

**PHYSIOLOGICAL AND ECHOCARDIOGRAPHIC CORRELATIONS
IN YOUNG SWIMMERS : TREADMILL VS ARM ERGOMETRY .**

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The purpose of this study was to examine the relationships between echocardiographic parameters and some physiological measurements obtained during graded treadmill running (TR) and arm ergometry (AE) in 16 young male swimmers (age : 12.8 ± 1.7 yrs ; weight : 42.7 ± 14.3 kg ; height : 153.0 ± 13.9 cm , & body fat % : 13.4 ± 8.1) . The mean values (\pm SD) for VO_2 max (ml/kg/min) during TR and AE were 49.6 ± 6.3 and 32.5 ± 6.7 , respectively . Cardiac dimensions (mm) included left ventricular posterior wall LVPW (7.36 ± 1.35) , interventricular septum IVS (7.74 ± 1.38) , left ventricular end diastolic LVDd (43.5 ± 5.4), right ventricular cavity RV (18.6 ± 4.5) , and aortic diameter Ao (23.0 ± 3.7). While controlling for the effects of age , cardiac dimensions relative to body weight exhibited significant correlations with VO_2 max during TR and AE . The correlation coefficients (* $P < .05$ & ** $P < .01$) were : LVPW (.64** & .50*), IVS (.59** & .50*), LVDd (.47* & .69**), RV(.48* & .60**) , & Ao (.48* & .78**) for TR and AR , respectively . However , Ventilatory anaerobic threshold (VAT) relative to body weight did not show any significant correlation with cardiac dimensions . It was concluded that, except for LVPW & IVS, cardiac dimensions had higher correlations with VO_2 max obtained during AE than during TR in young swimmers .