

Nuclear radiation affects baby gender

May 26 2011

Ionizing radiation is not without danger to human populations. Indeed, exposure to nuclear radiation leads to an increase in male births relative to female births, according to a new study by Hagen Scherb and Kristina Voigt from the Helmholtz Zentrum München. Their work shows that radiation from atomic bomb testing before the Partial Test Ban Treaty in 1963, the Chernobyl accident, and from living near nuclear facilities, has had a long-term negative effect on the ratio of male to female human births (sex odds). Their work is published in the June issue of Springer's journal, *Environmental Science and Pollution Research*.

Ionizing radiation from nuclear activity is known to have mutagenic properties and is therefore likely to have detrimental reproductive effects. It is thought that it may cause men to father more sons and mothers to give [birth](#) to more girls. Scherb and Voigt look at the long-term effects of radiation exposure on sex odds - a unique genetic indicator that may reveal differences in seemingly normal as well as adverse pregnancy outcomes between maternal exposure and paternal exposure. In particular, they focus on sex odds data with respect to global atmospheric atomic bomb test fallout in Western Europe and the US, fallout due to nuclear accidents in the whole of Europe, and radioactive releases from nuclear facilities under normal operating conditions in Switzerland and Germany.

Their analyses show a significant gender gap in all three cases:

- Increases in [male births](#) relative to female births in Europe and

the US between 1964-1975 are a likely consequence of the globally emitted and dispersed atmospheric atomic bomb test fallout, prior to the test ban in 1963, that affected large human populations overall after a certain delay.

- There was a significant jump of sex odds in Europe in the year 1987 following Chernobyl, whereas no such similar effect was seen in the US, which was less exposed to the consequences of the catastrophe.
- Among populations living in the proximity of nuclear facilities (within 35km or 22 miles), the sex odds also increased significantly in both Germany and Switzerland during the running periods of those facilities.

Taken together these findings show a long-term, dose-dependent impact of radiation exposure on human sex odds, proving cause and effect. What is less clear is whether this increase in male births relative to female births is the result of a reduced frequency of female births or an increased number of male births. The authors estimate that the deficit of births and the number of stillborn or impaired children after the global releases of [ionizing radiation](#) amount to several millions globally.

Scherb and Voigt conclude: "Our results contribute to disproving the established and prevailing belief that radiation-induced hereditary effects have yet to be detected in human populations. We find strong evidence of an enhanced impairment of humankind's genetic pool by artificial ionizing [radiation](#)."

More information: Scherb H & Voigt K (2011). The human sex odds at birth after the atmospheric atomic bomb tests, after Chernobyl, and in the vicinity of nuclear facilities. *Environmental Science and Pollution Research*; [DOI:10.1007/s11356-011-0462-z](https://doi.org/10.1007/s11356-011-0462-z)

Provided by Springer

Citation: Nuclear radiation affects baby gender (2011, May 26) retrieved 4 July 2024 from <https://medicalxpress.com/news/2011-05-nuclear-affects-baby-gender.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.