

Study in rats suggests special occasion drinking during pregnancy may cause harm

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If you thought a glass or two of alcohol on special occasions was safe during pregnancy, think again. Research in the *Journal of Physiology* shows even small amounts of alcohol consumed during pregnancy can

cause insulin-resistance, which increases the likelihood of diabetes, in male rat offspring.

The study mimicked special occasion drinking, such as a family barbeque or [birthday party](#), where a pregnant mother might be encouraged to have one or two [alcoholic drinks](#). Male rats exposed to this low level of prenatal [alcohol](#) showed signs of becoming diabetic at around six months old. The researchers only gave alcohol to the mother rats on two days during their [pregnancy](#).

The rats' blood alcohol concentration only reached 0.05 percent, and yet their [male offspring](#) became almost diabetic, with insulin levels reaching higher than expected to maintain normal blood sugar levels.

Another interesting finding was that insulin-resistance was sex-specific, occurring only in the [male rats](#). There are a couple of potential reasons for this, one being that during pregnancy, the placenta adapts to a prenatal stress differently depending on if it's a male or female fetus, and this can impact on fetal growth and development.

The other factor is hormone changes as offspring grow into adulthood. In this case, oestrogen protects against insulin-resistance, and because males don't have high oestrogen, they don't experience the same protection.

Commenting on the study University of Queensland researcher Lisa Akison, senior author on the study, said, "Even a small amount of alcohol during pregnancy can be harmful, so if you're planning on getting pregnant don't drink. Families, partners and friends should support a woman's choice not to drink alcohol during pregnancy. If a woman accidentally becomes pregnant, and unknowingly drinks alcohol during the first part of their pregnancy, the important thing once they know is to stop drinking, have a good diet and take care of themselves

throughout the remainder of the pregnancy."

More information: Tam M.T. Nguyen et al. Prenatal alcohol exposure programs offspring disease: Insulin resistance in adult males in a rat model of acute exposure, *The Journal of Physiology* (2019). [DOI: 10.1113/JP278531](https://doi.org/10.1113/JP278531)

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