

CORRELATION BETWEEN BODY MASS INDEX AND HAEMOGLOBIN LEVEL WITH VO2MAX IN COLLEGE ATHLETE

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ABSTRACT

Athletes' performance requires physical strength to support a variety of activities. Physical fitness is a measure of the proper functioning of the cardiovascular, respiratory, neuroendocrine, muscular, and circulatory systems (Thangasheela et al., 2022). Physical fitness also refers to the ability to perform physical tasks under various conditions. It consists of five components: aerobic capacity, muscular endurance, flexibility, and body composition. Maximal oxygen uptake (VO₂ max) is the highest rate of oxygen consumption that can be achieved during maximal or intense exercise (Setty et al., 2013). Oxygen consumption also increases in people who are overweight (obese). Hemoglobin plays a very important role in cardiopulmonary processes in the body. Like Dieny et al. (2017) state that HB plays an important role in the VO₂ Max endurance (cardiopulmonary endurance). Hemoglobin levels also have a high correlation with Vo₂max (Nafita, 2012). Based on the various explanations presented along with explanations of the problem surrounding the relationship between hemoglobin levels, BMI, and VO₂Max, there is a need for research examining the relationship between these three variables. The purpose of this study is to find the relationship between body mass index (BMI) and hemoglobin (Hb) and VO₂Max capacity in student athletes. The Spearman correlation test results show that there is a fairly strong correlation between travel time and HB ($\rho = -0.605$; $p = 0.000$). The coefficient results in a negative number. This means that if the hemoglobin data is high or the data is low/small, the travel time will be longer and vice versa. Therefore, the athlete's VO₂Max value was found to be correlated with the hemoglobin value.

Kata Kunci: *body mass index, haemoglobin, VO₂Max*