

Following gestational diabetes, obese women who put on 5 kg much more likely to develop type 2 diabetes

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New research published in *Diabetologia* (the journal of the European Association for the Study of Diabetes) shows that in women who have developed gestational diabetes mellitus (GDM) during pregnancy, being obese before the pregnancy and putting on more weight after it massively increases the risk of later developing type 2 diabetes (T2D).

For [women](#) who are obese before pregnancy (BMI 30 or higher) and put on 5 kg or more after giving birth, the risk of developing T2D is 43 times higher than for women who remain lean before pregnancy and gain 5 kg or less. The research, which underlines the importance of maintaining a healthy body [weight](#) both before and after pregnancy, is led by Dr Cuilin Zhang, senior investigator, and Dr Wei Bao, post-doctoral fellow, Eunice Kennedy Shriver National Institute of Child Health and Human Development at the US National Institutes of Health, Rockville, MD, USA, and colleagues.

The worldwide epidemics of both T2D and GDM are increasing in parallel, as risk factors for both conditions (unhealthy diet, obesity, lack of physical activity) increase in almost all countries of the world. Previous studies have shown that up to a third of women with T2D have a history of GDM during pregnancy, and as a result, women with a history of GDM are usually advised to control their weight after delivery.

In this new study, the authors used data from women with a history of GDM in the Nurses' Health Study II (NHS II), as part of the ongoing Diabetes & Women's Health study. The Diabetes & Women's Health Study aims to identify determinants of the progression from GDM to T2D among participants in NHS II and the Danish National Birth Cohort. Women were eligible for the present study if they reported incident GDM from 1991 to 2001, and this meant 1695 women were included in this study. They were followed up until the return of the 2009 follow-up questionnaire. The 2001 questionnaire was the last time questions regarding GDM were included, as the majority of NHS II participants had passed reproductive age by then.

The data showed 259 incident cases of [type 2 diabetes](#) during up to 18 years of follow-up. There was an increased risk of developing T2D of 16% for each increase of one unit (1 kg/m²) in either baseline BMI or most recent BMI. Moreover, each 5 kg increment of weight gain after GDM development was associated with a 27% higher risk of T2D. Jointly, women who had a BMI of 30 or higher, and gained 5 kg or more after GDM, had a 43-times increased risk of developing T2D compared with women who had a BMI of 25 or less at baseline and gained 5 kg or less after GDM.

Upon further analysis, these associations of BMI and weight change with risk of T2D persisted across different categories of age, family history of [diabetes](#), diet quality, physical activity, breastfeeding duration and time since GDM pregnancy.

The authors say their findings support the recent call to action from the National Diabetes Education Programme (NDEP) of NIH, which underlines the importance of weight management after giving birth after a diagnosis of GDM.

"Before our study, the associations of BMI and weight change with risk

of type 2 diabetes among women with a history of GDM—a population at high risk of type 2 diabetes—had not been comprehensively examined," says Dr Zhang.

The authors conclude: "Among women with a history of GDM, we observed significant and positive associations of risk of type 2 diabetes with initial BMI within 2 years after diagnosis of GDM, the most recent BMI before diagnosis of type 2 diabetes and weight gain after GDM. Our findings provide evidence to support the importance of achieving and maintaining a healthy weight in these high-risk women to prevent future development of type 2 diabetes."

Provided by Diabetologia

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