Mothers’ obesity increases the risk of foetal and infant death

Women who are obese during early pregnancy have a significantly increased risk of their baby dying before, during or up to one year after birth, according to Newcastle University researchers.

In a paper published in reproductive medicine journal Human Reproduction, they studied 40,932 pregnancies involving deliveries of a single baby during 2003 to 2005 at five maternity units in the north of England.

They found that women who were obese in early pregnancy had nearly double the risk of the baby dying in the womb (called foetal death) or up to one year after birth (called infant death), than women who were of recommended weight.  
  
The study found there were nearly eight more foetal and infant deaths per 1000 births among obese women than among women of the recommended body mass index (BMI).

The total (absolute) risk among obese women was 16 in every 1000 births (1.6%) compared to nearly nine per 1000 births (0.9%) in normal weight women.

Obese women were categorised as having a BMI of 30 kg/m2 or more and recommended weight a BMI of between 18.5-24.5 kg/m2.   
  
[Dr Ruth Bell](http://www.ncl.ac.uk/ihs/people/profile/ruth.bell), clinical senior lecturer in the Institute of Health and Society at Newcastle University and associate director at the Regional Maternity Survey Office (RMSO), said: “It’s important to remember that most women will deliver a healthy live baby, regardless of their weight at the start of pregnancy.

What’s key is that women should be helped to achieve a healthy weight before they become pregnant or after the baby is born.

Our research shows that this will give the baby the best possible start in life.

Women should not try to lose weight during pregnancy, but should ensure they eat a balanced healthy diet.”  
   
The researchers also examined BMI as a continuous variable, discovering a V-shaped pattern of risk, with the lowest risk among women with a BMI of 23, and increased risk at higher and lower BMIs.

Co-author Peter Tennant, research assistant at Newcastle University, said: “We are the first investigators to examine the continuous relationship between BMI and foetal and infant deaths.

Our study suggests the optimal BMI, for the child at least, is somewhere around 23, but further research is needed to confirm this.”

One reason for the increased risk of foetal and infant death in obese women was due to a higher proportion of deaths due to pre-eclampsia, a serious pregnancy complication characterised by high blood pressure and protein in the urine.

However deaths due to other causes were also more common in obese women.

Professor Judith Rankin, professor of maternal and perinatal epidemiology at Newcastle University and academic director at the RMSO who is also an author on the paper explained: “There are likely to be a number of reasons why obesity is associated with foetal and infant death and we don’t yet know the full story.

For example, there is an increased risk of high blood pressure or diabetes developing during pregnancy.

Understanding the risks associated with obesity is helpful for healthcare professionals caring for pregnant women, so that additional monitoring can be provided as necessary.”

The researchers adjusted their results to take account of the mothers’ age, ethnicity, smoking status, socioeconomic status, and for the birth weight and gestational age of the babies, and excluded pregnancies where the baby had a congenital anomaly (e.g. spina bifida) or where the mother had a history of diabetes – both of which are associated with maternal obesity and increase the risks of foetal and infant death.

One limitation, however, was that the study used weight and height information reported by the women and not measured by health professionals.

Dr Bell said: “It is important that all women should have their weight and height measured – not self reported – at the start of their pregnancy and that this is recorded in hospital systems.”

The study used information collected routinely during the women's antenatal visits, and so could not examine whether lifestyle factors such as diet, exercise, alcohol and caffeine consumption influenced pregnancy risks.

Concluding their paper, the authors warn: “Given the rising prevalence of obesity in the population of pregnant women, the rates of miscarriage, stillbirth and infant mortality can be anticipated to increase.”

Further research is underway by the team to understand how to reduce these risks.

**Publication:** Maternal body mass index and the risk of fetal and infant death: a cohort study from the North of England”, by P.W.G. Tennant, J. Rankin, and R. Bell. Human Reproduction journal. doi:10.1093/humrep/der052

Foetal death included miscarriages and stillbirths any time from 20 weeks gestation onwards.

published on: 6th April 2011