PIXE analysis of urinary concentrations of trace elements in health survey

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Abstract

The present study was designed to investigate the oxidative stress caused by environmental trace elements. By using PIXE analysis, we determined the urinary concentration of trace elements in 150 persons who eat high levels of marine products. It was expected that the trace elements in urine would be reflected in the high intake of marine products.

The following results were obtained. The urinary concentrations of many trace elements in subjects are higher than normal levels for both Japanese males and females. Mn, Fe and Zn concentrations in urine were higher in males than females; conversely, the urinary levels of Ca, Rb, Pb, Hg, Br, Sr, Na, Mg, Al, S, Cl and K were higher in females than males. However, there were no significant sex-differences for all the elements.