# Drinking alcohol while breastfeeding impacts health of newborns, suggests study

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Drinking alcohol while breastfeeding impacts health of newborns. Credit: Victor Perry, UC Riverside.

Studies have shown that consuming alcohol during pregnancy can alter the brain and behavioral development of gestating offspring. Currently, the Centers for Disease Control and Prevention advises against maternal alcohol consumption during pregnancy and state that there is no known safe level of consumption. What are the consequences, however, of

mothers consuming alcohol while breastfeeding?

A research team at the University of California, Riverside, performed a mouse study to find out.

Led by Kelly Huffman, a professor of psychology, the team found that infants' exposure to alcohol through breastmilk can have long-lasting effects on their development. Specifically, young mice that were exposed to alcohol during early development show smaller body and brain growth, as well as decreased cortical lengths—a measure of brain size. The study appears in *Frontiers in Neuroscience*.

Research shows approximately 36% of breastfeeding mothers in the United States consume alcohol. In Canada and Australia, the numbers are 20% and 60%, respectively. Women who consume alcohol during pregnancy are more likely to drink while breastfeeding. Also, many women who choose to abstain from drinking during pregnancy report beginning to drink again shortly after giving birth.

The researchers focused on lactational ethanol exposure, or LEE, and developed a novel postnatal alcohol exposure model in breastfeeding mice. In this mouse model, offspring were exposed to ethanol via nursing from postnatal day (P) 6 through P20 (weaning), a period equivalent to infancy in humans.

Compared to controls, LEE mice had reduced body and brain weights, as well as decreased neocortical lengths at wean continuing through to early puberty (age P30). Brain weights were reduced in both ages for males, and at P20 for females; however, P30 female brain weights recovered to control levels. This discovery provides evidence towards sex-specific differences due to LEE.

"The reduced body weights in both males and females at P20 and P30

are reflected in human studies in which children exposed to ethanol through contaminated breast milk have lower body weights and growth trajectories," Huffman said. According to her, the reduction of body and brain weights may be explained by the gut's inability to efficiently extract nutrients when alcohol is ingested. A decrease in protein synthesis in the small intestine may block absorption of micro- and macronutrients.

With regard to how the behavioral development of the LEE mice is affected, Huffman said behavioral tests her team performed on LEE mice suggest they engage in higher risk-taking behavior and show abnormal stress regulation and increased hyperactivity.

"Thus, women should refrain from consuming alcohol during breastfeeding until more research can help recommend safe maternal practices in early infancy," she added.

Although researchers also advocate for women abstaining from alcohol consumption also during the prenatal period, Huffman said there are conflicting views about appropriate, safe drinking behaviors during the breastfeeding period.

"We are aware of the disconnect between conclusions drawn from scientific literature and behaviors in many new mothers," she said.

Fetal alcohol exposure, from maternal consumption during pregnancy, has been a subject of investigation for about 50 years. Huffman's laboratory at UCR has made groundbreaking discoveries, including that Fetal Alcohol Spectrum Disorders, or FASD, can be heritable, passing transgenerationally to at least the third generation.

"We hope our work will increase public awareness of safe maternal practices," Huffman said.

**More information:** Roberto F. Perez et al, Alcohol and lactation: Developmental deficits in a mouse model, *Frontiers in Neuroscience* (2023). DOI: 10.3389/fnins.2023.1147274. www.frontiersin.org/articles/1 … ns.2023.1147274/full

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