

Study suggests ADHD drugs may affect male puberty

September 20 2011, by Deborah Braconnier

(Medical Xpress) -- A new study released this week in the *Proceedings of the National Academy of Science* reveals that the medication methylphenidate, best known as Ritalin, may delay puberty in males. The researchers caution that this study was performed in monkeys and more research needs to be done before it can determine possible effects on humans.

Ritalin is a common medication prescribed to millions of children diagnosed with [attention deficit hyperactivity disorder](#), or ADHD. This a commonly diagnosed behavioral disorder in children. It is more common in boys and affects some 3 to 5 percent of school-aged children and causes symptoms such as over activity and inattentiveness.

The study was conducted on young [rhesus monkeys](#) under 5 years old. The monkeys were divided into groups with one receiving a low dose of methylphenidate, similar to the dose a human ADHD patient would receive, and the other group receiving a high dose, or 10 times what is used in humans. A separate control group was given only the material that the drug was dissolved in for the other monkeys but not the drug itself. These doses were administered over a 40-month time frame. The study was designed to evaluate possible toxic effects of the drug, such as [DNA damage](#), so the effects they discovered were surprising.

The researchers, including Dr. Donald Mattison from the National Institute of Child Health and Human Development, discovered that testicular descent was significantly postponed in the monkeys that

received the high dose of [methylphenidate](#) and lower blood testosterone levels and testicular volume were present in both sets of monkeys. The effects were not permanent and by the time the monkeys reached the age of 5, they were at similar stages of puberty compared to untreated monkeys.

Mattison cautions that it is too early to assume there may be [clinical implications](#). This is a single study and more work needs to be done to see if it is repeatable. He warns that parents should speak with their child's physician before making any changes to their medications and physicians should consider the possible effects of puberty when prescribing the medication.

More information: Pubertal delay in male nonhuman primates (*Macaca mulatta*) treated with methylphenidate, Published online before print September 19, 2011, [doi: 10.1073/pnas.1102187108](https://doi.org/10.1073/pnas.1102187108)

Abstract

Juvenile male rhesus monkeys treated with methylphenidate hydrochloride (MPH) to evaluate genetic and behavioral toxicity were observed after 14 mo of treatment to have delayed pubertal progression with impaired testicular descent and reduced testicular volume. Further evaluation of animals dosed orally twice a day with (i) 0.5 mL/kg of vehicle (n = 10), (ii) 0.15 mg/kg of MPH increased to 2.5 mg/kg (low dose, n = 10), or (iii) 1.5 mg/kg of MPH increased to 12.5 mg/kg (high dose, n = 10) for a total of 40 mo revealed that testicular volume was significantly reduced (P

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