

Dose Rate Effects in Radiation Biology and Radiation Protection

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The risk associated with the exposure to ionising radiation has been a major issue for ICRP since its foundation in 1928. There has been knowledge on the effects on human health for whole body doses above about 100 mGy. However, effects associated with lower doses are still intensively being debated. The current radiation protection approach proposed by ICRP for workers and the public is largely based on analyses of high-dose and high-dose-rate studies, such as the Japanese Life Span Study on atomic bomb survivors. The risk coefficients obtained from these studies are then reduced by the Dose and Dose Rate Effectiveness Factor (DDREF) to account for the assumed lower effectiveness of low-dose and low-dose-rate exposures. In its latest Recommendations, ICRP continues to propose the use of a factor value of 2 while other international institutions suggest the use of different values or even to abandon the factor. This presentation summarises the current status of discussion and highlights issues that might be relevant to re-assess the DDREF.