

Hubungan Asupan Lemak, Vitamin D dan Kualitas Tidur dengan Daya Tahan Otot pada Atlet Sepak Bola Pria Usia 17-18 Tahun. (*Relationship between Fat Intake, Vitamin D, and Sleep Quality with Muscle Endurance in Male Soccer Athletes Aged 17-18 Years*)

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ABSTRACT

Background: Muscle endurance is an important component in supporting soccer athletes' performance because soccer requires repetitive and high-intensity physical activity. Muscle endurance is influenced by several factors, including fat intake, vitamin D intake, and sleep quality, which play important roles in energy metabolism, neuromuscular function, and muscle recovery. **Objective:** To analyze the relationship between fat intake, vitamin D intake, sleep quality, and muscle endurance among male soccer athletes aged 17-18 years at Putra Mumbulsari Soccer Club. **Methods:** This analytic observational study used a cross-sectional design involving 23 athletes selected using a total sampling technique. Fat intake and vitamin D intake were measured using 2x24-hour food recalls and analyzed using NutriSurvey. Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI) questionnaire, while muscle endurance was measured using a 1-minute push-up test. Data were analyzed using the Pearson correlation test. **Results:** There were significant relationships between fat intake ($r = 0.42$; $p = 0.04$), vitamin D intake ($r = 0.48$; $p = 0.01$), sleep quality ($r = -0.68$; $p = 0.00$), and muscle endurance. **Conclusion:** Fat intake, vitamin D intake, and sleep quality were significantly associated with muscle endurance among male soccer athletes aged 17–18 years at Putra Mumbulsari Soccer Club.

Keywords: fat intake, vitamin D intake, sleep quality, muscle endurance.