

Official Journal of the American College of Sports Medicine

1733 MAXIMAL CARDIORESPIRATORY RESPONSES OF ADOLESCENT BOYS IN RELETION TO SKELETAL MATURITY.

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The purpose of this study was to examine the influence of skeletal maturity on maximal cardiorespiratory responses of adolescent boys. Fifty-two male adolescents were divided into early (E), average (A), and late (L) maturity levels based on hand-wrist x-ray evaluation. Treadmill running and open-circuit spirometry were used for the maximal cardiorespiratory assessment. Mean (\pm SD) values for chronological age, skeletal age, body mass, height, and fat % were 12.3 ± 1.7 , 13.2 ± 1.2 , & 13.2 ± 1.3 yrs; 13.7 ± 1.4 , 13.0 ± 1.1 , & 11.6 ± 1.7 yrs; 46.4 ± 12.6 , 45.9 ± 10.8 , & 39.7 ± 8.2 kg; 157.4 ± 8.8 , 154.6 ± 11.1 , & 148.1 ± 10.7 cm; and 11.6 ± 3.0 , 16.9 ± 8.6 , & 14.5 ± 8.1 % for E, A, & L maturing boys, respectively. The results of the present study indicated no significant differences among the three maturity levels in $\dot{V}O_2$ max expressed in absolute value, relative to body mass, relative to lean body mass, relative to body surface area, or scaled to body mass to the power of .80, .75, or .67. Additionally, maximal pulmonary ventilation, maximal heart rate, respiratory exchange ratio, oxygen pulse index, or ventilatory anaerobic threshold did not show any significant differences among the three maturity levels. In conclusion, skeletal maturity does not appear to influence maximal cardiorespiratory responses in adolescent boys.