

Studies on effect of aerobic training on VO_2 max

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■ ABSTRACT

An adequate supply of oxygen is necessary for normal life activity. Cells use this oxygen supply for oxidative process in the metabolic changes. The enhanced metabolism rates demand more oxygen supply, hence, oxygen consumption is an important aspect detecting athletes working ability. Thus, physiological VO_2 max assessment is the marker of functional state of respiratory, circulatory and metabolic system. The present research was intended to examine the effects of aerobic training on VO_2 max of 14-16 year old male adolescents. The total 12 weeks aerobics training indicated variable effects in increasing the VO_2 max and no changes among the body structural aspects like the height, weight and surface area of the subject as discussed in the present paper.

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An adequate supply of oxygen is necessary for normal life activity. Cells use this oxygen supply for oxidative process in the metabolic changes. The enhanced metabolism rates demands more O_2 supply. Hence, oxygen consumption is an important aspect detecting athletes working ability and sports performance. Thus, physiological VO_2 max assessment is the marker of functional state of respiratory, circulating and metabolic system (David N. Proctor *et al.*, 1998).

Maximal oxygen uptake decreases by ~10 per cent in secondary people after the age of 25 yrs. (Inbar *et al.*, 1994). Further decline is ~15 per cent between the age of 50 and 75 yrs (Shvartz and Reibold, 1990). However, for masters athletes a decline of some 5 per cent decrease in the maximum oxygen uptake has been reported (Rogers *et al.*, 1990). Equally, the role of regular aerobic exercise in the prevention and restoration of the muscles metabolic and vascular losses usually increased in the aging process (Astrand *et al.*, 1964 and Booth *et al.*, 1994). Also it is reported that, when individual adopts to endurance exercise, both his VO_2 max and the concentration of mitochondria in the skeletal muscles increased. Thus, increase in muscle mitochondria can play a significant role in the increase of VO_2 max. Insufficient information is available

on the exact role of mitochondria in enhancement of VO_2 max in adolescent males. Hence, the present investigation was carried out so as to determine the efficacy of volume of oxygen consumption in adolescent males which may assist to provide guidelines in designing the physical fitness schedule.

■ METHODOLOGY

Subjects :

The untrained healthy adolescent male were screened and thus, considered for the study from Kendriya Vidyalaya Puri, Orissa, India. All the selected volunteers consented were considered healthy, if they were not presently taking any medication. A thorough orientation of the experimental procedure *vis-à-vis* exercise schedule and laboratory testing were explained to them. Total 30 subjects to 14 -16 yrs age participated in a voluntary programme of 12 weeks of aerobic training which included jogging and running. Experimental design was statistically worked out in which the thirty subjects were randomly divided into one experimental and the other normal group consisting of 15 each subjects. Jogging and running were prescribed as a means of aerobic training while control group did not participate in any of these endurance.