

**THE EFFECT OF GIVING RED DRAGON FRUIT JUICE ON THE
MUSCLE STRENGTH OF THE FUTSAL TEAM
JEMBER STATE POLYTECHNIC**

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ABSTRACT

Muscle strength is the ability of the muscles to perform high-intensity movements and is a very important component for improving overall physical condition. Consumption of juices containing high flavonoids can improve muscle strength recovery after intense training in trained athletes. Red dragon fruit juice contains flavonoids as antioxidants which can eliminate excess free radicals in the body. Flavonoids are able to reduce ROS production through inhibition of cyclooxygenase activity (COX1 and COX2), then reduce NF-kB expression signaling which results in reduced release of pro-inflammatory cytokines so that it has an impact on increasing recovery from muscle damage due to exercise which can also have a positive effect on increasing recovery of muscle soreness and muscle strength. The purpose of this study was to determine the effect of giving red dragon fruit juice on the muscle strength of the Jember State Polytechnic futsal team. This research is a Quasi-Experimental research with Pretest-Posttest with Control Group design. The sampling technique used total sampling with 16 members of the Jember State Polytechnic futsal team which were divided into 2 groups, namely treatment and control. The treatment and control groups each consisted of 8 people. The treatment group was given 400 ml/day of red dragon fruit juice and the control group was given 400 ml/day of mineral water for 14 days. There was no difference in the value of muscle strength before and after the intervention in the control group ($p = 0,057$), while in the treatment group there was a difference ($p = 0,035$). There was no difference in the difference in the value of muscle strength in the control group and the treatment group ($p = 0,103$). The conclusion of this study is that there is no effect of giving red dragon fruit juice on the muscle strength of the Jember State Polytechnic futsal team.

Keywords : *Red dragon fruit juice, antioxidant, flavonoids, muscle strength, futsal*