

study. Serum zinc levels in Thai adults up to 60 years old were 107.1 $\mu\text{g/dL}$ for age 21-30 years and 110.4 $\mu\text{g/dL}$ for age 51-60 years. Serum copper levels were 85.4 $\mu\text{g/dL}$ for age 21-30 years, 93.3 $\mu\text{g/dL}$ for age 31-40 years, 95.5 $\mu\text{g/dL}$ for age 41-50 years and 105.2 $\mu\text{g/dL}$ for age 51-60 years. Serum zinc, alkaline phosphatase, hemoglobin and total protein concentration showed no statistical difference in each age group; whereas serum copper, superoxide dismutase, retinol binding protein levels tended to rise with increasing age. On the other hand, albumin showed a decrease with increasing age. Energy intake and percent fat showed no statistical significance. Percent protein intake of the older age group (51-60 years) were lower than those in the younger whereas carbohydrate intake were higher.

Serum zinc levels of males were not statistically different from females. Serum copper levels in females were higher than in males. Alkaline phosphatase activities in males were not different from females except for age group of 31-40 years. No difference in red cell superoxide dismutase activity, hemoglobin, total protein were observed between males and females. Serum albumin and retinol binding protein exhibited slightly higher levels in males than in females. Energy intake in males were higher than females including protein, fat and carbohydrate intake. Estimated zinc and copper intake of males seem to be higher than females in every age group.