

Necessity of Adjustment for Smoking
- Finding from Japanese Epidemiological Study among Nuclear
Workers (J-EPISODE) -

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There is a great deal of uncertainty about the health effects of exposure to low and protracted radiation, despite extensive world-wide studies on radiation workers protractedly exposed to low-dose radiation. This uncertainty arises from the fact that radiation health effects at low doses are difficult to detect and likely to be distorted or biased by confounding factors.

The Institute of Radiation Epidemiology (IRE) of the Radiation Effects Association commenced an epidemiological study of Japanese nuclear workers in 1990. The IRE conducted lifestyle questionnaire surveys among different samples of workers in 1997 and 2003 to obtain information on factors confounding the relationship between radiation and mortality.

There are two requirements for a “confounding factor.” One is that the factor itself is a risk of death, and the other is that it has a correlation with radiation. We examined the extent of risks to cancer mortality, and correlations between radiation exposure among smoking, alcohol, job, job status, and years of education. As a result, smoking was demonstrated to be the largest risk and to have the strong correlation to radiation. Consequently, adjustments for smoking showed the largest effect on the reduction of radiation risk estimates. This result suggests that smoking should be adjusted when considering the relationship between radiation and cancer mortality among nuclear workers. However, very few studies to date have included adjustments for smoking. To quantify low-dose radiation risk accurately, an adjustment for smoking is necessary.

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