

# Pregnant women pass on the effects of smoking

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Smoking during pregnancy has many adverse effects on fetal development. A new study in mice by Andrea Jurisicova and colleagues at the University of Toronto, Canada, now adds the possibility that smoking before pregnancy or while breast-feeding might substantially decrease the fertility of female offspring to the long list of possible negative outcomes.

The authors found that female mice injected under the skin with polycyclic aromatic hydrocarbons (PAHs) — environmental toxins found in cigarette smoke — pre-pregnancy or while lactating were found to have normal sized litters. However, their female offspring had markedly reduced numbers of resting and early growing follicles — cell clusters that each contain a single egg.

Further analysis indicated that the effects of PAHs on the number of follicles in female offspring were mediated through the aryl hydrocarbon receptor (Ahr), which upregulated expression of the gene Harakiri that makes a protein that causes cells to die by a process known as apoptosis.

The potential importance of these findings for women of child-bearing age was demonstrated by the observation that PAHs triggered similar molecular pathways in human ovarian tissue transplanted into immunocompromised mice.

Source: Journal of Clinical Investigation

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