Effect of Training on Morphological, Physiological and Biochemical Variables of Young Indian Soccer Players

Manna I.[*], Khanna G. L.[**], Dhara P. C.[***]

[*]Department of Physiology, Janaki Medical College, Janakpur, Nepal, [**]Human Performance Laboratory, Sports Authority of India, New Delhi, India, [***]Department of Human Physiology, Vidyasagar University, Midnapore, India

Abstract

The present study aims to find out the training induced changes on different physiological and biochemical parameters in young Indian soccer players. A total of 30 Indian male soccer players (age range 14-16 yrs) regularly playing competitive soccer were selected, a training programme consist of 6 wks and 12 wks of training was employed, and the effects were studied on different morphological, physiological and biochemical variables. Results showed a significant decrease ($P<0.05$) in body fat, and a significant increase ($P<0.05$) in LBM following the training programme. Strength of back and hand grip muscles were also increased significantly ($P<0.05$) after the training. Moreover, significant reduction in heart rates during rest, sub-maximal exercise, maximal exercise and recovery were noted following the training. Further, significant increase ($P<0.05$) in aerobic capacity and anaerobic power were observed after the training. Significant reduction ($P<0.05$) in haemoglobin, total cholesterol, triglyceride and LDLC were noted after the training. A significant increase in serum urea, uric acid and HDLC were noted after training. Since the data on the soccer players are limited in India therefore, the present study may provide useful information to the coaches to develop their training programme.

Key Words: **Body Fat, Strength, VO_2max, Anaerobic Power, Lipid Profile**

Introduction

Soccer is unarguably the most popular sport world wide. The common aspect of the game is the necessity of teamwork to complement individual skills. Since soccer is a physical contact sport and lots of movements and skills are involved. A high level of physical demand is required for match play, which involves kicking, short sprinting, throwing, catching, trapping etc. The activities of the game include short sprinting as well as casual recovery movements. As the players have to cover a big area in the ground during attack and defense therefore, the game demands for aerobic as well as anaerobic fitness *(Reilly, 1996; Reilly et al., 2000a).* Identification and selection of players at the young age are essential; this helps the selectors and the coaches to produce a successful player of top level *(Manna et al., 2002; Reilly et al., 2000b).* Training helps to develop the strength, endurance as well as skills, and become more effective when given to young players *(Bell and Rhodes, 1975; Berg et al., 1985; Jung et al., 2000; Reilly et al., 2000b; Strudwick et al., 2002).*

Monitoring of training through different laboratory and field tests are performed to observe the training induced changes in different morphological, physiological and biochemical variables among the players. Apart from the skills and teamwork required for game play body composition, strength, aerobic capacity and anaerobic power as well as heart rate during