

# Relationship between arsenic, heart disease and diabetes discovered

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Researchers have analyzed children of a rural region in the state of Hidalgo, Mexico, who since gestation were exposed to arsenic through maternal consumption.

Associated with various types of cancer such as skin and liver, the intake

of arsenic it is also linked to cardiovascular disease and diabetes. According to a long-term study conducted by experts from the Center for Research and Advanced Studies (CINVESTAV) it was determined that this metalloid inhibits enzymes associated with antioxidant protection.

The study focused on analyzing children that had ingested arsenic through maternal consumption of contaminated water, and it was determined that oxidizing properties favor generation of [fatty plaque](#) in the arteries.

To corroborate the relationship between [cardiovascular disease](#) with arsenic consumption, blood samples were also obtained from the study group to identify the presence of an amino acid called asymmetric dimethylarginine (ADMA), which is associated with problems in the arteries.

"What we found is that the higher the exposure to arsenic, the higher the blood levels of this amino acid," said Jimenez Del Razo. The researchers propose it as a biomarker (substance for identification) for blood tests to determine [cardiovascular risk](#).

The results suggest that those who have consumed arsenic-contaminated water for a long time and since childhood, and even while in gestation, have a greater chance of [cardiovascular problems](#) at a young age (after 30 years).



Also, through ultrasound, researchers measured the diameter of the plaque that builds up in the carotid artery. "The larger the diameter, the higher chance of suffering heart disease," says the researcher.

According to the research, pro-oxidant effects of arsenic on proteins and lipids are due to this contaminant in the body becoming trivalent metabolites, which inhibit the synthesis of insulin, and favoring the development of diabetes," refers the researcher.



Cinvestav experts decided to look at children in a rural region in the state of Hidalgo, because they were exposed to this heavy metal, through maternal consumption during gestation.

The areas of the country where the presence of a higher amount of [arsenic](#) in groundwater are the states of Hidalgo, Aguascalientes, Durango, Zacatecas, Guanajuato, Morelos, Coahuila, Chihuahua and Baja California Sur, in consequence of a geological failure from the center of the country to the north and the deepening of drilling for wells.

Provided by Investigación y Desarrollo

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