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Iron status in runners of various running specialities

BY

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(4 figures)

The blood iron status of 44 male runners of various running specialities (18 sprinters, 13 middle- and 13 long-distance runners) is evaluated by measuring serum ferritin (SF), serum iron (Si), hemoglobin concentration (Hb), hematocrit (Ht), red blood cells content (RBC) and haptoglobin concentration (Hp). The results of these analyses (except Hp) are compared to those obtained in sedentary male subjects (control group) of the same mean age. Mean SF, SI, Hb and Ht measured in athletes are significantly lower than in control group. The remarkably low Hp values obtained in athletes suggests the occurrence of hemolysis. Using unpaired t test, it appears that the blood iron status of these runners does not depend on their running speciality.

Introduction

Iron deficiency and suboptimal hemoglobin concentration have been reported among athletes, especially in distance runners involved in intense physical training (DUFaux et al., 1981). It has been suggested that this phenomenon is the result of increased hemolysis (DUFaux et al., 1981) and iron excretion through sweat (EHN et al., 1980) and urine (BLACKLOCK, 1977) in combination with reduced absorption of iron from the gut (EHN et al., 1980). According to DUFaux et al. (1981), distance runners have a greater need of iron than other athletes because of greater loss of iron through hemolysis. The hypothesis was made that this greater hemolysis in runners is due to mechanical destruction of red blood cells caused by repeated foot strikes on the ground (DUFaux et al., 1981).

The aim of this study is to compare the iron status of runners of various running specialities. We have measured serum iron, serum ferritin, haptoglobin and hemoglobin concentrations in the blood of long- and middle-distance runners. We have compared these results to those obtained in sprinters and in healthy but sedentary young men of the same age.

Analytical procedures and Methods

Venous blood samples were taken at rest in the supine position in 44 male runners divided in 3 groups according to their running speciality (group 1 : 18 sprinters,

