, June 25) retrieved 13 February 2023 from <https://medicalxpress.com/news/2013-06-prenatal-exposure-impacts-reward.html>

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