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ADHD Drug Alters the Brain in Young Children

A December 13, 2003 article on WebMD, featured research showing that early use of the commonly prescribed ADHD drug, Ritalin, can lead to depression later in life. This evidence is based on new studies performed on rats. The article does note that it is an open question as to whether what passes for depression in lab rats has anything to do with depression in humans, but the evidence of the effect on the brain, according to this study was clear.

The findings come from a research team led by William A. Carlezon Jr., PhD, director of the behavioral genetics laboratory at McLean Hospital and associate professor at Harvard Medical School. The study appeared in the December 15, 2003 issue of Biological Psychiatry.

In a news release Carlezon was quoted as saying, "Rats exposed to Ritalin as juveniles showed large increases in learned-helplessness behavior during adulthood, suggesting a tendency toward depression. These rats also showed abnormally high levels of activity in familiar environments. This might reflect basic alterations in the way rats pay attention to their surroundings."

The article stated that there are some close similarities between Ritalin and Cocaine. According to the article, although Ritalin and Cocaine have different effects on humans, their effects on the brain are very similar. The article noted that when given to preteen rats, both drugs cause long-term changes in behavior. Carlezon and colleagues explained that the drug short-circuits the brain's reward system. That would make it difficult to experience pleasure -- a "hallmark symptom of depression."

"These experiments suggest that preadolescent exposure to Ritalin in rats causes numerous complex behavioral adaptations, each of which endures into adulthood," Carlezon and colleagues conclude. "This work highlights the importance of a more thorough understanding of the enduring neurobiological effects of juvenile exposure to psychotropic drugs."

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