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Environmental toxins limit daughters' fertility, study suggests

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A study by a research team at the Samuel Lunenfeld Research Institute of Mount Sinai Hospital suggests that mothers who are exposed to certain toxic environmental compounds prior to pregnancy could limit their offspring's fertility.

The study, published in the December 3, 2007 issue of *The Journal of Clinical Investigation*, provides evidence derived from a mouse model that exposure to the compounds called polycyclic aromatic hydrocarbons (PAHs) prior to conceiving and when lactating reduces the number of eggs in the ovaries of female offspring by two-thirds. PAHs are known carcinogens and one of the most widespread organic pollutants. The compounds are found in cigarette smoke, car exhaust, fumes from wood stoves, and in charred and smoked foods.

"The impact of this research is significant," said Dr. Jim Woodgett, Director of Research for the Lunenfeld. "While the anti-smoking message is clear, these findings serve as a preventative measure for all Canadians and should raise awareness of common environmental toxins."

PAHs accumulate in the body's breast and fatty tissues before pregnancy and are later released into the blood during pregnancy, affecting the fetus.

"While young girls and women may not have thought about their reproductive future, exposure to these toxins now may reduce the

fertility of their children," said Dr. Andrea Jurisicova, lead researcher of the study, Assistant Professor at University of Toronto, and Canada Research Chair in Molecular and Reproductive Medicine at the Lunenfeld.

The reduction of eggs in a woman's ovaries can lead to premature menopause which not only limits reproduction, but is also associated with osteoporosis, heart disease, stroke and depression.

"This kind of research has important potential implications for future generations. The findings underline the importance of funding and designing cohort and other epidemiologic studies to assess the reproductive and child health effects of exposure to PAHs and other environmental toxins in human populations," said Dr. Michael Kramer, based in Montreal and Scientific Director of the Canadian Institutes of Health Research Institute of Human Development, Child and Youth (IHDCYH).

Source: Samuel Lunenfeld Research Institute