

## Relationship between 800-m running performance and running economy during high-intensity running in well-trained middle-distance runners

Tanji, Fumiya, author

Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20469623&lokasi=lokal>

---

### Abstrak

Running economy (RE) at an intensity above the lactate threshold (LT) is reported to be the most important aerobic capacity for estimating 1,500-m running performance. The reason that the RE at intensity better reflects the energy metabolism during a 1,500-m run, is that it is performed above the LT intensity running. This study clarified the relationship between an 800-m run, which is performed above the LT intensity, and aerobic capacities, including the RE measured at intensities below and above the LT. This study included 12 well-trained male middle-distance runners (800-m velocity:  $25.5 \pm 0.5$  km·h<sup>-1</sup>, LT intensity:  $79.7 \pm 5.1\%$  maximal oxygen uptake [ $\dot{V}O_{2max}$ ]). Both the RE of below and above the LT intensity were calculated at 65%  $\dot{V}O_{2max}$  (RE<sub>65</sub>) and 90%  $\dot{V}O_{2max}$  (RE<sub>90</sub>). The 800-m velocity was not related to the  $\dot{V}O_{2max}$  or the LT intensity ( $r = -0.16$  and  $-0.10$ , respectively). This velocity correlated with both RE<sub>90</sub> and RE<sub>65</sub>, with the correlation coefficient being higher for RE<sub>90</sub> ( $r = -0.80$  vs  $-0.75$ ). Furthermore, the coefficient of determination for the 800-m velocity determined from  $\dot{V}O_{2max}$ , LT intensity and RE<sub>90</sub> was higher than that determined from  $\dot{V}O_{2max}$ , LT intensity and RE<sub>65</sub> ( $R^2 = 0.522$  vs  $0.428$ ,  $P = 0.03$  vs  $0.06$ ). Based on these results, we concluded that the RE at an intensity above the LT might be better than other aerobic capacities for estimating the 800-m running performance, and more than 50% of this performance can be explained by  $\dot{V}O_{2max}$ , LT intensity and RE at an intensity above the LT.