Key HPS Position Statements

https://hps.org/hpspublications/positionstatements.html

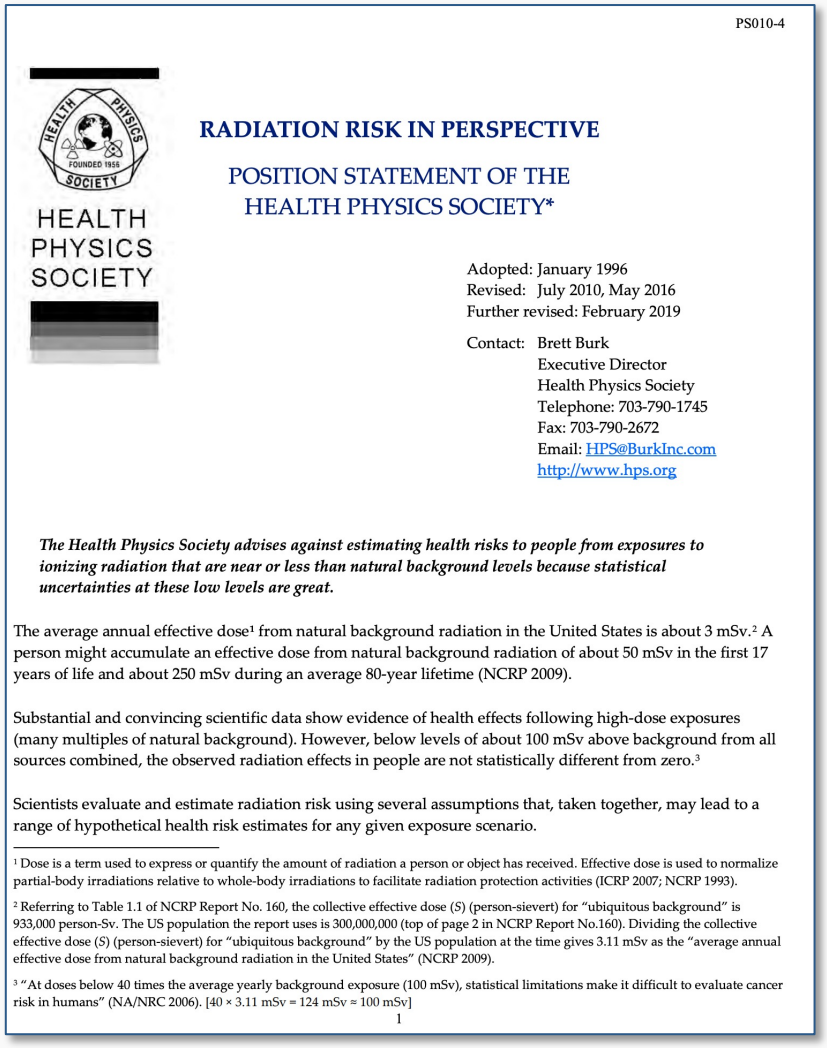
1. Nuclear Power — February 2020
2. Radiation Risk in Perspective — February 2019
3. Uncertainty in Risk Assessment — February 2013

Radiation Risk in Perspective

https://hps.org/documents/radiationrisk.pdf Adopted 1996, Revised 2010, 2016, & 2019

The Health Physics Society advises against estimating health risks to people from exposures to ionizing radiation that are near or less than natural background levels because statistical uncertainties at these low levels are great.

"Molecular-level radiation effects are nonlinear"



PS010-4

HEALTH PHYSICS SOCIETY

RADIATION RISK IN PERSPECTIVE

POSITION STATEMENT OF THE HEALTH PHYSICS SOCIETY*

Adopted: January 1996
Revised: July 2010, May 2016
Further revised: February 2019

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The Health Physics Society advises against estimating health risks to people from exposures to ionizing radiation that are near or less than natural background levels because statistical uncertainties at these low levels are great.

The average annual effective dose[1] from natural background radiation in the United States is about 3 mSv.[2] A person might accumulate an effective dose from natural background radiation of about 50 mSv in the first 17 years of life and about 250 mSv during an average 80-year lifetime (NCRP 2009).

Substantial and convincing scientific data show evidence of health effects following high-dose exposures (many multiples of natural background). However, below levels of about 100 mSv above background from all sources combined, the observed radiation effects in people are not statistically different from zero.[3]

Scientists evaluate and estimate radiation risk using several assumptions that, taken together, may lead to a range of hypothetical health risk estimates for any given exposure scenario.

[1] Dose is a term used to express or quantify the amount of radiation a person or object has received. Effective dose is used to normalize partial-body irradiations relative to whole-body irradiations to facilitate radiation protection activities (ICRP 2007; NCRP 1993).

[2] Referring to Table 1.1 of NCRP Report No. 160, the collective effective dose (*S*) (person-sievert) for "ubiquitous background" is 933,000 person-Sv. The US population the report uses is 300,000,000 (top of page 2 in NCRP Report No.160). Dividing the collective effective dose (*S*) (person-sievert) for "ubiquitous background" by the US population at the time gives 3.11 mSv as the "average annual effective dose from natural background radiation in the United States" (NCRP 2009).

[3] "At doses below 40 times the average yearly background exposure (100 mSv), statistical limitations make it difficult to evaluate cancer risk in humans" (NA/NRC 2006). [40 × 3.11 mSv = 124 mSv ≈ 100 mSv]

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Similar Positions and Acknowledgements

UNSCEAR

ICRP

NCRP

American Association of Physicists in Medicine

Australasian Rad Protection Society

Society for Pediatric Radiology

US NRC

GAO

EPA Scientific Advisory Board

"…the Scientific Committee does not recommend multiplying very low doses by large numbers of individuals to estimate numbers of radiation-induced health effects within a population exposed to incremental doses at levels equivalent to or lower than natural background levels."

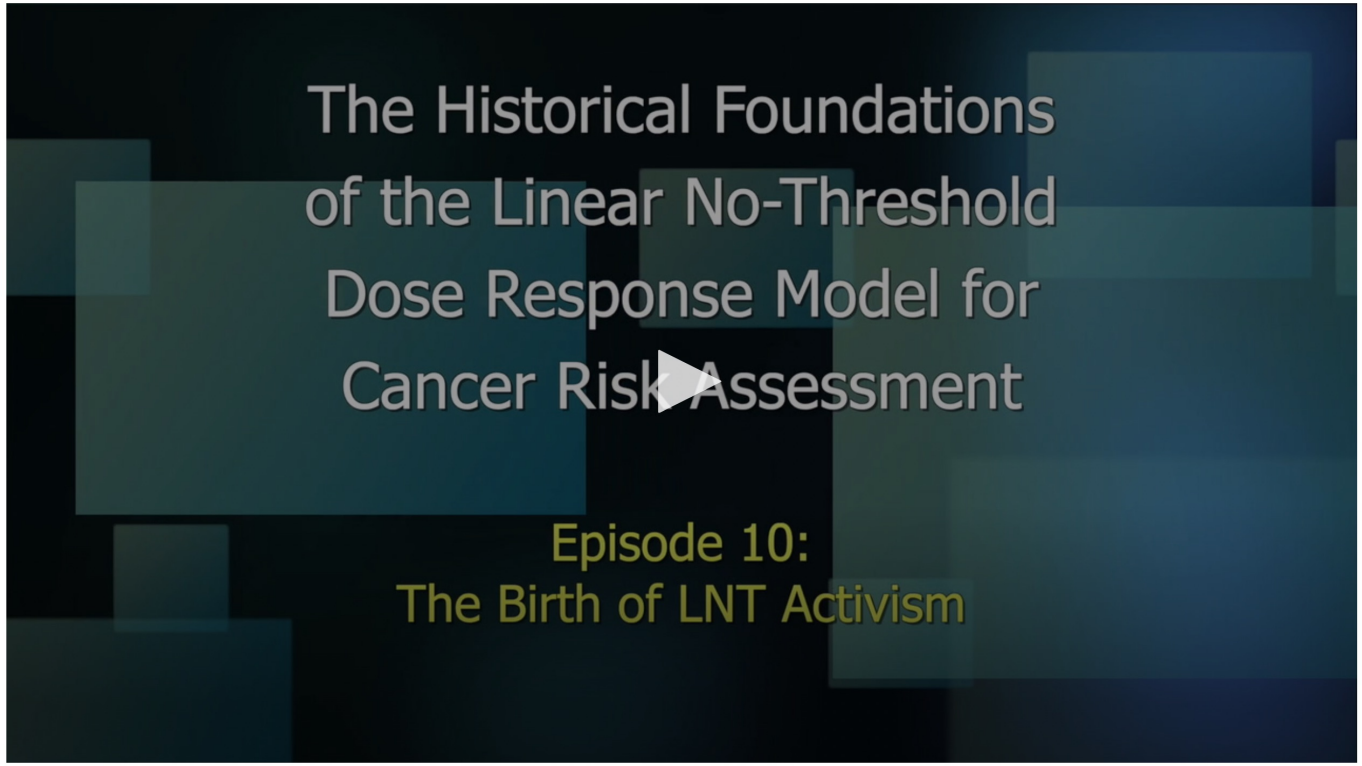
[Report of the United Nations Scientific Committee on the Effects of Atomic Radiation Fifty-ninth Session (21-25 May 2012). A/67/46. U. Nations, New York, NY. 2012. p. 10]

History of the LNT Video Documentary

https://hps.org/hpspublications/historylnt/ or Google "**HPS History of the LNT**"

Episode 10: The Birth of LNT Activism

Aboveground testing of nuclear weapons and the release of radioactive fallout in the United States and across the globe raised public concern. This presented an opportunity for the radiation genetics community to challenge the credibility of the radiation experts at the Atomic Energy Commission by suggesting the fallout would cause birth defects based on an LNT model. These challenges were significant and would lead to the US National Academy of Sciences (NAS) creating a series of six panels to advise the country on the concerns of nuclear energy and weapons, including a most crucial and visible genetics panel.



Growth of Peer-Reviewed Literature on Hormesis

Based on Web of Science Database