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Available Issues Japanese	
Author: <input type="text"/> ADVANCED	Volume <input type="text"/> Page <input type="text"/>
Keyword: <input type="text"/> <input type="button" value="Search"/>	<input type="text"/> <input type="text"/> <input type="button" value="Go"/>



[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

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[\[Image PDF \(282K\)\]](#) [\[References\]](#)

A Study on Urinary Selenium in Healthy Adults, and the Corrections of the Selenium Concentrations in Spot Urinary Samples

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Abstract:

Urinary selenium concentrations of 400 healthy adults in Aichi Prefecture were measured between 1998-2002 to assess the normal range of selenium concentrations in urine. In analyzing the data, we have evaluated the appropriate way of correction using urinary creatinine concentration and the specific gravity. Results and conclusions:

1) The urinary selenium concentration was 40.3 ± 21.4 $\mu\text{g/l}$ (mean \pm SD, n=400; median=36.5), and 43.4 ± 20.1 for males (n=200), 37.3 ± 22.2 for females (n=200). The concentration for males was significantly higher ($P < 0.01$) than that for females. The selenium concentrations were found to decrease significantly with age.

2) Correction using either with urinary creatinine or the specific gravity has made the standard deviation of the corrected concentrations smaller, the results of which may suggest that the correction was successfully achieved. It should be noted, however, that the corrected concentrations by the creatinine and by the specific gravity showed opposite tendency in the relationships between aging and gender. The opposite tendency in relation to these factors was considered to derive from the fact that urinary creatinine levels reflect the amount of each individual's muscle volume. Accordingly, the specific gravity correction is considered to be more suitable for the correction of the measured selenium in spot urinary samples.

Key words: [selenium](#), [urine](#), [healthy adult](#), [creatinine](#), [specific gravity](#), [correction](#)

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