

Chemicals in cigarette smoke linked to lower fertility

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The chemicals in cigarette smoke trigger genes that kill egg cells in women.
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Young girls who are exposed to cigarette smoke could experience reduced fertility later in life, a three-year study has found.

Researchers at the University of Newcastle found that three cigarette toxins administered to a group of young female mice caused a significant reduction in ovarian development and egg fertilisation.

The chemicals influenced a group of [genes](#) that caused [cell death](#), resulting in premature ovarian aging and the production of dysfunctional egg cells.

The leader of the study, Professor Eileen McLaughlin, from the university's faculty of science and information technology, said that her team's "laboratory work has shown that exposure to these toxins by inhaling [cigarette smoke](#) during the early stages of life could lead to a reduction in the quality and number of eggs in females."

The findings of the study have been published in the *Journal of the Toxicological Sciences and Applied Pharmacology*.

Baby girls are born with a limited number of ovarian follicles, each of which contains a single egg cell, Professor McLaughlin said. Because of their non-renewing nature, each of these [egg cells](#) is "particularly vulnerable to xenobiotic [or chemical] insult".

Professor McLaughlin is now planning to study the effect that smoking during pregnancy could have on subsequent generations. She has surmised that the harm done to the foetus – widely documented in a range of studies – could also be passed on.

"We believe that exposure to these toxins as a foetus dramatically reduces egg quality and quantity before birth and that this reduced fertility may be passed on to the next generation," she said.

"If you translate this ... it means that if your grandmother smoked – either while pregnant with your mother or near her when she was a baby, you and possibly your children may be at risk of reduced fertility."

Last year the Australian Institute of Family Studies reported that one-third of pregnant Australian women under the age of 25 keep smoking after learning that they are pregnant.

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