

A low dose of caffeine when pregnant may damage the heart of offspring for a lifetime

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A new study published online in *The FASEB Journal* shows that the equivalent of one dose of caffeine (just two cups of coffee) ingested during pregnancy may be enough to affect fetal heart development and then reduce heart function over the entire lifespan of the child. In addition, the researchers also found that this relatively minimal amount of exposure may lead to higher body fat among males, when compared to those who were not exposed to caffeine. Although the study was in mice, the biological cause and effect described in the research paper is plausible in humans.

According to Scott Rivkees, Yale's Associate Chair of Pediatric Research and a senior researcher on the study, "Our studies raise potential concerns about caffeine exposure during very early pregnancy, but further studies are necessary to evaluate caffeine's safety during pregnancy."

To reach their conclusion researchers studied four groups of pregnant mice under two sets of conditions for 48 hours. The first two groups were studied in "room air," with one group having been injected with caffeine and another injected with saline solution. The second two groups were studied under conditions where ambient oxygen levels were halved, with one group receiving caffeine and the other receiving saline solution. They found that under both circumstances, mice given caffeine produced embryos with a thinner layer of tissue separating some of the heart's chambers than the group that was not given caffeine.

The researchers then examined the mice born from these groups to determine what long-term effects, if any, caffeine had on the offspring. They found that all of the adult males exposed to caffeine as fetuses had an increase in body fat of about 20 percent, and decreased cardiac function of 35[?][?] percent when compared to mice not exposed to caffeine.

"Caffeine is everywhere: in what we drink, in what we eat, in pills that we use to relieve pain, and even in candy," said Gerald Weissmann, M.D., Editor-in-Chief of *The FASEB Journal*. "This report shows that despite popular notions of safety, there's one place it probably shouldn't be: in the diet of an expectant mother."

Article: Christopher C. Wendler, Melissa Busovsky-McNeal, Satish Ghatpande, April Kalinowski, Kerry S. Russell, and Scott A. Rivkees. Embryonic caffeine exposure induces adverse effects in adulthood . FASEB J. first published on December 16, 2008 as doi:10.1096/fj.08-124941.

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