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## **Mother's Heavy Coffee Drinking During Pregnancy Appears to Reduce Her Son's Semen Quality Years Later, Public Health Institute Finds**

OAKLAND, CA -- A son who is exposed to his mother's heavy coffee drinking – five cups or more a day – while she is pregnant with him is more likely to have poorer semen quality later in life, a new Public Health Institute study reports.

The study, which appears in the December issue of the *Journal of Developmental Origins of Health and Disease*, found clear evidence for the first time that three key semen measures used to determine fertility declined for sons currently in their 40s whose mothers drank five or more cups of coffee daily while the sons were in utero. The measures were for semen concentration, motility (movement) and normal morphology (characteristics, such as sperm size and shape).

"There have been hints of this effect in human and animal studies, but our prospective study presents strong evidence that maternal prenatal coffee consumption can impair the reproductive tract of the developing male fetus," said Piera Cirillo, lead author of the article and a senior research scientist at the Child Health and Development Studies (CHDS) in Berkeley, Calif. "Although these results are based on a small sample, which warrants cautious interpretation, finding consistent reductions in all three semen measures suggests that drinking coffee during pregnancy may very well impact adult male reproduction."

The study's data is drawn from the CHDS, a landmark and ongoing prospective study, which collected information and biological specimens from 1959 to 1967 from pregnant Kaiser Permanente Health Plan members in the Oakland vicinity. The new work follows up with 196 of the women's sons, mostly in their 40s, who provided semen samples.

"The CHDS has been invaluable for follow-up studies on the women and the health and development of their children," said Mary A. Pittman, DrPH, president and CEO of PHI.

A prospective study follows participants over time. The data here are particularly reliable because the women were interviewed about their coffee drinking while they were pregnant, eliminating recall problems, according to the CHDS researchers. Also, because women weren't yet being warned at the time to reduce their coffee consumption, they had no fear of stigma for admitting to high coffee consumption levels.

Most studies of coffee drinking during pregnancy have examined its effects on the fetus by focusing on outcomes such as miscarriage and spontaneous abortion. One other prospective study by Danish researchers found that younger men between the ages of 18 and 21 whose mothers drank four to seven cups of coffee a day while pregnant had lower levels of testosterone and the reproductive hormone inhibin B.

Although the CHDS study looked only at men in their 40s, its findings could reflect that coffee exposure in the womb causes a decline of sperm quality with age, but it is also possible that the decline begins earlier. It would thus be "of great interest" to examine changes in these semen measures over time to clarify when the decline begins for men with high coffee exposure in utero, the authors said.

The researchers found no association between a man's current coffee drinking and his semen quality. The study also found no association between a pregnant woman's alcohol drinking and cigarette smoking and her son's semen quality.

The study supports the American Congress of Obstetricians and Gynecologists' guideline that pregnant women should drink no more than two cups of coffee each day, Cirillo said. "Based on this study, we can say that it is a good idea to limit your coffee consumption during pregnancy," she said.

***About The Public Health Institute:***

The Public Health Institute (PHI), an independent nonprofit organization based in Oakland, California, is dedicated to promoting health, well-being and quality of life for people throughout California, across the nation and around the world. PHI's primary methods for achieving these goals include sharing evidence developed through quality research and evaluation, providing training and technical assistance and promoting successful prevention strategies to policymakers, communities and individuals.

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