

Youths prescribed antipsychotics gain body fat, have increased diabetes risk

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Ginger E. Nicol, M.D. Credit: Washington University School of Medicine

Psychiatrists know that patients who take antipsychotic drugs tend to gain weight. Now, new research conducted at Washington University School of Medicine in St. Louis shows that children and adolescents treated with antipsychotics for as little as 12 weeks experience significant gains in body fat and also become less sensitive to insulin.

The findings, from researchers at Washington University and Florida Atlantic University, are published June 13 in the journal *JAMA Psychiatry*.

Although originally developed and approved to treat conditions such as pediatric-onset schizophrenia, [antipsychotic drugs](#) are prescribed to treat attention deficit hyperactivity disorder (ADHD) in many youths who don't respond to stimulant medications, such as Ritalin.

"Antipsychotic medications can be helpful for many as a treatment for behavior disorders," said Ginger E. Nicol, MD, the study's first author and an associate professor of child psychiatry at Washington University. "But we know these drugs also have side effects involving fat gain and insulin resistance, important precursors to diabetes and cardiovascular disease. Our results underscore the need for greater vigilance regarding side effects when prescribing these medications."

The researchers studied 144 St. Louis-area youths, ages 6 to 18, who were prescribed [antipsychotic](#) drugs to treat disruptive behavior disorders. Children in the study were chosen randomly to receive one of three antipsychotics: aripiprazole, olanzapine or risperidone.

Using dual-energy X-ray absorptiometry (DEXA) scans, the researchers measured patients' whole body fat before they were prescribed antipsychotic drugs; after six weeks of treatment; and at 12 weeks, when the study concluded. The youths also received MRI scans at the start of the study and 12 weeks later, measuring subcutaneous and visceral fat in

the abdomen—known risk factors for diabetes, high blood pressure and cardiovascular disease. The children's sensitivity to insulin also was measured at the beginning and end of the 12-week study period.

"At the start of the study, about 30 percent of the youths in our sample were overweight or obese, which is exactly the same rate we see in the general population," said John W. Newcomer, MD, the study's principal investigator and a professor of integrated medical science at Florida Atlantic University's Charles E. Schmidt College of Medicine. "But after only 12 weeks of treatment, the rate of those considered overweight or obese had risen to 46.5 percent. We essentially went from one in three children meeting criteria for being overweight or obese, to one in two meeting criteria."

One [drug](#) in particular—olanzapine—produced the largest increases in body fat, but fat also increased significantly in children taking the other two medications. The DEXA scans showed that about half of the weight gain was water, and half was new fat.

"We knew these drugs were causing weight gain, but we didn't know how much of that gain was fat," said Newcomer, who also is an adjunct professor of psychiatry at Washington University. "We also knew that children taking antipsychotics had an increased risk of diabetes. But until now, no one had connected those dots through a pathway involving increases in body fat and decreases in insulin sensitivity."

The gains in body fat and losses in insulin sensitivity were observed whether or not the youths were taking stimulant medications. That's despite the fact many children on Ritalin or other stimulants lose weight or grow more slowly than their peers who don't take those drugs.

"Some clinicians hoped that stimulant treatment might offset antipsychotic-induced weight and fat increases," Nicol said. "But in our

study, stimulants didn't seem to make any difference."

Because [antipsychotic medications](#) offer psychiatric benefits in many children who are not psychotic but have disruptive behavior disorders, Nicol is studying interventions aimed at helping prevent some of the [body fat](#) increases associated with antipsychotic treatment.

"Clinicians are often presented with challenging circumstances where a rapid intervention is needed," she said. "For example, [children](#) with disruptive behaviors often are suspended from school, and treatment may offer them the ability to return. But the decision to use antipsychotic medications must be fully informed by all of the risks, as well as the potential benefits, of treatment."

More information: Nicol GE, Yingling MD, Flavin KS, Schweiger JA, Patterson BW, Schechtman KB, Newcomer JW. Metabolic effects of antipsychotics in children (MEAC): A randomized clinical trial assessing treatment effects on adiposity and insulin sensitivity. *JAMA Psychiatry*, June 13, 2018. [jamanetwork.com/journals/jamap...psychiatry.2018.1088](https://jamanetwork.com/journals/jamapsychiatry/articleabstract/2018.1088)

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