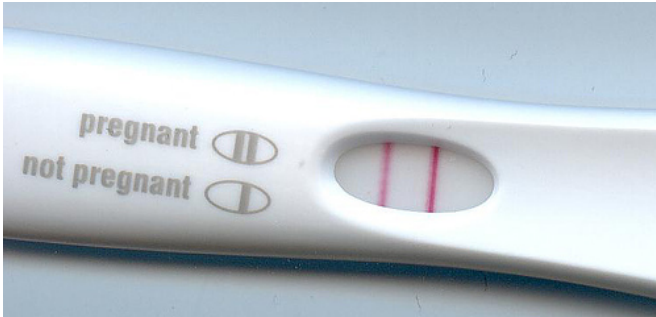


Maternal obesity and diabetes in pregnancy result in early overgrowth of baby in the womb

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Pregnancy test. Credit: public domain

The babies of obese women who develop gestational diabetes are five times as likely to be excessively large by six months of pregnancy, according to new research led by the University of Cambridge. The study, which shows that excessive fetal growth begins weeks before at-risk women are screened for gestational diabetes, suggests that current screening programmes may take place too late during pregnancy to prevent lasting health impacts on the offspring.

Gestational diabetes is a condition that can affect women during [pregnancy](#), with those who are obese at greater risk. As well as affecting the mother's health, the condition also causes the [unborn child](#) to grow larger, putting the mother at risk during childbirth and increasing the likelihood that her offspring will develop obesity and diabetes during later life. The condition can usually be controlled through a combination of diet and exercise, and medication if these measures fail.

Women are screened for the condition through a [blood glucose test](#) at around 8-12 weeks into pregnancy. Current guidelines in the UK and the USA recommend that mothers found to be at

greatest risk should then be offered a full test at between 24 and 28 weeks into pregnancy; however, in practice the majority of women are screened at the 28 week mark.

Researchers at the Department of Obstetrics & Gynaecology at the University of Cambridge analysed data from the Pregnancy Outcome Prediction study, which followed more than 4,000 first time mothers using ultrasound scans to assess the growth of their babies in the womb. They measured the abdominal and head circumference of the foetuses and compared the growth in women who developed gestational diabetes with those who did not. The results are published today in the journal *Diabetes Care*.

Of the 4,069 women studied, 171 (4.2%) were diagnosed with gestational diabetes at or beyond 28 weeks. The researchers found no association between the size of the child at 20 weeks and the mother subsequently developing gestational diabetes. However, they found that the foetuses of women subsequently diagnosed with gestational diabetes grew excessively prior to diagnosis, between 20 and 28 weeks. Hence, the babies were already large at the time of diagnosis, and their findings suggest that the onset of fetal growth disorder in gestational diabetes predates the usual time of screening.

The researchers also studied women who were obese, as it is well recognised that maternal obesity is a risk factor for childhood obesity. Even in the absence of diabetes, the babies of obese women were also twice as likely to be big at 28 weeks. The combination of obesity and gestational diabetes was associated with an almost 5-fold risk of excessive fetal growth by the 28 week scan.

"Our study suggests that the babies of women

subsequently diagnosed with gestational diabetes are already abnormally large by the time their mothers are tested for the disease," says Dr Ulla Sovio from the Department of Obstetrics and Gynaecology at the University of Cambridge, the study's first author. "Given the risk of complications for both mother and child from gestational diabetes, our findings suggest that screening women earlier on in pregnancy may help improve the short and long term outcomes for these women.

"Early screening may be particularly beneficial for obese women, as [fetal growth](#) is already abnormal by 20 weeks among these women. Any intervention aimed at reducing the risk of abnormal birthweight in the infants of [obese women](#) may need to be implemented even earlier."

Senior author Professor Gordon Smith, also from the University of Cambridge, adds: "We know that the offspring of [women](#) with gestational diabetes are at increased risk of childhood obesity, but so far no clinical trials have successfully demonstrated that screening and intervention in pregnancy reduces this risk. Our study suggests a possible explanation: screening and intervention is taking place when the effects of gestational diabetes are already manifested in the foetus.

"The evidence from our study indicates that there is an urgent need for trials to assess the effect of earlier screening, both on the outcome of the pregnancy and the long term health for the offspring."

Janet Scott, Research and Prevention Lead for the stillbirth charity Sands said: "We know from recent enquiries that failure to screen for [gestational diabetes](#) currently plays a part in a significant number of potentially avoidable stillbirths at term. Good risk assessment is crucial to avoiding harm to mothers and babies and we welcome these important findings which have real potential to inform better antenatal care for these high risk pregnancies. We are delighted to have supported this research, funded with donations from bereaved families."

More information: Sovio, U et al. Accelerated fetal growth prior to diagnosis of gestational

diabetes mellitus: a prospective cohort study of nulliparous women. *Diabetes Care*; 8 April 2016; DOI: [10.2337/dc16-0160](https://doi.org/10.2337/dc16-0160)

Provided by University of Cambridge

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