



ratio (R) reach a minimum and begin to increase; 3) a nonlinear increase in minute ventilation ( $V_E$ ) and carbondioxide production ( $VCO_2$ ); 4) turning point of the slope of  $VCO_2$  vs. oxygen consumption ( $VO_2$ ) plot (V-slope); and 5) an abrupt increase in blood lactate concentration. All AT values were expressed as oxygen consumption (ml/min/kg, l/min and % of maximum oxygen uptake ( $VO_{2max}$ )).

AT values determined by various indices showed two different groups of results in CONTROL. AT of CONTROL determined by  $\%CO_{2ET}$  and  $V_E/VCO_2$  as criteria were found to be significantly higher than AT values determined by other indices. Three groups of results were observed among AT values of runners. Determinations using  $\%CO_{2ET}$  and  $V_E/VCO_2$  as criteria were, as in CONTROL, found to be highest followed by values using lactate criteria. AT values determined by other criteria were found to be lowest in runners. All runners have higher anaerobic threshold than CONTROL when AT values were expressed in absolute units. No significant difference in ventilatory AT was observed among all groups of subjects when the AT values were expressed in relative to  $VO_{2max}$ , whereas significant higher lactate AT was observed in SHORT compared to CONTROL. No significant difference was observed among the AT of SHORT, MIDDLE and LONG in all units of expressions.

Significantly higher anaerobic power of SHORT compared to CONTROL was observed whereas no significant

difference was found among CONTROL, MIDDLE and LONG. All groups of runners showed significantly higher anaerobic capacity than CONTROL when the work output was expressed relative to body weight. However absolute anaerobic capacity of SHORT showed the same trend as anaerobic power.  $VO_{2max}$  for CONTROL showed significant lowest level whereas no significant difference was observed among  $VO_2$  of runners in all groups.

The 100 m running time of SHORT showed a negative correlation to anaerobic power and capacity but seems to show positive correlation to AT and no correlation to  $VO_{2max}$ . A different pattern was observed in LONG that all energetics parameters in this study,  $VO_{2max}$ , AT, anaerobic power and capacity, have negative correlation to the 10,000 m running time, whereas MIDDLE showed significant correlation between 1,500 m running time and  $VO_{2max}$  and showed only high correlation, not significant, to AT.