

Reversing negative effects of maternal obesity

November 8 2017



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A drug that increases energy metabolism may lead to a new approach to prevent obesity in children born to overweight mothers, UNSW Sydney researchers have found.

"There is much excitement about improving metabolism pharmacologically in ways that might be helpful for people with obesity," said Head of Pharmacology in the School of Medical Sciences at UNSW, Professor Margaret Morris.

"Our previous research in animal models showed that overweight expectant rats are more likely to have babies who may have an increased risk of developing obesity later in life. We also found that exercise can reverse most of the [negative consequences](#) of maternal obesity," she said.

"But, we know that exercise for some people is difficult. Some people cannot fit it in their day, and some people cannot exercise for various reasons. Therefore, the research field is interested in thinking about other approaches for this difficult issue to improve health."

This study, led by Professor Morris and published in *Scientific Reports*, examined the effect of a drug called NMN on the negative effects of maternal obesity.

Professor Morris said the reason for using NMN was that, like exercise, it increases the function of mitochondria, which are the powerhouse of our cells and make energy.

During the study, female mice whose mothers were obese were given either a normal diet or a high-fat diet and given [treadmill exercise](#) for nine weeks or NMN for 18 days.

The researchers found that both the NMN treatment and exercise reduced the negative metabolic consequences of [maternal obesity](#) in the offspring. Both interventions reduced the amount of body fat, and led to some improvement in glucose tolerance and markers of mitochondrial function.

"What is really encouraging about our findings is that a short-term NMN treatment of animals from [obese mothers](#) had the same benefit as their siblings who exercised," Professor Morris said.

"Our study offers some promise that we may have another approach that might be appropriate to prevent obesity in children from [overweight mothers](#). However, we do still need to look at other effects of the drug. For instance, we need to make sure it has no toxic effects, which we are following up in other studies."

More information: Golam Mezbah Uddin et al. Nicotinamide mononucleotide (NMN) supplementation ameliorates the impact of maternal obesity in mice: comparison with exercise, *Scientific Reports* (2017). [DOI: 10.1038/s41598-017-14866-z](https://doi.org/10.1038/s41598-017-14866-z)

Provided by University of New South Wales

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