

Metformin used during pregnancy may lead to obesity in children

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Metformin 500mg tablets. Credit: public domain

Metformin, a common drug used to treat type 2 diabetes, is often used during pregnancy where the mother suffers from polycystic ovary syndrome (PCOS). A new study from the Norwegian University of Science and Technology (NTNU) has recently shown that this results in fewer miscarriages and premature births.

But a companion Norwegian study shows that [children](#) who are exposed to metformin in the womb may later have a higher risk of obesity.

"We can't rule out that these children may have more [health problems](#) as adults," says Ph.D. candidate Liv Guro Engen Hanem at NTNU's Department of Clinical and Molecular Medicine.

Hanem is the first author of an article published in *The Lancet Child and Adolescent Health*.

The results are contrary to the researchers' original hypothesis. They assumed that the children would have a lower risk of obesity later, due to better growth conditions in utero.

Millions of pregnant women use metformin, partly due to PCOS but most often to treat gestational diabetes. Few [negative side effects](#) have been demonstrated from its use, and none for the foetus. But so far we know little about possible long-term effects.

Higher BMI and bigger belly

The results show that eight-year-old children who were exposed to metformin in utero (in the womb) on average had a higher body mass index (BMI) and waist circumference compared to children of women in a control group. This [control group](#) was given an inactive placebo instead.

Higher BMI can lead to negative effects for children later in life that are connected to obesity-related ailments.

Children born to mothers with PCOS but not exposed to metformin did not have elevated BMI, weight or height. These children, when measured as 8-year-olds, did have a larger waist circumference as compared to children with mothers who did not have PCOS, however. Larger [waist circumference](#) is associated with an unfavourable distribution of body fat.

The article concludes by noting, among other things, that the benefits of metformin use in pregnancy must be weighed against these possible long-term health problems in the offspring.

Research method

The research group examined 257 [pregnant women](#) (274 pregnancies) with PCOS during the period 2005 to 2009. The women received [metformin](#) or a placebo during pregnancy.

Researchers conducted follow-up measurements of height, weight, BMI and abdominal circumference on 141 of these children when they were five to 10 years old. Metformin-exposed children were compared with placebo-exposed children. The researchers compared the placebo-exposed children (of mothers with PCOS) with children from a Norwegian reference population.

More information: Liv Guro Engen Hanem et al. Intrauterine metformin exposure and offspring cardiometabolic risk factors (PedMet study): a 5–10 year follow-up of the PregMet randomised controlled trial, *The Lancet Child & Adolescent Health* (2019). [DOI: 10.1016/S2352-4642\(18\)30385-7](#)

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