Thesis Title	Sport Training of the Young Runners and Changes in Iron Status and Physical Performances
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ABSTRACT

A servey study of 37 male, 16 female young runners from 4 physical education colleges near Bangkok was performed during August to November,1990. The purpose of the study was to determine hemoglobin, hematocrit, serum iron parameters and physical performance during training periods, and to study the association of those variables at pre-race period.

The mean of quantity and quality of iron consumption by 3 days food record and interview were not significantly different between the first training, heavy training, and pre-race period in both male and female groups. The amount of total iron and the estimated absorbable iron received were adequate, except in the pre-race period of female.

Both the mean hemoglobin and hematocrit levels of male and female groups decreased in the heavy training period. The hemoglobin and hematocrit of the runners were normal in all three studied period except only one male and one female in the heavy training period. The both runners had low hemoglobin value that indicated anemia, however it developed to normal in the pre-race period. Iron parameters detecting body iron status for this study were serum total iron binding capacity, serum iron, and serum ferritin. The mean serum total iron binding capacity of both male and female groups were decreased in the heavy training period, but not significantly different from the first period. At the pre-race period, such level of male developed close to the level at first training period, while that of the female was significantly decreased from the first. The mean serum iron and ferritin between the periods were not significantly different in male and female groups. However, the three serum iron parameters of the both male and female groups were normal in all periods. Hence the decreased hemoglobin and hematocrit in heavy training period might be due to the normal physiological change in athlete.

The pre-race physical performance that indicated the success of training were improved from the first period, in variables of circulatory and musculo-skeletal systems, but the respiratory system showed nonsinificant change in the both male and female groups.

Because the both runner groups were normal iron status and nonanemia in the pre-race period, thus the change

of physical performance were directly resulted from training. It was noticeable that although hemoglobin and hematocrit levels of the runners were significantly related to some physical performance variable values. The higher hemoglobin and/or hematocrit values were in the runners, the better physical performance were observed.

The result showed that the training program for this young male and female runners did not induce iron deficiency or anemia. But the female runners in the pre-race period should be consume more heme iron food sources such as meat, poultry and fish in order to protect iron deficiency anemia.