INTISARI

EFEK PEMBERIAN AIR SIWALAN (*Borassus flabellifer L.*) KEMASAN DAN AIR KELAPA (*Cocos nucifera L.*) KEMASAN TERHADAP STATUS HIDRASI ATLET SEPAK BOLA UGM DENGAN INDIKATOR ELEKTROLIT URIN

Rahadyana Muslichah[1], Zaenal M. Sofro[2], Mirza Hapsari S.T.P[3]

Latar Belakang: Sepak bola merupakan olahraga *stop and go* yang dapat memicu pengeluaran keringat dalam jumlah banyak sehingga penggantian cairan dan elektrolit tubuh harus diperhatikan. Minuman olahraga berbasis bahan alami, seperti air kelapa (*Cocos nucifera L.*), telah banyak dikembangkan karena kandungan elektrolit dan karbohidratnya tinggi. Pohon siwalan (*Borassus flabellifer L.*) merupakan tanaman dari keluarga yang sama dengan pohon kelapa. Seperti air kelapa (AK), air nira siwalan (AS) juga mengandung elektrolit dan karbohidrat yang penting untuk proses rehidrasi. Namun, kemampuan air nira siwalan untuk merehidrasi atlet belum terbukti secara ilmiah. Oleh karena itu, penelitian ini dilakukan untuk menguji efek pemberian air nira siwalan terhadap status hidrasi atlet sepak bola setelah latihan fisik.
Tujuan Penelitian: Mengetahui efek pemberian produk air siwalan dibanding produk air kelapa terhadap status hidrasi atlet dengan indikator elektrolit urin.
Metode: Penelitian ini merupakan penelitian kuantitatif berupa uji klinis eksperimental yang menggunakan desain *cross-over* dengan periode *wash-out* selama minimal 1 minggu. Subjek terdiri dari 16 atlet laki-laki UKM Sepak Bola atau Futsal UGM yang kemudian dibagi ke dalam 2 kelompok, A dan B, secara acak. Subjek diberikan 250 ml minuman sebelum tes ergometri dan 300 ml setiap 20 menit fase rehidrasi yang berlangsung selama 2 jam. Pengumpulan urin dilakukan 3 kali yaitu pagi hari, setelah 1 jam fase rehidrasi, dan setelah 2 jam fase rehidrasi.
Hasil: Setelah 1 jam rehidrasi, kadar Na+ urin pada kelompok AS menurun sebesar 5,41% ($p \geq 0,05$) sedangkan pada kelompok AK meningkat sebesar 4,17% ($p \geq 0,05$). Kadar K+ urin kedua kelompok meningkat sebesar 39,61 ($p < 0,05$) pada AS dan 28,56% ($p \geq 0,05$) pada AK. Setelah 2 jam rehidrasi, kadar Na+ kedua kelompok menurun sebesar 63,29% ($p < 0,05$) pada AS dan 25,53% ($p \geq 0,05$) pada AK. Kadar K+ urin kedua kelompok menurun sebesar 54,32% ($p < 0,05$) pada AS dan 34,09% ($p \geq 0,05$) pada AK. Perbedaan signifikan ($p < 0,05$) antara kelompok AS dan AK terdapat pada kadar Na+ urin setelah 2 jam rehidrasi dengan selisih sebesar 39,03 mEq/L.
Kesimpulan: Kedua produk minuman dapat merehidrasi atlet dengan kemampuan yang setara hingga 1 jam rehidrasi. Namun, setelah 2 jam rehidrasi, AK mampu merehidrasi dengan lebih baik dibanding AS.

Kata Kunci: Minuman Olahraga, Air Siwalan, Hidrasi, Sepak Bola, Elektrolit Urin

[1] Mahasiswa Program Studi S1-Gizi Kesehatan Fakultas Kedokteran Universitas Gadjah Mada
[2] Bagian Faal Fakultas Kedokteran Universitas Gadjah Mada
[3] Program Studi Gizi Kesehatan Fakultas Kedokteran Universitas Gadjah Mada

ABSTRACT

EFFECT OF PALMYRA (*Borassus flabellifer L.*) SAPS BRAND AND COCONUT WATER (*Cocos nucifera L.*) BRAND INGESTION ON HIDRATION STATUS OF FOOTBALL ATHLETES: URINARY ELECTROLYTES VALUE APPROACH

Rahadyana Muslichah[1], Zaenal M. Sofro[2], Mirza Hapsari S.T.P[3]

Background: Football is a stop-and-go sport which causes great amount of sweat excretion. Therefore, water and electrolytes replacement is necessary. Sports drinks based on natural compounds, such as coconut water (*Cocos nucifera L.*), has been highly developed because of its high electrolytes and carbohydrate content. Palmyra tree (*Borassus flabellifer L.*) is a plant coming from the same family with coconut tree. Palmyra saps water (AS), as well as coconut water (AK), contains electrolytes and carbohydrate which is necessary for the rehydration process. Unortunately, the ability of palmyra saps water to rehydrate athlete's body fluid is still scientifically unproved. Therefore, this study is conducted to test the effect of palmyra saps water ingestion on the hydration status of football athletes after physical exercise.
Objective: To determine the effect of palmyra saps water ingestion compared with coconut water on the hydration status with urinary electrolytes value as indicator.
Method: This quantitative experimental study was conducted using cross-over design with minimum 7 days of wash-out period. Sixteen male athletes from football and futsal UKM (students' activity center) took part in this study. Subjects were then randomly divided into 2 groups, A and B. Each subject drank 250 ml of solution before the ergometric test and then followed with 300 ml of solution every 20 minutes during the 2 hours of rehydration phase. Urine collections were done 3 times; in the morning, after 1 hour of rehydration, and after 2 hours of rehydration.
Result: After 1 hour of rehydration, urinary sodium level in group AS decreased by 5,41% ($p \geq 0,05$) while in group AK increased by 4,17% ($p \geq 0,05$). Urinary potassium level in both groups increased by 39,61% ($p < 0,05$) in group AS and 28,56% ($p \geq 0,05$) in group AK. After 2 hours of rehydration, urinary sodium level in both groups decreased by 63,29% ($p < 0,05$) in group AS and 25,53% ($p \geq 0,05$) in group AK. Urinary potassium level in both group decreased by 54,32% ($p < 0,05$) in group AS and 34,09% ($p \geq 0,05$) in group AK. Significant difference between the two groups was noted in the urinary sodium level after 2 hours of rehydration with the gap of 39,03 mEq/L ($p < 0,05$).
Conclusion: Both drinks were comparably able to rehydrate athlete's body fluid until 1 hour of rehydration. However, after 2 hours of rehydration, coconut water could rehydrate better than palmyra saps water.

Keywords: Sports Drinks, Palmyra Saps Water, Hydration, Football, Urinary Electrolytes

[1] Student of Health Nutrition Program, Faculty of Medicine University of Gadjah Mada
[2] Departement of Physiology, Faculty of Medicine, University of Gadjah Mada
[3] Health Nutrition Program, Faculty of Medicine University of Gadjah Mada