

Estimation of Dietary Intake of Strontium-90 in Japan after the Fukushima Daiichi Nuclear Power Plant (FDNPP) Accident market basket study, 2013–2022

1. About the Survey

The Ministry of Health, Labour and Welfare (MHLW) surveyed the dietary intake of radioactive strontium-90 in 6 regions (three areas of Fukushima, Tokyo, Osaka and Nagasaki) across Japan in the once a year from 2013 and estimated the annual effective doses from radioactive strontium-90 derived from Market basket samples^{※1}.

※1:Market basket samples were prepared based on regional average daily consumption data from the National Health and Nutrition Examination Survey (≥ 1 year of age, male and female) in Japan.

2. Results of the survey

The estimated annual committed effective dose of strontium-90 during the 10-year duration of the present study was value sufficiently lower than the intervention exemption level, 1 mSv/year, in foods in Japan.

There was no noticeable difference between the range of estimated daily intake of strontium-90 in the present study compared with daily intake measured before the FDNPP accident.^{※2}

※2:References

Sugiyama H, Terada H, Takahashi M, Iijima I, Isomura K. 2007. Contents and daily intakes of gamma-ray emitting nuclides, ⁹⁰Sr, and ²³⁸U using market-basket studies in Japan. J Health Sci. 53(1):107–118. doi:10.1248/jhs.53.107

<Table 1> Annual radiation dose received from ⁹⁰Sr surveyed in September-October 2013

Prefecture	Radiation dose (mSv/year)	Prefecture	Radiation dose (mSv/year)
Fukushima (Hamadori)	0.00076	Tokyo	0.00049
Fukushima (Nakadori)	0.00053	Osaka	0.00044
Fukushima (Aizu)	0.00048	Nagasaki	0.00055

<Table 2> Annual radiation dose received from ⁹⁰Sr surveyed in September-October 2014

Prefecture	Radiation dose (mSv/year)	Prefecture	Radiation dose (mSv/year)
Fukushima (Hamadori)	0.00044	Tokyo	0.00034
Fukushima (Nakadori)	0.00043	Osaka	0.00060
Fukushima (Aizu)	0.00042	Nagasaki	0.00040

<Table 3> Annual radiation dose received from ⁹⁰Sr surveyed in September-October 2015

Prefecture	Radiation dose (mSv/year)	Prefecture	Radiation dose (mSv/year)
Fukushima (Hamadori)	0.00047	Tokyo	0.00036
Fukushima (Nakadori)	0.00058	Osaka	0.00045
Fukushima (Aizu)	0.00042	Nagasaki	0.00042

<Table 4> Annual radiation dose received from ⁹⁰Sr surveyed in September-October 2016

Prefecture	Radiation dose (mSv/year)	Prefecture	Radiation dose (mSv/year)
Fukushima (Hamadori)	0.00059	Tokyo	0.00036
Fukushima (Nakadori)	0.00043	Osaka	0.00042
Fukushima (Aizu)	0.00040	Nagasaki	0.00043

<Table 5> Annual radiation dose received from ⁹⁰Sr surveyed in September-October 2017

Prefecture	Radiation dose (mSv/year)	Prefecture	Radiation dose (mSv/year)
Fukushima (Hamadori)	0.00043	Tokyo	0.00032
Fukushima (Nakadori)	0.00046	Osaka	0.00042
Fukushima (Aizu)	0.00046	Nagasaki	0.00035

<Table 6> Annual radiation dose received from ⁹⁰Sr surveyed in September-October 2018

Prefecture	Radiation dose (mSv/year)	Prefecture	Radiation dose (mSv/year)
Fukushima (Hamadori)	0.00036	Tokyo	0.00041
Fukushima (Nakadori)	0.00041	Osaka	0.00041
Fukushima (Aizu)	0.00044	Nagasaki	0.00039

<Table 7> Annual radiation dose received from ⁹⁰Sr surveyed in September-October 2019

Prefecture	Radiation dose (mSv/year)	Prefecture	Radiation dose (mSv/year)
Fukushima (Hamadori)	0.00042	Tokyo	0.00045
Fukushima (Nakadori)	0.00038	Osaka	0.00034
Fukushima (Aizu)	0.00051	Nagasaki	0.00032

<Table 8> Annual radiation dose received from ⁹⁰Sr surveyed in September-October 2020

Prefecture	Radiation dose (mSv/year)	Prefecture	Radiation dose (mSv/year)
Fukushima (Hamadori)	0.00036	Tokyo	0.00035
Fukushima (Nakadori)	0.00040	Osaka	0.00030
Fukushima (Aizu)	0.00034	Nagasaki	0.00041

<Table 9> Annual radiation dose received from ⁹⁰Sr surveyed in September-October 2021

Prefecture	Radiation dose (mSv/year)	Prefecture	Radiation dose (mSv/year)
Fukushima (Hamadori)	0.00027	Tokyo	0.00028
Fukushima (Nakadori)	0.00031	Osaka	0.00030
Fukushima (Aizu)	0.00026	Nagasaki	0.00027

<Table 10> Annual radiation dose received from ⁹⁰Sr surveyed in September-October 2022

Prefecture	Radiation dose (mSv/year)	Prefecture	Radiation dose (mSv/year)
Fukushima (Hamadori)	0.00029	Tokyo	0.00025
Fukushima (Nakadori)	0.00025	Osaka	0.00024
Fukushima (Aizu)	0.00026	Nagasaki	0.00024