

The Linear No Threshold Theory  
of radiation risk.

The key word being “Theory.”

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# 1898 Algae in X-rays

Atkinson demonstrated that irradiated algae grew faster than nonirradiated controls.

Atkinson, "Report upon some preliminary experiments with the Rontgen rays on plants." *Science*, July 1898.

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# 1919 Davey insect life span

Davey noted the increased life span of irradiated insects when compared to controls.

Davey, "Prolongation of life of *Tribolium consusum* apparently due to small doses of X-rays." *Journal of Experimental Zoology*, Volume 28, 1919

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1950 Lorenz et. al. rodent life span

In 1950 and 1954 Lorenz et. al. published results of studies showing an increased life span of rodents irradiated at low levels when compared to controls.

Lorenz, E., "*Some biological effects of long-continued irradiation,*" American Journal of Reontgenology, Radium Theory, and Nuclear Medicine, Vol 63, 1950

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# Rodent life span increase repeated many times

- Sacher, G. A. with mice in 1956
- Carlson, L.D., Scheyer, W. J., and Jackson, B. H. with white mice in 1960
- Gowen, J.W. and Stadler, J. in 1960, 1962, & 1964
- Langendorff, H. in 1963
- Sacher, G. A., Grahn, D. and Robertson, R.J. with guinea pigs in 1964

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# Even with internal radiation

Nishio reported an increased life span of mice irradiated internally by the addition of .0004 uCi of Cs-137 and 0.001 uCi of Sr-90 in their water.

Nishio, K, "*Effects of 137-Cs and 90-Sr Administered Continuously Upon Mice,*" Annu. Rep. Radiat. Cent. Osaka Prefect. Vol 10, page 90, 1969

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What about humans?

What about humans exposed to  
low doses of radiation?

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# Japanese Bomb Survivor Study

“Japanese who received between 11 R and 120 R in 1945 appeared to live longer than those who received none or more.”

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