

The Association and Ability of Mental Toughness to Predict Cardiorespiratory Fitness in the General Population: A Pilot Study

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ABSTRACT

Mental toughness (MT) is associated with performative contexts as the defining attribute that enables individuals to thrive in demanding situations. MT has been linked to varying physiological outcomes in various populations. Cardiorespiratory fitness (CRF) is likewise associated with health and performance outcomes; thereby, assessing CRF remains a vital metric for assessing aerobic performance. What remains unexplored is the relationship between MT and CRF and whether MT can be used as an additional metric to determine CRF. **PURPOSE:** To determine if MT scores are able to predict CRF levels as indicated by VO₂ values. **METHODS:** Fifty individuals (n = 50, Males = 31 and n = 19 Females; Age 44.7 ± 14.8; Ht. 68.7 ± 3.6; Wt. 183.0 ± 40.7; %BF 24.2 ± 7.2; VO₂ 33.8 ± 8.5) completed a single Bruce Protocol treadmill test. Prior to the exercise test, participants filled out a validated 8-question MT questionnaire survey (total MT score) in order to quantify MT. The data was analyzed using a multiple correlation and linear regression between VO₂ values and MT levels to determine the relationship between the two. All analyses were performed using SPSS (v.29.01). **RESULTS:** There was no significant correlation between CRF and MT (r = 0.07, p = 0.64). Additionally, MT was not able to predict CRF (R² = 0.005, p = 0.64). **CONCLUSION:** There was no significant correlation observed between MT and CRF. Additionally, MT was not able to significantly predict CRF in a general population cohort. Based on the results, the outcomes are potentially due to the low sample size and higher variance of the sample population. Data collection is currently ongoing to achieve the predetermined sample size.