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Research Article

# Biological half-life of cadmium in the urine of inhabitants after cessation of cadmium exposure

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## Abstract

We investigated the biological half-life of the urinary cadmium concentration (U-Cd) based on a 24-year follow-up study after cessation of cadmium exposure in a cadmium-polluted area. Spot urine samples were obtained from all inhabitants in this area in 1979, 1986, 1991, 1999 and 2003. Biological half-life was calculated in the inhabitants whose U-Cd was more than  $5 \mu\text{g l}^{-1}$  (9 men and 12 women) or  $5 \mu\text{g g}^{-1}$  creatinine (9 men and 19 women) using a one-compartment model. The estimated half-life and 95% confidence intervals were 13.6 years (9.0–28.2 years) and 13.9 years (9.6–25.6 years) for unadjusted U-Cd in men and women, respectively. For creatinine-adjusted U-Cd, they were 14.2 years (11.2–19.4 years) and 23.5 years (17.7–35.0 years) in men and

women, respectively. The biological half-lives of U-Cd obtained in this study were identical with the values of total body burden determined by a different method.

Keywords::

Urinary cadmium   biological half-life   long-term follow-up study   risk assessment   human

## Acknowledgment

Declaration of interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

### Related Research Data

[URINARY CADMIUM ELIMINATION AS A BIOMARKER OF EXPOSURE FOR EVALUATING A CADMIUM DIETARY EXPOSURE - BIODYNAMICS MODEL](#)

Source: Journal of Toxicology and Environmental Health Part A

[The relation of individual cadmium concentration in urine with total cadmium intake in Kakehashi River basin, Japan](#)

Source: Toxicology Letters

[In vivo measurement of liver and kidney cadmium in workers exposed to this metal: Its significance with respect to cadmium in blood and urine](#)

Source: Environmental Research

[Cadmium Metabolism in Man](#)

Source: Human Toxicology

[Significance of Urinary Cadmium Concentration in a Japanese Population Environmentally Exposed to Cadmium](#)

Source: Archives of Environmental Health An International Journal

[A comparison between fecal cadmium and urinary  \$\beta\$ 2-microglobulin, total protein, and](#)

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