

23 May 2007 In Utero Exposure to Smoking by Mother Can Increase Risk of ADHD

Women smokers who become pregnant have long been encouraged to reduce or eliminate their nicotine intake. A new study being published in the June 15th issue of *Biological Psychiatry* provides further reason to do so, as it presents new evidence that in utero exposure to smoking is associated with attention deficit/hyperactivity disorder (ADHD) problems in genetically susceptible children.

The study investigated male and female twin pairs, aged 7–19 years, to assess the relationship between genetic variations, prenatal substance exposures, and ADHD sub-types. Rosalind Neuman, Ph.D., one of the study's authors, explains the findings: "When genetic factors are combined with prenatal cigarette smoke exposure, the ADHD risk rises very significantly. When the child has either or both of two specific forms of dopamine pathway genes (DAT and DRD4), and was exposed to cigarette smoking in utero, the risk for having combined type ADHD (many inattention and hyperactive/impulsive symptoms) increased 3 to 9 fold."

John H. Krystal, M.D., Editor of *Biological Psychiatry* and affiliated with both Yale University School of Medicine and the VA Connecticut Healthcare System, adds, "These data highlight a new risk of maternal smoking, increasing the risk for ADHD in their children. ADHD, in turn, increases the risk for substance abuse. Thus, it appears that in utero exposure to nicotine may help to perpetuate a cycle across generations that links addiction and behavioral problems."

The article is "Prenatal Smoking Exposure and Dopaminergic Genotypes Interact to Cause a Severe Subtype" by Rosalind J. Neuman, Elizabeth Lobos, Wendy Reich, Cynthia A. Henderson, Ling-Wei Sun and Richard D. Todd. All authors are from the Department of Psychiatry, Washington University School of Medicine, St. Louis, Missouri. The article appears in *Biological Psychiatry*, Volume 61, Issue 12 (June 15, 2007), published by Elsevier.