The Relationship between Carbohydrate and Protein Intake with Arm Muscle Strength and Leg Muscle Explosive Power of Teenage Karate Athletes at INKAI Jember

Hubungan Asupan Karbohidrat dan Protein terhadap Kekuatan Otot Lengan dan Daya Ledak Otot Tungkai Atlet Karate Remaja di INKAI Jember

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ABSTRACT

Teenage athletes are a population that is vulnerable to decreased arm muscle strength and muscle explosive power due to deficit intake of carbohydrates and protein caused by lack of education or incorrect education results. The deficit intake of food causes decreased arm muscle strength and muscle explosive power in the form of fatigue and muscle cramps. The purpose of this study was to determine the relationship between carbohydrate and protein intake and cold arm muscle strength and muscle explosive power. This type of research uses an analytical survey with a cross-sectional design. The subjects of the study were 109 teenage karate athletes at INKAI Jember. The results of the Statistical Package for the Social Sciences (SPSS) test, namely Kolmogorov Smirnov and Pearson Product Moment, obtained the results of carbohydrate intake on arm muscle strength P = 0.00 <0.05, the relationship between carbohydrate intake and neck muscle explosive power P = 0.01 <0.05, the relationship between protein intake and arm muscle strength P = 0.00 <0.05, and the relationship between protein intake and neck muscle explosive power P = 0.00 <0.05. The conclusion of the study is that there is a relationship between carbohydrate intake and arm muscle strength, there is a relationship between carbohydrate intake and neck muscle explosive power, there is a relationship between protein intake and arm muscle strength, and there is a relationship between protein intake and arm muscle explosive power. It is recommended for athletes to maintain intake according to needs and exercise with sufficient frequency and duration. Coaches contribute to providing nutrition education with nutritionists to athletes, for further researchers to research related to micronutrients that help metabolism, add supporting instruments, and research related to athletes' amino acids.

Keywords: *Carbohydrate intake, Protein intake, Arm Muscle Strength, Leg Muscle Explosive Power*