

## Effect of football coaching on total leukocyte count

■ VINAY PAWAR AND JAIPRAKASH BHUKAR

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### ■ ABSTRACT

The aim of the study was to examine the changes taking place in total leukocyte count (TLC) before and after regular participation of systematic football practice. For the purpose of this study, 30 male youth with mean age of  $24.6 \pm 1.76$  from Pune city were selected as subjects. The subjects were further divided into two groups consisting of 15 subjects each as experimental and control groups, respectively. The experimental group consisted of 15 football players from Pune United Football Club, Pune. The control group included 15 subjects from Pune Engineering College. The blood sample of 30 subjects were collected in the beginning of the study and after the completion of 6 month regular training to find out the effect of regular football practice of total leukocyte count (TLC). Analysis of Co-variance (ANCOV) was used as statistical tool for comparison of mean difference between the experimental and control group which was analysed by SPSS 17 version. The results suggested that football coaching induced an increase of total leukocyte count by corticosteroid induced release of leukocytes from the bone marrow reserve, a pool of non-proliferating cells.

See end of the article for authors' affiliations

**VINAY PAWAR**  
Bharati Vidyapeeth College of  
Physical Education, PUNE (M.S.)  
INDIA

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Blood is a specialized bodily fluid in man that function is to deliver the essential substances such as nutrients and oxygen to the cells and transport metabolic waste products away from those same cells. Blood is circulated around the body through blood vessels by the pumping action of the heart (Rogers, 2010). In man this process starts with lungs, arterial blood carries oxygen from inhaled air to the tissues of the body, and venous blood carries carbon dioxide, a waste product of metabolism produced by cells, from the tissues to the lungs to be exhaled. In blood, red blood cells and white blood cells are responsible for nourishing and cleansing the body. Since the cells are alive, they too need nourishment, vitamins and minerals to keep the blood healthy and to do their activities (Bain, 2006). The blood cells are also having a definite life cycle, just as all living organisms do. Approximately 55 per cent of blood is plasma, a straw-coloured clear liquid. The liquid plasma in the blood carries the solid cells and the platelets which help blood clot. Without blood platelets, an

individual would bleed to death (Dishman and Richard, 2004). Whenever, the human body loses a little bit of blood through a minor wound or any injury, the platelets cause the blood to clot so that the bleeding stops as quickly as possible. Because the process of new blood is always being made inside of your bones, the body can replace the lost blood immediately to meet the demand of the body (Schaller *et al.*, 2008). But sometime the human body loses a lot of blood through a major wound, that blood has to be replaced through a blood transfusion from other people.

The scientific name of white blood cell is leukocyte, which is among the one of several components that make up the blood that flows through the body (Daniels and Bromilow, 2010). White blood cells are generally known as the cells that do much of the work in keeping the body healthy, simply because they are playing a key factor role in the immune system of the body. Leukocytes are immune cells that make up approximately 1 per cent of whole blood of human. White