

Mercury pollution causes immune damage to harbor seals

October 21 2008

Methylmercury (MeHg), the predominant form of mercury found in the blood of marine mammals and fish-eating communities, could be more damaging to seals than has previously been thought. Research published in BioMed Central's open access journal *Environmental Health* shows that MeHg harms T-lymphocytes, key cells in a seal's immune system. Similar results were also found for human lymphocytes.

Mercury exposure is known to occur as a result of man-made pollution and natural events such as volcanic eruptions. According to the lead author of this study, Krishna Das of the Université de Liège, Belgium, "Mercury is known to bioaccumulate and to magnify in marine mammals, which is a cause of great concern in terms of their general health. In particular, the immune system is known to be susceptible to long-term mercury exposure". In order to determine the scale of this problem, the authors carried out analysis of the blood mercury levels of harbour seals caught in the North Sea and tested the effects of MeHg in lab experiments.

By applying increasing doses of MeHg to lymphocytes, a type of white blood cell, the authors determined that the amount of mercury found in the blood of the seals studied was enough to cause damage to the important immune system cells. They said, "Although the in vitro approach utilised in this investigation represents an extreme reductionism relative to the complex situation in the intact organism, it provides an insight into the specific effects of mercury pollution."

Immune system damage may already have taken a toll on the population of harbour seals. The 1998 and 2002 outbreaks of phocine distemper virus, known to have killed thousands of seals, were linked to the deleterious effects of pollution on the seals' ability to fight the infection.

Citation: Mercury immune toxicity in harbour seals: links to in vitro toxicity, Krishna Das, Ursula Siebert, Audrey Gillet, Aurélie Dupont, Carole Di-Poi, Sonja Fonfara, Gabriel Mazzucchelli, Edwin De Pauw and Marie-Claire De Pauw-Gillet, *Environmental Health* (in press)
www.ehjournal.net/

Source: BioMed Central

Citation: Mercury pollution causes immune damage to harbor seals (2008, October 21) retrieved 25 April 2024 from <https://phys.org/news/2008-10-mercury-pollution-immune-harbor.html>

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