

Obese children metabolize drugs differently than healthy weight children

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Researchers from the University of Minnesota College of Pharmacy have provided the first evidence-based data on changes in drug metabolism in obese children as compared to healthy weight children.

The study, conducted by L'Aurette Johnson and Manoj Chiney in the Department of Experimental and Clinical Pharmacy, evaluated [drug metabolism](#) in sixteen healthy weight [children](#) and nine obese children.

"We have known for years that drugs metabolize differently in obese adults as compared to healthy weight adults," said Johnson. "But, there has been very little, if any, information available that specifically addresses the consequences of obesity on drug metabolism in children. Without this information, our ability to identify optimal drug dosing in children often relies on trial and error approaches."

In the study, Johnson and Chiney examined drug metabolizing enzyme activity in healthy weight and obese children, age 6 to 10 years old. Specifically, they looked at how the children metabolized caffeine and dextromethorphan, a key ingredient in the cough suppressant Robitussin® DM.

They found that [obese children](#) metabolized both drugs at different rates than healthy weight children.

Johnson said this finding is the first of many steps in determining the overall effect of obesity on drug absorption, distribution, metabolism

and elimination in children. She plans to conduct additional research to define the activity of other drug metabolizing enzymes that may also be altered in the pediatric population as a result of obesity.

"Collectively, such knowledge concerning key factors that impact activity of drug metabolizing enzymes in children will have a significant positive impact on the development of optimal drug dosing regimens in children in order to maximize efficacy, while minimizing potential adverse drug effects, in the treatment of serious diseases such as cancer," said Johnson.

Johnson will present the research, which was funded by the NIH National Center for Research Resources "Multidisciplinary Scholar Development Program" 5K12RR023247, at the American Society for Pharmacology and Experimental Therapeutics annual meeting in a poster titled "The effect of obesity on drug metabolism in African-American children." The presentation will occur on Tuesday April 27 at 12:30 pm PST in Exhibit Hall CD of the Anaheim Convention Center.

Provided by Federation of American Societies for Experimental Biology

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