

Zn Nutriture Assessment using dietary intake and biochemical indicators in South Koreans : Depending on different areas and sex

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Zn has been known as one of the antioxidant trace elements and marginal Zn deficiency is general in public health. Zn nutritional status in South Korea, using Zn, Ca and phytate intakes, phytate : Zn molar and phytate x Ca : Zn millimolar ratios, was evaluated in previous study. At the present study, Zn nutriture assessment in South Koreans was evaluated, specially focusing on sex difference in rural, urban and metropolitan areas. Random sample of 625 subjects aged between 20 and 70 yrs were selected for the current study. Food frequency questionnaire (FFQ) was used for the estimation of nutrient intakes and 24-hour dietary recall was used for validity of FFQ. Blood, urine, hair and nail were collected for Zn analysis and alkaline phosphatase (ALP) activity was also measured.

Average Zn intake (mean \pm SD) was the lowest in the rural area(6.5 \pm 3.7 μ g/d) and the highest in metropolitan city (11.4 \pm 3.1 μ g/d)(p<0.05). Mean Zn intake of Koreans is lower than the Korean RDA for adults (12 mg/d for man and 10 mg/d for woman). There is no statistical difference between men and women in zinc intake in three different areas. All other nutrient intakes and molar ratios which can affect on the Zn nutriture, such as Ca, phytate, phytate:Zn, and phytate x Ca:Zn, were not different between men and women in rural, urban and metropolitan areas. Plasma Zn and urinary concentration was also not different between men and women in three different areas, but red blood cell Zn concentration was higher in women (8.9 \pm 2.1 mg/L) than men (7.7 \pm 1.4 mg/L) (p<0.05). ALP activity was higher in men (111.3 \pm 19.3 mU/ml) than women(94.9 \pm 27.8 mU/ml) (p<0.05). The results of the present study showed that the suboptimal zinc nutriture in South Koreans are prevalent, but there is not much differences between the sex difference, depending on rural, urban, and metropolitan city in Zn nutriture.