3736488 SCEP/M : MAJOR : PHYSIOLOGY OF EXERCISE; M.Sc. (PHYSIOLOGY OF EXERCISE)
KEY WORDS : LUNG FUNCTION / SPORTS / TRAINING / CHILDREN / ADOLESCENTS

SIRIRAT PANPHUNPHO : LUNG FUNCTION IN SPORT TRAINED AND UNTRAINED THAI CHILDREN AND ADOLESCENTS. THESIS ADVISORS : PIPAT CHERDRUNGSI, M.Sc., CHUMPOL PHOLPRAMOOL Ph.D., POONKASEM CHAROENPAN, M.D., 103 p. ISBN: 974-662-821-6

The aim of this study was to determine cross-sectionally the effects of sport training on lung function in healthy Thai children and adolescents. One hundred and seven sport-trained and eighty untrained schoolboys aged 12-17 years were recruited from the sport school of Suphunburi and the nearby ordinary schools, respectively. Children in the trained group participated in sport activities for approximately 21 hr/wk in addition to compulsory physical education. Untrained children who participated in compulsory physical education at school acted as the control. Each child was measured for forced vital capacity (FVC) and forced expiratory volume in 1 second (FEV_1). Body stature and weight as well as physical work capacity at heart rate of 170 beats/min (PWC_{170}) were determined. It was found that both children groups had similar average values for stature and weight at the same age. Lung function measurements showed that FVC and FEV_1 changed with age and were linearly correlated with height and weight. The relationships among these variables were similar between the subject groups. It was also found that the sport-trained group had greater PWC_{170} than the control throughout the studied age range. However, within the sport-trained group, children who trained in swimming and in soccer had higher PWC_{170} values than those who trained in other sports and the untrained boys. Close relationships between PWC_{170} and spirometric lung function variables were found in the two groups of children. However, correlation between these two parameters, after being normalized for body size, was significant only in the sport-trained boys but not in the control boys. Comparison of lung function measurements in study children with published data of children of other races showed that lung function, relative to stature, of Thai children in this study was intermediate between that of Chinese and Indian children, the Chinese children having the highest function. The results of this study may suggest that sport training assigned by the Suphunburi sport school had no significant influence on growth. The swimming-trained and the soccer-trained sport-school boys possessed similar levels of PWC_{170} but exhibited different lung functions suggesting that mode of sport-training has more effect on lung function than the improvement in aerobic capacity. The extent of influence of sport training, especially swimming, on lung function during growth in Thai children compared with other racial groups was unknown.