

Publication**Background ionizing radiation and the risk of childhood cancer : a census-based nationwide cohort study****JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 3136239**Author(s)** Spycher, Ben D.; Lupatsch, Judith E.; Zwahlen, Marcel; Röösl, Martin; Niggli, Felix; Grotzer, Michael A.; Rischewski, Johannes; Egger, Matthias; Kuehni, Claudia E.**Author(s) at UniBasel** [Röösl, Martin](#) ;**Year** 2015**Title** Background ionizing radiation and the risk of childhood cancer : a census-based nationwide cohort study**Journal** Environmental Health Perspectives**Volume** 123**Number** 6**Pages / Article-Number** 622-8

Exposure to medium or high doses of ionizing radiation is a known risk factor for cancer in children. The extent to which low-dose radiation from natural sources contributes to the risk of childhood cancer remains unclear.; In a nationwide census-based cohort study, we investigated whether the incidence of childhood cancer was associated with background radiation from terrestrial gamma and cosmic rays.; Children > 16 years of age in the Swiss National Censuses in 1990 and 2000 were included. The follow-up period lasted until 2008, and incident cancer cases were identified from the Swiss Childhood Cancer Registry. A radiation model was used to predict dose rates from terrestrial and cosmic radiation at locations of residence. Cox regression models were used to assess associations between cancer risk and dose rates and cumulative dose since birth.; Among 2,093,660 children included at census, 1,782 incident cases of cancer were identified including 530 with leukemia, 328 with lymphoma, and 423 with a tumor of the central nervous system (CNS). Hazard ratios for each millisievert increase in cumulative dose of external radiation were 1.03 (95% CI: 1.01, 1.05) for any cancer, 1.04 (95% CI: 1.00, 1.08) for leukemia, 1.01 (95% CI: 0.96, 1.05) for lymphoma, and 1.04 (95% CI: 1.00, 1.08) for CNS tumors. Adjustment for a range of potential confounders had little effect on the results.; Our study suggests that background radiation may contribute to the risk of cancer in children, including leukemia and CNS tumors.; Spycher BD, Lupatsch JE, Zwahlen M, Röösl M, Niggli F, Grotzer MA, Rischewski J, Egger M, Kuehni CE, for the Swiss Pediatric Oncology Group and the Swiss National Cohort. 2015. Background ionizing radiation and the risk of childhood cancer: a census-based nationwide cohort study. Environ Health Perspect 123:622-628;://dx.doi.org/10.1289/ehp.1408548.

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