

**Pengaruh Pemberian Jus Buah Bit (*Beta vulgaris L.*) terhadap Kadar Malondialdehid pada Atlet Sepakbola Remaja di Aji Santoso International Football Academy (ASIFA) Malang**

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**ABSTRAK**

**Latar Belakang:** Stres oksidatif adalah ketidakseimbangan antara radikal bebas dan sistem pertahanan antioksidan tubuh. Kondisi stress oksidatif ini berhubungan dengan kelelahan dan kerusakan jaringan yang dapat mempengaruhi performa dan ketahanan seorang atlet. Pencegahan stres oksidatif dapat dilakukan dengan pemberian antioksidan eksogen. Antioksidan yang dapat digunakan meliputi vitamin A, vitamin B, vitamin C, dan vitamin E. Buah bit mengandung kalium, betain, betalain, natrium, magnesium, vitamin C, dan sebagai sumber antioksidan dan mikronutrien.

**Tujuan:** Mengetahui pengaruh pemberian jus buah bit terhadap kadar malondialdehid atlet sepak bola yang berbasis bahan pangan lokal.

**Metode:** Penelitian ini menggunakan metode *true experimental* dengan rancangan *two group pre-test post-test design*. Dalam desain ini, subjek penelitian akan mendapatkan dua jenis perlakuan yaitu pemberian jus buah bit dan pemberian plasebo. Pemberian intervensi dilakukan selama 10 hari. Tes laboratorium untuk mengukur kadar malondialdehid dan dilakukan pada seluruh subjek sebanyak dua kali yaitu sebelum intervensi sebagai data *baseline* dan setelah intervensi sebagai data akhir. Hal ini bertujuan untuk melihat apakah terdapat perubahan kadar malondialdehid sebelum dan setelah pemberian intervensi.

**Hasil:** Hasil uji beda *independent sample t-test* menunjukkan bahwa terdapat perbedaan rata-rata berat badan dan indeks massa tubuh (IMT) secara bermakna antara kedua kelompok ( $p < 0,05$ ). Tidak terdapat perbedaan bermakna rata-rata karakteristik subjek dari segi usia ( $p = 0,065$ ), tinggi badan ( $p = 0,48$ ), persen lemak tubuh *pre* ( $p = 0,56$ ), persen lemak tubuh *post* ( $p = 0,15$ ), dan  $\Delta$ persen lemak tubuh ( $p = 0,52$ ). Selain itu, tidak terdapat perbedaan bermakna rata-rata asupan gizi, latihan fisik, dan gaya hidup serta kadar MDA sebelum dan setelah intervensi ( $p > 0,05$ ). Hasil uji beda *paired t-test* memperlihatkan hasil bahwa terdapat perbedaan yang signifikan antara hasil *pre-test* dan *post-test* MDA pada kedua kelompok ( $p < 0,05$ ). Sehingga, pemberian jus buah bit maupun plasebo berpengaruh secara signifikan terhadap peningkatan kadar MDA atlet sepak bola remaja.

**Kesimpulan:** Terdapat penurunan kadar MDA atlet sepak bola remaja secara signifikan pada kelompok perlakuan dan kontrol. Hasil penelitian juga menunjukkan perubahan kadar MDA pada atlet sepak bola remaja yang diberi jus buah bit lebih kecil meskipun tidak signifikan dibandingkan dengan kelompok yang diberi plasebo.

**Kata kunci:** malondialdehid, jus buah bit, antioksidan, stres oksidatif, atlet

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***Effect of Beetroot Juice Supplementation (*Beta vulgaris L.*) on  
Malondialdehyde of Youth Soccer Athlete in Aji Santoso International  
Football Academy (ASIFA) Malang***

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**ABSTRACT**

**Background:** *Oxidative stress is an imbalance between free radicals and the antioxidants system. This condition of oxidative stress is related to fatigue and tissue damage that can affect the performance and endurance of an athlete. Prevention of oxidative stress can be done by exogenous antioxidants. Antioxidants that can be used include vitamin A, vitamin B, vitamin C, and vitamin E. Beetroots contain potassium, betain, betalain, nantium, magnesium, vitamin C, and nitrate as sources of antioxidants and micronutrients.*

**Objective:** *To determine the effect of beetroot juice to the levels of malondialdehyde of soccer athletes based on local food.*

**Methods:** *The study used a true experimental method with two group pre-test post-test design. In this design, the subject of the study will get two types of group that was treatment group and control group. The intervention was carried out for 13 days. Laboratory tests to measure malondialdehyde levels and performed on all subjects twice, before intervention as baseline data and after intervention as final data. This aims to see whether there are changes in malondialdehyde levels before and after the intervention.*

**Results:** *Clearly, by using independent sample t-test there was a significant difference in mean of body weight and body mass index (BMI) between groups ( $p < 0,05$ ). There was no significant difference in mean of athlete's characteristics such as age ( $p = 0,065$ ), body height ( $p = 0,48$ ), pre body fat percentage ( $p = 0,56$ ), post body fat percentage ( $p = 0,15$ ), and  $\Delta$ body fat percentage ( $p = 0,52$ ). Besides, there was also no significant difference in mean of nutrition consumption, physical exercise, lifestyle, yet pre and post MDA between groups ( $p > 0,05$ ). Paired t-test results showed that it were found to be significantly different between pre and post MDA measurement between groups ( $p < 0,05$ ). Hence, the supplementation of beetroot juice and placebo significantly effects the increasing of youth soccer athlete's MDA in both groups.*

**Conclusions:** *There was a significantly increasing of youth soccer athlete's MDA in both treatment and control groups. This research also showed that in treatment group tended to have a smaller increasing of youth soccer athlete's MDA than control group despite it was not significant.*

**Kata kunci:** *Malondialdehyde, beetroot juice, antioxidants, oxidative stress, athlete.*

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