

Uranium in Drinking Water: Impact on Uranium Bone Content

Dominic Larivière¹, Sergei Tolmachev², Vera Kochermin³ and Nadereh St-Amand³

¹Laboratoire de Radioécologie, Université Laval, Québec City, QC, Canada; ²United States Transuranium and Uranium Registries, College of Pharmacy, Washington State University, Richland, WA, USA;

³Radiation Protection Bureau, Health Canada, Ottawa, ON, Canada.

Introduction: Uranium is present at trace levels in the environment as a result of its primordial origin and the long half-lives of its radioisotopes. Due to its omnipresence in nature, uranium enters the food chain and eventually gets deposited into bones. Recently, Larivière *et al.* (Health Phys., 2007) have shown that the concentration of uranium in vertebrae is related to the calcium turn-over rate. This relationship indicates that the uranium level in bone represents the actual uranium consumption. Therefore, it is possible to assume that there would be a positive correlation between the source of ingestion and the uranium content of bone. As water has been shown to be a significant source of uranium (Zamora *et al.* Health Phys., 2002), it will be used as an intake source indicator.

Conclusions: • An increase in $[U]_{\text{water}}$ does result in an increase in $[U]_{\text{bone}}$ through modeling, but not to the extent that was measured experimentally. • At low $[U]_{\text{water}}$ concentration, the experimental data and the model are consistent. • Discrepancies at higher $[U]_{\text{water}}$ could be explained by the fact that food intake used in the calculation are based on 2000-2003 National Total Diet Studies that do not necessarily represent the food intakes from the 50-80's. As more local food was consumed back then, $[U]_{\text{water}}$ could have impacted $[U]_{\text{food}}$ to a larger extent that originally believed.

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