

Consuming small amounts of caffeine when pregnant may affect the growth of an unborn child

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Consuming caffeine at any time during pregnancy is associated with an increased risk of fetal growth restriction (low birth weight), according to research published on bmj.com today.

Although some previous studies have also shown this, this BMJ study additionally shows that any amount and type of caffeine intake—from tea, cola, chocolate, cocoa, and some prescription drugs, as well as coffee—is linked with relatively slower fetal growth.

Dr Justin Konje and colleagues from the University of Leicester as well as collaborators from the University of Leeds, examined the association of maternal caffeine intake and individual caffeine metabolism on birth weight.

From two large teaching hospitals in the UK between September 2003 and June 2006 the authors recruited 2645 low risk pregnant women of average age 30, who were between 8-12 weeks pregnant. They used a caffeine assessment tool (CAT) to record caffeine intake from all possible dietary sources in the four weeks before and throughout pregnancy, and also used a saliva sample test to calculate individual caffeine metabolism.

The researchers report that the average caffeine intake during pregnancy was 159mg/day, much lower than the limit of 300mg/day recommended

by the UK government's Food Standards Agency. Interestingly, 62% of the caffeine use reported came from tea. Other sources were coffee (14%), cola (12%), chocolate (8%), and soft drinks (2%).

Most of the babies were born at full term, with an average birth weight of 3450g (which is around the UK average), while 4% were born prematurely, 0.3% were stillborn, and 0.7% were miscarried late. Overall, the results confirmed that these were low risk pregnancies. However, the authors found a 'dose-response relationship', showing that increasing caffeine intake was associated with increasing risk of fetal growth restriction (FGR).

Compared to pregnant women consuming less than 100mg/day (the equivalent of less than one cup of coffee), the risk estimates of having a lower birth weight baby increased by 20% for intakes of 100-199mg/day, by 50% for those taking between 200-299mg/day, and by 40% for over 300mg/day.

There was no level of caffeine intake at which the increased risk of FGR stopped increasing during pregnancy. Caffeine consumption of more than 100mg/day, the equivalent of one cup of coffee, was associated with a reduction in birth weight of 34-59g in the first, 24-74g in the second, and about 66-89g in the third trimesters. This effect was significant and consistent across all trimesters with consumption of over 200mg/day. The authors also noted that the link between caffeine and FGR was stronger in women who metabolised caffeine more quickly.

The authors explain that, although these reductions in birth weight may seem small given that the average birth weight is over 3kg, a drop of 60-70 g might be important for a baby that was already small and at risk. Pregnant women should make every effort to significantly reduce their caffeine consumption before and during pregnancy, they warn.

In light of this evidence, the UK Government's Food Standards Agency are altering their guidance on the recommended daily limit of caffeine consumption and reducing it from 300mg to 200mg.

These findings will reinforce the concern that caffeine is a potential fetotoxic substance, say Professor Jørn Olsen and Professor Bodil Hammer Bech, in an accompanying editorial. But the advice offered by the authors could unnecessarily frighten women who have consumed some caffeine during pregnancy.

Pregnant women should reduce their intake of caffeine, but must not replace it with unhealthy alternatives such as alcoholic drinks or soft drinks full of sugar, they add.

Source: British Medical Journal

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