

The Variance of Maximum Heart Rates and Maximum Oxygen Capacity or VO₂ Max Between Male and Female Karate Athletes

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Karate is one of the most attractive combat sports that millions of people practice worldwide. This experimental study was conducted on a purposively selected sample of 8 male karate athletes (n1=8) and 8 female karate athletes (n2=8) in the 20-35 years age limit, following vigorous physical training. It was identified that most karate athletes were physically exhausted, suffered from chronic injuries, and were mentally depressed due to the existing training schedule. The study aimed to determine the variance of maximum heart rates (HR max) and maximum oxygen capacity (VO₂ max) between male and female karate athletes by implementing the Harvard Step Test (HST), a validated field test that can be performed simplistically in the training environment. The data relating to the basic demography and medical history of subjects were obtained by a researcher-developed questionnaire and the degree of physical exhaustion and the mentality of the sample gathered by observation, and interviews. The data were analyzed using the t-test (two samples assuming unequal variance). According to the results, the mean HR max of male karate athletes was 184 (beats/min) and the mean HR max of female karate athletes was 146.3 (beats/min). There was a significant statistical difference (p=0.001) in HR max between male (mean HR max) and female karate athletes (mean HR max). However, there was no significant difference in male and female VO₂ max (43.7 ml.kg⁻¹.min⁻¹, 42.3 ml.kg⁻¹.min⁻¹, p=0.78). The study suggested that gender, age, anthropometrics, HR max, and VO₂ max of every subject are highly considered to create individual training schedules effectively.

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