

Pengaruh jus bayam terhadap kadar NO serum dan tekanan darah pada laki-laki dewasa muda = Effect of spinach juice on serum NO level and blood pressure in young adult male

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Abstrak

Tujuan penelitian adalah diketahuinya pengaruh pemberian jus bayam 100 gram per hari selama empat minggu berturut-turut terhadap kadar NO_x serum dan tekanan darah pada laki-laki dewasa muda. Penelitian ini merupakan uji klinis paralel, membandingkan 17 orang kelompok yang mendapat jus bayam disertai penyuluhan gizi (P) dengan 17 orang kelompok yang hanya mendapat penyuluhan gizi saja (K). Sebanyak 34 mahasiswa laki-laki semester dua Fakultas Kedokteran Universitas Udayana yang memenuhi kriteria dibagi dalam dua kelompok secara randomisasi blok. Data yang diambil meliputi usia, aktivitas fisik, indeks massa tubuh, asupan energi, natrium, dan nitrat anorganik dengan food recall/2 x 24 jam dan food record. Pemeriksaan kadar nitrit, nitrat, dan NO_x serum serta tekanan darah dilakukan pada awal dan akhir perlakuan. Analisis data menggunakan uji t tidak berpasangan dan uji Mann Whitney dengan batas kemaknaan 5%. Sebanyak 17 orang kelompok P dan 16 orang kelompok K dengan median usia 18 (17-19) tahun yang mengikuti penelitian secara lengkap. Indeks aktivitas fisik subjek kedua kelompok termasuk rendah. Data awal tidak menunjukkan perbedaan bermakna ($p > 0,05$). Setelah empat minggu perlakuan, didapatkan persentase asupan energi dibandingkan kebutuhan energi total termasuk kategori cukup pada kedua kelompok $\{8:4,93 \pm 10, \text{lebih rendah dibandingkan dengan angka kecukupan gizi 2004 (1083,00 (834,84-1797,50) mg/hari vs } 923,95 (676,20-2494,05) \text{ mg/hari. Asupan nitrat anorganik lebih tinggi pada kelompok perlakuan dibandingkan kelompok kontrol (130,33 (107,28-195,85) mg/hari vs } 30,79 (9,47-118,38) \text{ mg/hari. Pada kedua kelompok didapatkan peningkatan kadar nitrit, nitrat dan NO}_x \text{, serum yang lebih tinggi pada kelompok perlakuan, namun secara statistik tidak bermakna (} p > 0,05\text{)}. Tidak didapatkan penurunan tekanan darah sistolik dan diastolik yang bermakna pada kelompok perlakuan (} p > 0,05\text{)}. Pemberian 100 gram jus bayam selama empat minggu berturut-turut tidak didapatkan peningkatan kadar nitrat, nitrit, dan NO}_x \text{, serum sejak penurunan tekanan darah sistolik dan diastolik pada kelompok perlakuan.The aims of this study were to investigate the effect of 100 gram per day spinach juice during four weeks on serum NO level and blood pressure in young adult male. The study was a parallel randomized clinical trial. Thirty four subjects of second semester male student Medical faculty of Udayana University were selected using certain criteria. The randomly (block randomization) thirty four subjects were divided into two groups. The treatment group (n=17) received spinach juice and nutrition counseling; the control group (n=17) received nutrition counseling alone. Data collected included age, physical activity, body mass index, intake of energy, sodium, and inorganic nitrate using 2 x 24 hours food recall and food record. Laboratory findings (serum nitrite, nitrate, and NO_x levels) and blood pressure examination were done before and after intervention. For statistical analysis, unpaired t-test and Mann Whitney were used with the level of significance was 5%. Seventeen subjects in the treatment group and sixteen subjects in the control group completed the study and analyzed. Median of age were 18 (17-19) years old. The physical activity index in both groups were low. The characteristic of the two groups were closely matched at baseline ($p > 0,05$). After four weeks intervention, all subjects consumed energy achieved the recommended diet with an$

average of 84.93 ± 10.60 % in the treatment group and 88.19 ± 5.47 % in the control group. The average intake of sodium in both groups were lower than Indonesian recommended dietary allowance 2004 (I 083,00 (834,84-1797,50) mg/day vs 923,95 (676,20-2494,05) mg/day). The average intake of inorganic nitrate in the treatment group increased significantly than in the control group (130,33 (107,28-195,85) mg/day vs. 30.79 (9,47-118,38) mg/day), In conclusion, there were increase in serum nitrite, nitrate and NO₁₁ levels which were higher in the treatment group, although not statistically significant ($p > 0,05$). There were also no significant decrease in systolic and diastolic blood pressure in the treatment group ($p > 0,05$). In conclusions, the effects of 100 gram per day spinach juice during four weeks did not increase serum nitrite, nitrate and NO_x level and also were not decrease systolic and diastolic blood pressure in the treatment group.