

## INTISARI

### PENGARUH PEMBERIAN SUPLEMEN VITAMIN D, MAGNESIUM, DAN SUSU TINGGI KALSIMUM SERTA *BALANCED DIET* TERHADAP KOMPOSISI TUBUH ATLET SEPAK BOLA REMAJA

Dwirda Nindiya Afifa<sup>1</sup>, Mirza Hapsari STP<sup>2</sup>, Aviria Ermamilia<sup>2</sup>

**Latar Belakang:** Sepak bola merupakan olahraga populer di Indonesia. Agar mengasihkan prestasi yang baik, para pemain sepak bola harus memiliki performa yang baik pula. Performa yang optimal dipengaruhi oleh berbagai faktor, diantaranya ialah asupan gizi yang sesuai. Asupan zat gizi mempengaruhi komposisi tubuh atlet, komposisi tubuh akan mempengaruhi performa atlet sepak bola di lapangan. Oleh karena itu, asupan zat gizi memegang peranan penting dalam mencapai performa terbaik dari atlet sepak bola.

**Tujuan Penelitian:** Penelitian ini bertujuan untuk mengetahui pengaruh pemberian suplemen vitamin D, magnesium, dan susu tinggi kalsium serta edukasi *balanced diet* terhadap komposisi tubuh atlet sepak bola remaja.

**Metode:** Penelitian ini merupakan penelitian pra-eksperimental dengan *pre-post without control trial design*. Subjek merupakan 21 atlet laki-laki sepak bola remaja Sekolah Sepak Bola (SSB) Bintang Putra Mlati berusia 11-13 tahun. Subjek diberikan intervensi suplementasi vitamin D3 800 IU dalam bentuk *softgel*, magnesium 100 mg dalam bentuk tablet, dan susu *high calcium low fat* 250 ml per hari. Pengukuran komposisi tubuh dilakukan sebelum dan sesudah masa intervensi, penilaian pengetahuan gizi dilakukan sebelum dan sesudah diberikan edukasi, serta pemantauan terhadap asupan atlet dilakukan setiap minggu dengan *recall* 24 jam dan *Semi Quantitative-Food Frequency Questionnaire (SQ-FFQ)* cairan.

**Hasil:** Penelitian ini menunjukkan bahwa pemberian suplemen vitamin D, magnesium, dan susu tinggi kalsium serta edukasi *balanced diet* memiliki pengaruh yang signifikan terhadap perubahan nilai persen massa otot total dengan nilai  $p < 0,003$  ( $p < 0,05$ ) dan persen massa lemak total dengan nilai  $p < 0,004$  ( $p < 0,05$ ). Persentase massa otot *trunk*, *arms*, dan *legs* menunjukkan nilai  $p$  masing-masing sebesar 0,000; 0,001; 0,000 ( $p < 0,05$ ). Persentase massa lemak *trunk*, *arms*, dan *legs* menunjukkan nilai  $p$  masing-masing sebesar 0,000; 0,012; 0,000 ( $p < 0,05$ ).

**Kesimpulan:** Pemberian suplemen vitamin D, magnesium, susu tinggi kalsium serta edukasi *balanced diet* berpengaruh signifikan terhadap komposisi tubuh atlet sepak bola remaja SSB Bintang Putra Mlati.

**Kata Kunci:** Suplementasi, vitamin D, magnesium, kalsium, pengetahuan gizi, massa otot, massa lemak, atlet sepak bola remaja

- 
1. Mahasiswa Program Studi S1 Gizi Kesehatan FK-KMK UGM
  2. Dosen Program Studi S1 Gizi Kesehatan FK-KMK UGM

## ABSTRACT

### THE EFFECT OF SUPPLEMENTATION OF VITAMIN D, MAGNESIUM, AND HIGH CALCIUM MILK AND BALANCED DIET EDUCATION ON THE BODY COMPOSITION OF ADOLESCENT FOOTBALL ATHLETES

Dwirda Nindiya Afifa<sup>1</sup>, Mirza Hapsari STP<sup>2</sup>, Aviria Ermamilia<sup>2</sup>

**Background:** Football is a popular sport in Indonesia. In order to produce good performance, football players must have good performance as well. Optimal performance is influenced by various factors, including appropriate nutritional intake. Nutrient intake affects the athlete's body composition, body composition will affect the performance of soccer athletes on the field. Therefore, nutrient intake plays an important role in achieving the best performance of soccer athletes.

**Purpose:** This study aims to determine the effect of supplementing with vitamin D, magnesium, and high-calcium milk as well as education on a balanced diet on the body composition of adolescent soccer athletes.

**Methods:** This research is a pre-experimental study with a pre-post without control trial design. The subjects were 21 male youth soccer athletes from Bintang Putra Mlati Soccer School (SSB) aged 11-13 years. Subjects were given an intervention of 800 IU vitamin D3 supplementation in the form of softgels, 100 mg magnesium in the form of tablets, and 250 ml of high calcium low fat milk per day. Body composition measurements were carried out before and after the intervention period, nutritional knowledge assessment was carried out before and after being given education, and monitoring of athlete intake was carried out every week with 24-hour recall and Semi Quantitative-Food Frequency Questionnaire Semi Quantitative-Food Frequency Questionnaire (SQ-FFQ) fluid.

**Result:** This study showed that supplementation of vitamin D, magnesium, and high-calcium milk as well as education on a balanced diet had a significant effect on changes in the percentage of total muscle mass with a p-value is 0.003 ( $p < 0.05$ ) and p-value of total fat mass percentage is 0.004. ( $p < 0.05$ ). The percentage of trunk, arms, and legs muscle mass showed a p-value 0.000; 0.001; 0.000 ( $p < 0.05$ ). The percentage of trunk, arms, and legs fat mass showed a p-value 0.000; 0.012; 0.000 ( $p < 0.05$ ).

**Conclusion:** Supplementation of vitamin D, magnesium, high calcium milk and balanced diet education had a significant effect on the body composition of SSB Bintang Putra Mlati youth soccer athletes.

**Keywords:** Supplementation, vitamin D, magnesium, calcium, nutritional knowledge, muscle mass, fat mass, youth soccer athlete

- 
1. Undergraduate Student of Department of Health Nutrition, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada
  2. Department of Health Nutrition Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada