BEETROOT EXTRACT

Beta vulgaris na saúde cardiovascular

http://aformulab.com.br/qrcode/beetrootafv01.pdf
DESCRIÇÃO
O Beetroot extract é um extrato de beterraba (Beta vulgaris), rico em açúcares, vitaminas, antioxidantes e nitrito.

MECANISMO DE AÇÃO
O Beetroot extract contém alto teor de nitrito que, após o processo de conversão em óxido nítrico, auxilia na manutenção dos vasos sanguíneos dilatados, normalizando a pressão arterial e melhorando a oxigenação das células. Os antioxidantes presentes atuam melhorando a saúde dos vasos sanguíneos, auxiliando na proteção do organismo contra doenças cardíacas e acidentes vasculares. Os carboidratos (com baixa carga glicêmica) desse ativo colaboram na manutenção e melhora do desempenho de atletas durante os treinos, além de contribuir na recuperação pós-treino.

INDICAÇÕES
 ✓ Aumento do fluxo sanguíneo para a periferia;
 ✓ Adjuvante na redução da pressão arterial;
 ✓ Promoção e manutenção da saúde cardiovascular.

DOSE USUAL
Recomendação oral de 500 a 1000mg de Beetroot extract (Beta vulgaris) ao dia.

SUGESTÕES DE FÓRMULAS

**Beetroot extract (Beta vulgaris)**


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Coenzima Q10

| 10mg |

Vitamina E

| 100mg |

PRINCIPAIS REFERÊNCIAS


Inorganic nitrate and beetroot juice supplementation reduces blood pressure in adults: a systematic review and meta-analysis.

Diets including food products rich in inorganic nitrate are associated with lower blood pressure (BP). The evidence for the BP-lowering effects of inorganic nitrate and beetroot in randomized clinical trials has not been systematically assessed. The objective was to conduct a systematic review and meta-analysis of randomized clinical trials that examined the effects of inorganic nitrate and beetroot supplementation on BP. Medline, EMBASE, and Scopus databases were searched from inception to February 2013. The specific inclusion criteria were: 1) randomized clinical trials; 2) trials reporting effects on systolic or diastolic BP or both; and 3) trials comparing inorganic nitrate or beetroot juice supplementation with placebo control groups. Random-effects models were used to assess the pooled BP effect sizes. Sixteen trials met the eligibility criteria for the systematic review. All studies had a crossover study design. The trials were conducted between 2006 and 2012 and included a total of 254 participants with 7-30 participants/study. The meta-regression showed an association between daily dose of inorganic nitrate and changes in systolic BP (P < 0.05). Inorganic nitrate and beetroot juice supplementation was associated with a significant reduction in systolic BP. These findings need to be tested in long-term trials and in individuals at greater cardiovascular risk.

Improvement of hypertension, endothelial function and systemic inflammation following short-term supplementation with red beet (Beta vulgaris L.) juice: a randomized crossover pilot study.

Hypertension is a major risk factor for cardiovascular disease and has a prevalence of about one billion people worldwide. It has been shown that adherence to a diet rich in fruits and vegetables helps in decreasing blood pressure (BP). This study aimed to investigate the effect of raw beet juice (RBJ) and cooked beet (CB) on BP of hypertensive subjects. In this randomized crossover study, 24 hypertensive subjects aged 25-68 years old were divided into two groups. One group took RBJ for 2 weeks and the other group took CB. After 2 weeks of treatment, both groups had a washout for 2 weeks then switched to the alternate treatment. Each participant consumed 250 ml day(-1) of RBJ or 250 g day(-1) of CB each for a period of 2 weeks. Body weight, BP, flow-mediated dilation (FMD), lipid profile and inflammatory parameters were measured at baseline and after each period. According to the results, high-sensitivity C-reactive protein (hs-CRP) and tumour necrosis factor alpha (TNF-α) were significantly lower and FMD was significantly higher after treatment with RBJ compared with CB (P<0.05). FMD was significantly (P<0.05) increased, but systolic and diastolic BP, intracellular adhesion molecule-1 (ICAM-1), vascular endothelial adhesion molecule-1 (VCAM-1), hs-CRP, interleukin-6, E-selectin and TNF-α were significantly (P<0.05) decreased with RBJ or CB. Total antioxidant capacity was increased and non-high-density lipoprotein (HDL), low-density lipoprotein (LDL) and total cholesterol (TC) were decreased with RBJ but not with CB. Although both forms of beetroot were effective in improving BP, endothelial function and systemic inflammation, the raw beetroot juice had greater antihypertensive effects. Also more improvement was observed in endothelial function and systemic inflammation with RBJ compared with CB.

Betaine in human nutrition.

Betaine is distributed widely in animals, plants, and microorganisms, and rich dietary sources include seafood, especially marine invertebrates (approximately 1%); wheat germ or bran (approximately 1%); and spinach (approximately 0.7%). The principal physiologic role of betaine is as an osmolyte and methyl donor (transmethylation). As an osmolyte, betaine protects cells, proteins, and enzymes from environmental stress (eg, low water, high salinity, or extreme temperature). As a methyl donor, betaine participates in the methionine cycle—primarily in the human liver and kidneys. Inadequate dietary intake of methyl groups leads to hypomethylation in many important pathways, including 1) disturbed hepatic protein (methionine) metabolism as determined by elevated plasma homocysteine concentrations and decreased S-adenosylmethionine concentrations, and 2) inadequate hepatic fat metabolism, which leads to steatosis (fatty accumulation) and subsequent plasma dyslipidemia. This alteration in liver metabolism may contribute to various diseases, including coronary, cerebral, hepatic, and vascular diseases. Betaine has been shown to protect internal organs, improve vascular risk factors, and enhance performance.
Databases of betaine content in food are being developed for correlation with population health studies. The growing body of evidence shows that betaine is an important nutrient for the prevention of chronic disease.

Betaine supplementation enhances anabolic endocrine and Akt signaling in response to acute bouts of exercise.

Our aim was to examine the effect of betaine supplementation on selected circulating hormonal measures and Akt muscle signaling proteins after an acute exercise session. Twelve trained men (age 19.7 ± 1.23 years) underwent 2 weeks of supplementation with either betaine (B) (1.25 g BID) or placebo (P). Following a 2-week washout period, subjects underwent supplementation with the other treatment (B or P). Before and after each 2-week period, subjects performed an acute exercise session (AES). Circulating GH, IGF-1, cortisol, and insulin were measured. Vastus lateralis samples were analyzed for signaling proteins (Akt, p70 S6k, AMPK). B (vs. P) supplementation approached a significant increase in GH (mean ± SD (Area under the curve, AUC), B: 40.72 ± 6.14, P: 38.28 ± 5.54, p = 0.060) and significantly increased IGF-1 (mean ± SD (AUC), B: 106.19 ± 13.45, P: 95.10 ± 14.23, p = 0.010), but significantly decreased cortisol (mean ± SD (AUC), B: 1,079.18 ± 110.02, P: 1,228.53 ± 130.32, p = 0.007). There was no difference in insulin (AUC). B increased resting Total muscle Akt (p = 0.003). B potentiated phosphorylation (relative to P) of Akt (Ser(473)) and p70 S6 k (Thr(389)) (p = 0.016 and p = 0.005, respectively). Phosphorylation of AMPK (Thr(172)) decreased during both treatments (both p = 0.001). Betaine (vs. placebo) supplementation enhanced both the anabolic endocrine profile and the corresponding anabolic signaling environment, suggesting increased protein synthesis.

The plasma bioavailability of nitrate and betanin from Beta vulgaris rubra in humans.

PURPOSE: To evaluate the plasma bioavailability of betanin and nitric oxide (NOx) after consuming beetroot juice (BTJ) and whole beetroot (BF). BTJ and BF were also analysed for antioxidant capacity, polyphenol content (TPC) and betalain content. METHODS: Ten healthy males consumed either 250 ml of BTJ, 300 g of BF or a placebo drink, in a randomised, crossover design. Venous plasma samples were collected pre (baseline), 1, 2, 3, 5 and 8 h post-ingestion. Betanin content in BTJ, BF and plasma was analysed with reverse-phase high-performance liquid chromatography (HPLC) and mass spectrometry detection (LCMS). Antioxidant capacity was estimated using the Trolox equivalent antioxidant capacity (TEAC) and polyphenol content using Folin-Ciocalteu colorimetric methods [gallic acid equivalents (GAE)] and betalain content spectrophotometrically. RESULTS: TEAC was 11.4 ± 0.2 mmol/L for BTJ and 3.4 ± 0.4 μmol/g for BF. Both BTJ and BF contained a number of polyphenols (1606.9 ± 151 mg/GAE/L and 1.67 ± 0.1 mg/GAE/g, respectively), betacyanins (68.2 ± 0.4 mg/betanin equivalents/L and 19.6 ± 0.6 mg/betanin equivalents/100 g, respectively), and betaxanthins (41.7 ± 0.7 mg/indicaxanthin equivalents/L and 7.5 ± 0.2 mg/indicaxanthin equivalents/100 g, respectively). Despite high betanin contents in both BTJ (~194 mg) and BF (~66 mg), betanin could not be detected in the plasma at any time point post-ingestion. Plasma NOx was elevated above baseline for 8 h after consuming BTJ and 5 h after BF (P < 0.05). CONCLUSIONS: These data reveal that BTJ and BF are rich in phytoneutrients and may provide a useful means of increasing plasma NOx bioavailability. However, betanin, the major betalain in beetroot, showed poor bioavailability in plasma.


