

Methadone and fentanyl in children with obesity



WHY WAS THIS STUDY NEEDED?

Children are considered to be obese when they have excessive body fat that can cause a risk to their health. Nearly 20% of children in the United States are classified as obese. These children receive medicines more often than children without obesity. They often receive higher doses of medicines than children without obesity, because children usually receive doses based on their body weight. How obesity impacts the way children process medications is not well understood.

Methadone and fentanyl are opioids commonly used in children with obesity to treat pain. However, their effectiveness and safety are not well-known in children.

This summary is for a study performed by the Pediatric Trials Network (PTN). The study was titled "[Use of physiologically-based pharmacokinetic modeling to inform dosing of the opioid analgesics fentanyl and methadone in children with obesity.](#)" This study was needed to find out how children's age, obesity status, and genes impact the way their bodies process methadone and fentanyl.

WHAT WERE THE STUDY RESULTS?

Researchers identified how obesity impacts the way children process methadone and fentanyl. Optimal methadone doses for children vary based on a specific gene. Fentanyl doses could be optimized by considering children's age. Importantly, the researchers calculated the results in a way that can be used to discover how other medicines may be processed differently in children with obesity.

WHERE CAN I LEARN MORE ABOUT THIS STUDY?

A summary of the results of this study, as well as related publications and news, can be found at pediatrictrials.org.

WHAT KIND OF STUDY WAS THIS?

Pharmacokinetic studies are done to find out how the human body processes medicines. In this study, researchers examined how the amount of methadone and fentanyl in the children's blood changed over time compared to the dose they received. Understanding how children with obesity process methadone and fentanyl will ensure they receive the right amount to reduce side effects.

WHAT HAPPENED DURING THIS STUDY?

This study used data from 2 PTN studies in which children received methadone and fentanyl. The data set included 52 children with obesity and 35 without, and they were between 2 and 18 years old. Using their data, researchers calculated how children with obesity process methadone and fentanyl compared to children without obesity.

WHO PERFORMED THIS STUDY?

This study was conducted by the PTN, a group of more than 100 research sites around the world that are working to find the safest and most effective ways to use medicines and devices for infants and children. Children aren't just little adults. Their bodies are growing and changing, meaning that they process medicines and react to devices differently than adults. The PTN works to make sure doctors and families have the information they need to give children the best care.

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** This summary was completed in January 2025. Newer information since this summary was written may now exist. This summary includes results from one PTN study. Other studies may find different results.*



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