

# Study reveals how high-fat diet during pregnancy increases risk of stillbirth

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Eating a high-fat diet during pregnancy increases the chance of stillbirth, according to new research at Oregon Health & Science University. The new data show eating a typical American diet, which is high in fat, decreases blood flow from the mother to the placenta, the temporary organ that nourishes the unborn fetus. Prior to this study, exactly how a fatty diet contributes to stillbirth was unclear. The findings are published in the June edition of the journal *Endocrinology*.

The study was conducted at the OHSU Oregon National Primate Research Center. Because the placental structure of the Japanese macaque is very similar to that in humans, cause and effect can be better established. The researchers hope their work will inform expectant moms and their physicians about the inherent dangers of a high-calorie, high-fat diet.

"This study demonstrates that maternal diet during [pregnancy](#) has a profound influence on both placental and fetal development. The high-calorie, high-fat diet common in our society has negative effects on placental function and may be a significant contributor to adverse pregnancy outcomes, such as [stillbirth](#)," said Antonio Frias, M.D., principal investigator and assistant professor of obstetrics and gynecology (perinatology/maternal-fetal medicine) in the OHSU School of Medicine.

Previous studies have shown that nearly all adverse outcomes during pregnancy -- abnormal fetal growth, preeclampsia, preterm labor and

stillbirth -- are in some way associated with an abnormally developed, or damaged, placenta, the temporary organ that nourishes the unborn fetus. In addition, maternal obesity has been associated with placental inflammation and dysfunction and an increased risk of stillbirth. Considering these findings, the researchers hypothesized that eating a diet high in fat during pregnancy also may increase the risk of placental inflammation and the risk of stillbirth.

Frias and colleagues observed 24 pregnant Japanese macaques that ate either a diet comprising 32 percent calories from fat or a control diet with 14 percent fat calories for at least four years.

The researchers found the monkeys that ate a high-fat diet experienced a significant decrease in blood flow from the uterus to the placenta, a reduction of 38 percent to 56 percent, and a rise in placental inflammation. This was the case regardless of whether the monkeys were obese or slender. The risk of stillbirth was further compounded, however, when the monkeys were obese with hyper-insulinemia, or pre-diabetes.

Additional studies are needed to determine exactly how a high-fat diet decreases placental [blood flow](#), the researchers report.

Future studies also will investigate the impact of dietary changes and [diet](#) supplementation on improving outcomes in both monkeys and humans.

**More information:** "Maternal High-Fat Diet Disturbs Uteroplacental Hemodynamics and Increases the Frequency of Stillbirth in a Nonhuman Primate Model of Excess Nutrition," *Endocrinology*.

Provided by Oregon Health & Science University

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