ABSTRACT

MAXIMAL AEROBIC CAPACITY, ANAEROBIC CAPACITY AND ANAEROBIC POWER OUTPUT OF SPORTSPERSONS: RELATIONSHIP WITH BODY COMPOSITION PROFILE

Keeping in view the relationship of body composition parameters with the physiological parameters the present study was designed to investigate the status of various physiological variables like maximum aerobic capacity, anaerobic capacity and anaerobic power of sportspersons.

A total of (178) sportspersons were selected as subjects for this study from the three different sports categories (Endurance, Combative & Intermittent). Each sports category consisted of 30 approximate sportsmen and 30 sportswomen of age group of 20-28 years. All the sportspersons were Elite level selected from the national level players who were represented India in different competitions.

The morphological variables included height, body weight, body fat percentage, muscle mass, bone mass and somatotype. Physiological functions are measured in the laboratory in terms of oxygen consumption, oxygen debt, anaerobic power and heart rate which is again dependent on other coordinated physiological functions, particularly of circulatory, respiratory and muscular systems. The instruments used for the measurements of the above tests were readily available at Exercise Physiology laboratory and Anthropometry laboratory of Sports Authority of India, NetajiSubhas National Institute of Sports, Patiala.

Results of present study reveals that there are significant differences in body height between intermittent vs endurance sports categories. But no significant difference was observed between combative & intermittent and combative & endurance sports category. Cyclists have been found to tallest followed by hockey and judokas respectively.
This may be due to as combative sports require movement speed and coordination coupled with agility and explosive power, the taller individuals find it difficult to execute the skill, which are prerequisites for combative group.

Result reveals that there are significant differences in recovery heart rate between all the three sports categories (endurance vs combative and intermittent vs endurance). In the present study an attempt was made to identify the physiological demand of sportsmen at different age categories. The unique profile of different sports discipline related to energy system changes, should be taken into consideration while administering training to the miniature and young athletes in various sports. The present data of morpho-physiological can be a handy tool and can act as a frame of reference for monitoring the athletes at different discipline. Keeping in view of the growing demand of various sports in physical and physiological attributes, the endurance category sportsmen at elite age category need to improve their maximum aerobic capacity. In the present study the intermittent category sportsperson need to achieve the physical and physiological target underlying that particular sport. The physical and physiological variables of the sportsperson engaged in various sports need to be analysed at regular intervals and prompt counselling of the results, will enable the sportsperson to achieve higher level of sporting excellence.

**Key Words: Aerobic capacity, Anaerobic Capacity, Anaerobic Power, EPOC**