

### Trends of Radionuclide Concentrations in Japanese Milk Teeth

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**Purpose:** We have demonstrated the trend of radionuclide concentrations in Japanese milk teeth including samples collected during 1970 to 1985.

**Material & method:** The number of 309 Japanese milk teeth had been collected by the Department of Dental Research, National Institute of Health. Amounts of <sup>90</sup>Sr, <sup>238</sup>Pu, <sup>239+240</sup>Pu in these samples were being assayed using the official radioactive strontium and plutonium analysis method (Ministry of Education, Culture, Sports, Science and Technology) and SrRaddisk method.

**Result:** The concentration of <sup>90</sup>Sr was 17mBq/g · Ca by standard method. It was not detected by SrRaddisk method. <sup>238</sup>Pu and <sup>239+240</sup>Pu were not detected (Table 1).

**Discussion:** To clarify the influence of the Fukushima No.1 Nuclear Power Plant accident, we are trying to measure newer samples. We asked dental offices (approximately 100 dental offices) throughout Japan to collect milk teeth and we received milk teeth from 30 dental offices (1218 tooth as of December 9, 2014). Although we have collected 1218 tooth so far, there are only a few teeth from the disaster area of Fukushima and therefore it has been suggested that it is vital to increase study meetings and lectures to gain an understanding of the importance of participation in this study and increase cooperators and cooperative dental offices. The amount of radioactivity that has been accumulated in these milk teeth will be examined and compared with this demonstrated trend.

**Conclusion:** We confirmed the trend of radionuclide concentrations in Japanese milk teeth before the Fukushima nuclear accident.

**Table 1 The radioactivity concentration of Japanese milk teeth from 1970 to1985 at the Department of Dental Research, National Institute of Health**

	The base date	The day of measurement	<sup>90</sup> Sr	Unit
Milk teeth	January 1,1970	December 11,2013	51.5	mBq/g · Ca
	January 1,1983		35±3.7	
	January 1,1993		28±2.9	
	October 21,2013		17±1.8	
	The day of measurement	<sup>238</sup> Pu	<sup>239+240</sup> Pu	mBq/g · Ash
	December 2,2013	*	*	

\* : The following of the detection limit ( ) : The detection lower limit

The measurement value from the base date :  $A_0=A/(1/2)^{t/T}$

A:The radioactivity about hora T

A0:The radioactivity about the first hora T:The elapsed time

T: 28.8 year(JCAC) of half-life-period (The number of days change)