

Arsenic in drinking water linked to lung disease

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New research from the Telethon Institute for Child Health Research has uncovered likely mechanisms for the link between arsenic in drinking water and increased risk of developing chronic lung disease.

The study, published today in the leading international environmental health journal [Environmental Health Perspectives](#), investigated the impact that low dose exposure to arsenic from drinking water can have on [lung development](#) in the womb.

Lead author Kathryn Ramsey said the research team used animal models to determine that even low levels of [arsenic exposure](#) in the womb alone could cause serious problems in lung development which may increase the risk of chronic respiratory infections in childhood.

"When we examined mice that had been exposed to the same levels of arsenic in drinking water as many humans, we were able to see just what sort of impact this chemical can have on lung development," Ms Ramsey said.

"What we found was abnormal lung development and structural damage to an extent that is likely to cause problems later in life. We also found that arsenic increased the amount of mucous produced by the lungs which may reduce the ability to clear respiratory pathogens."

"These findings are significant because whilst arsenic is well known for its cancer-causing properties, its impact on lung health is less known."

The Telethon Institute research adds to existing studies on the impact of arsenic on lung development.

A previous report from Chile has shown that exposure to high levels of arsenic via drinking water in early life increases by 40 times the likelihood of dying of a [chronic lung disease](#) as an adult.

"The contamination of drinking water with naturally occurring arsenic is a significant environmental health problem which affects millions of people around the world. Arsenic has been found at high concentrations in [ground water](#) around Australia but [tap water](#) is very closely monitored and regulated for arsenic. However, the concern for Australia is the consumption of untreated bore water in rural and regional areas, which is a largely unexplored source of exposure," Ms Ramsey said.

"The next step in our research is to try and identify at what concentration arsenic causes detectable changes in lung growth so we can better inform public health policies around water quality."

More information: Ramsey, K.A. Bosco, A. McKenna, K.L. Carter, K.W. Elliot, J.G. Berry, L.J. Sly, P.D Larcombe, A.N. Zosky, G.R. In Utero Exposure to Arsenic Alters Lung Development and Genes Related to Immune and Mucociliary Function in Mice. *Environmental Health Perspectives*

Provided by Telethon Institute for Child Health Research

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