

Effects of Iron Supplementation on Iron Status and Maximal Oxygen Uptake in Egyptian Male Endurance Runners.

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Abstract:

Anemia is a significant public health problem among Egyptian population, and endurance athletes are at increased risk for suboptimal iron status, with potential negative consequences on performance, because of the combination of increased iron needs and inadequate dietary intake. Hence, this study aims to assess the nutritional and iron status of male endurance runners, and to examine the effect of six weeks iron supplementation on iron status and its effect on physical performance. Twelve male endurance runners (Mean age: 27 ± 5.22 years old) were recruited, and subjects underwent several measurements before starting the experiment (Dietary intake, body weight, height and body mass index). Subjects started the iron supplementation immediately after first biochemical and physical performance evaluation, and after 6 weeks of iron supplementation, hematological and physical performance tests were reassessed.

Results revealed that, the mean daily macronutrient intakes of endurance runners were in line with the recommendation (RDA), but the mean daily intakes of vitamin C, potassium, calcium and magnesium were lower than RDA. Before iron supplementation, the hemoglobin, hematocrit, serum ferritin and serum iron levels were, 13.83 ± 0.19 g/dl; 41.97 ± 0.69 %, 118.9 ± 2.33 ng/ml and 98.24 ± 3.60 μ g/dl respectively. Both serum ferritin and serum iron were increased significantly ($P \leq 0.01$ and $P \leq 0.05$) after 6 weeks of iron supplementation. The endurance runners' physical work capacity test value (VO_2 Max) significantly increased ($P \leq 0.01$) and the fatigue index value was significantly decreased ($P \leq 0.05$) after iron supplementation. In conclusion, in endurance athletes iron supplementation not only improves blood biochemical measures and iron status but also increases physical performance as evidenced by increasing oxygen uptake and decreased fatigue index, endurance runners are in need for raising their nutritional awareness.

Key Words: Endurance runners- nutrient intakes- Hb- Ht- Ferritin- serum iron- VO_2 max and fatigue index.