

# Sleep apnea during pregnancy is not good for mother or baby

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Illustration of obstruction of ventilation. Credit: Habib M'henni / public domain

Sleep apnea, a disorder in which breathing repeatedly stops during sleep,

is a potentially serious condition because it deprives the body of oxygen. It becomes an even more serious condition in pregnant women—who can be more prone to it—because the oxygen deprivation may affect the baby. Researchers at the University of Western Ontario in Canada observed that female rats that were regularly deprived of air during their pregnancy had pups that could not handle glucose as well, making their pups more at risk for metabolic disease as adults.

The team, led by John Ciriello, exposed pregnant rats to chronic [intermittent hypoxia](#)—bouts of no oxygen—during their pregnancy and observed that the offspring had higher levels of proteins that encourage the liver to release, and not store, glucose. According to the researchers, the data suggest that reoccurring [oxygen deprivation](#), as in [sleep apnea](#), during pregnancy causes long-term changes in the offspring's liver's ability to maintain [blood glucose level](#).

The team has been able to follow the effects into adulthood. At 12 weeks old, "the fasted offspring of mothers exposed to chronic intermittent hypoxia were hyperglycemic and hyperinsulinemic," says Ciriello. Further tests showed that "adult offspring of mothers exposed to chronic intermittent hypoxia exhibit poor glucose tolerance," he continues. "Our findings indicate that these adult offspring have a decreased sensitivity to insulin but have not developed a complete resistance to its signaling effects at this age."

The group's recent findings are consistent with a separate study that reported that "rodents overexpressing 11 $\beta$ -HSD1 (11 $\beta$ -hydroxysteroid dehydrogenase type I)—seen in our studies—develop obesity, have elevated circulating corticosteroid levels—also seen in our studies—and develop type 2 diabetes," Ciriello says.

"This further supports our suggestion that the adult offspring of mothers exposed to chronic intermittent hypoxia during gestation are at a higher

risk for developing some aspects of the metabolic syndrome, including type 2 diabetes," says Ciriello.

Provided by American Physiological Society

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