

INTISARI

PENGARUH PEMBERIAN TABLET FE, JUS BIT, DAN TABLET FE BESERTA JUS BIT TERHADAP PENINGKATAN KADAR HEMOGLOBIN ATLET SEPATU RODA SELAMA MENJALANKAN LATIHAN *ENDURANCE*

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Latar Belakang: Suplementasi zat gizi mikro esensial telah menjadi kebutuhan vital dalam dunia olahraga dikarenakan tingginya resiko atlet untuk mengalami defisiensi akibat beban latihan yang dijalankan. Salah satunya adalah defisiensi zat besi yang dilaporkan banyak terjadi terutama pada atlet *endurance*. Atlet *endurance*, seperti sepatu roda, mengalami peningkatan kehilangan zat besi akibat karakteristik latihan yang berintensitas tinggi dan berdurasi panjang. Mengingat fungsi zat besi sebagai pembentuk molekul hemoglobin, yang mana dalam hal ini berpengaruh terhadap performa tubuh karena peranannya sebagai transporter oksigen, maka suplementasi zat besi banyak dilakukan pada atlet. Bit (*Beta vulgaris* L.) sebagai salah satu sumber zat besi alamiah masih menjadi hal yang memerlukan pengkajian dalam kemampuannya untuk meningkatkan kadar hemoglobin, salah satunya adalah pada atlet *endurance*.

Tujuan Penelitian: Mengetahui pengaruh dan perbedaan pengaruh pemberian tablet Fe, pemberian jus bit, dan pemberian tablet Fe beserta jus bit terhadap kadar hemoglobin atlet sepatu roda.

Metode: Uji klinis *true experimental* dengan menggunakan rancangan *posttest only with control group* dengan *cross-over design* terhadap 8 atlet sepatu roda di Yogyakarta. Penelitian dilakukan selama empat minggu, yakni minggu pertama tanpa perlakuan (kontrol), minggu kedua pemberian jus bit, minggu ketiga pemberian tablet Fe, dan minggu keempat pemberian tablet Fe beserta jus bit. Pengambilan darah dilakukan pada hari ketujuh tiap minggunya, yakni pada pagi hari setelah subjek bangun tidur. Uji kadar hemoglobin dilakukan dengan menggunakan alat *HemoSmart*. Selain itu juga dilakukan penggalian riwayat konsumsi *inhibitor* zat besi tiap minggunya dengan menggunakan *Semi-Quantitative-Food Frequency Questionnaire*.

Hasil: Terjadi peningkatan kadar hemoglobin pada saat pemberian tablet Fe (14.30 ± 1.42 mg/dL) dan pemberian tablet Fe beserta jus bit (14.44 ± 1.88 mg/dL) sedangkan justru terjadi penurunan kadar hemoglobin pada saat pemberian jus bit (14.19 ± 0.85 mg/dL) dibandingkan dengan pada saat tanpa perlakuan (kontrol) (14.24 ± 1.20 mg/dL). Meskipun demikian, secara statistik tidak terdapat perbedaan yang bermakna ($p > 0.05$).

Kesimpulan: Tidak terdapat pengaruh signifikan serta tidak terdapat perbedaan pengaruh yang signifikan pada pemberian tablet Fe, pemberian jus bit, dan pemberian tablet Fe beserta jus bit terhadap kadar hemoglobin atlet sepatu roda.

Kata Kunci: Pemberian Tablet Fe, Pemberian Jus Bit, Pemberian Tablet Fe beserta Jus Bit, Kadar Hemoglobin, Latihan *Endurance*, Atlet Sepatu Roda

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ABSTRACT

THE SUPPLEMENTATION EFFECT OF IRON TABLET, BEET ROOT JUICE, AND IRON TABLET WITH BEET ROOT JUICE ON HEMOGLOBIN LEVELS ESCALATION OF INLINE SKATING ATHLETES DURING ENDURANCE EXERCISE

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Introduction: Essential micronutrients supplementation has become a vital necessity at sport due to the athlete's higher risk of deficiency as an effect to the exercise loads. Iron deficiency has been reported occurs at endurance sports. Endurance athletes, such as inline skating, undergo an excess iron loss as a result of high intensity and prolong duration of exercises. According to iron as the part of hemoglobin molecule, which is determined body performance because of its function as the oxygen transporter, iron supplementation has practically applied on athletes. Study of beet (*Beta vulgaris* L.) as one natural source of iron to escalates hemoglobin levels, which one is at endurance athletes, is still lacking and needs to be assessed.

Objectives: To determine the supplementation effect and the effect difference of iron tablet, beet root juice, and iron tablet with beet root juice on hemoglobin levels of inline skating athletes.

Methods: True experimental clinical trial posttest only with control group was carried out in this study through a cross-over design. Eight athletes of inline skating team in Yogyakarta participated in this four weeks study. The first week was the untreated (control), the second week was the beet root juice supplementation, the third week was the iron tablet supplementation, and the fourth week was the iron tablet with beet root juice supplementation. Blood sampling was withdrawn on the seventh day of each week in the morning after subjects awoke. Hemoglobin levels were determined by HemoSmart. Moreover, iron inhibitor consumption history of each week was known by Semi-Quantitative-Food Frequency Questionnaire.

Results: There was an increase in hemoglobin levels at the iron tablet supplementation (14.30 ± 1.42 mg/dL) and the iron tablet with beet root juice supplementation (14.44 ± 1.88 mg/dL) whereas there was a decrease in hemoglobin levels at the beet root juice supplementation (14.19 ± 0.85 mg/dL) compared with the untreated (control) (14.24 ± 1.20 mg/dL). Nevertheless, there was no statistically significant difference ($p > 0.05$).

Conclusions: There was no significant supplementation effect and there was also no significant supplementation effect difference of iron tablet, beet root juice, and iron tablet with beet root juice on hemoglobin levels of inline skating athletes.

Keywords: Iron Tablet Supplementation, Beet Root Juice Supplementation, Iron Tablet with Beet Root Juice Supplementation, Hemoglobin Levels, Endurance Exercise, Inline Skating Athletes

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