

Lead poisoning is the top risk factor for pre-eclampsia, says Griffith study

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More than a century since a Brisbane doctor found that lead in paint destroyed children's lives, new research from Griffith University concludes that it is a major risk factor for pre-eclampsia.

Pre-eclampsia is a disease which kills over 75,000 women internationally each year and is responsible for 9% of all fetal deaths.

Published in [Environmental Research](#), the study reviewed the results of 11 previous international studies that measured blood lead levels of pregnant women who experienced pre-eclampsia and control groups of women who did not experience pre-eclampsia.

“We combined the data from a number of clinical trials to conduct a powerful analysis of pre-eclampsia research,” says Dr Arthur Poropat from Griffith Health.

Along with Dr Mark Laidlaw from [RMIT University](#), the team found that blood lead levels are the strongest predictor of whether a pregnant woman will develop pre-eclampsia.

“We found that the link between high blood lead levels and pre-eclampsia is twice as strong as the risk from diabetes and is as big a risk as chronic high blood pressure,” says Dr Poropat.

“There is a clear dose-response relationship between maternal blood lead and pre-eclampsia: doubling the blood lead level results also doubles the risk of pre-eclampsia. Even relatively low levels of lead increase the risk of the condition.”

A silent killer

Pre-eclampsia is a silent killer, in which pregnant women develop high blood pressure and protein in their urine due to kidney malfunction, potentially leading to cardiac and/or kidney failure, and eventual disability or death.

Dr Poropat says women are exposed to lead in many ways, including lead paint, lead-contaminated soils, lead water pipes, shooting lead bullets at firing ranges and other sources. Women can even be exposed by handling or washing their spouse's lead-contaminated clothes.

“Fortunately, most people in Australia are not at risk of lead poisoning as they are not commonly exposed to lead via their occupation or the environment. However there are certain well-documented risk areas within the country including the industrial regions of Broken Hill (NSW/SA), Mount Isa (QLD) and Port Pirie (SA).

“Regardless of where women are located or their lifestyle, women should be aware of the risks associated with lead poisoning if they are preparing to become pregnant or are currently pregnant,” says Dr Poropat.

“Following exposure, the body struggles to get rid of lead, and 90-95% of the lead becomes stored in human bones. Tragically, when mothers' bones release calcium during pregnancy to help the fetus grow, lead is also released from the bones, resulting in the mother exposing herself and her fetus to lead.

“However calcium supplements can reduce blood pressure risks in pregnant women, which may be partly because higher calcium reduces the amount of lead released from bone.”

Dr Poropat says doctors should actively consider giving calcium supplements to women at risk of lead contamination.

“The team recommends that all females should avoid lead exposure. “Any women who is concerned that she has been exposed to lead should consult a medical practitioner.

“We recommend that pregnant women with blood lead levels above 5 micrograms per decilitre should be actively monitored for pre-eclampsia.”