Nº de abstracts = 45

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Effects of a combined essential amino acids/carbohydrate supplementation on muscle mass, architecture and maximal strength following heavy-load training.

Vieillevoye S, Poortmans JR, Duchateau J, Carpentier A.: European journal of applied Physiology, 2010, 110(3):479-88. Laboratory for Biometry and Exercise Nutrition, Université Libre de Bruxelles, 808 route de Lennik, CP 640, 1070 Brussels, Belgium.

Increase in myofibrillar protein accretion can occur in the very early post-exercise period and can be potentiated by ingestion of essential amino acid (EAA). Furthermore, strength exercise induces important disturbances in protein turnover, especially in novice athletes. The purpose of this investigation was to evaluate the effects of an EAA supplementation on muscle mass, architecture and strength in the early stages of a heavy-load training programme. 29 young males trained during 12 weeks. They were divided into a placebo (PLA) (n = 14) group and an EAA group (n = 15). At baseline, daily food intake and nitrogenous balance were assessed with a food questionnaire over 7 days and two 24-h urine collections. The effect of training on muscle mass was assessed by anthropometric techniques. Muscle thickness and pennation angle were recorded by ultrasonography of the gastrocnemius medialis (GM). Maximal strength during squat and bench press exercises were tested on an isokinetic ergometer. Training resulted in significant increase in muscle mass and strength in both PLA and EAA groups. Positive linear regressions were found between nitrogen balance and increase in muscle mass in the PLA group (P

The effects of Lyprinol(®) on delayed onset muscle soreness and muscle damage in well trained athletes: A double-blind randomised controlled trial. Pumpa KL, Fallon KE, Bensoussan A, Papalia S
Complementary therapies in medicine
19(6):311-8, 2011 Dez
National Institute of Sport Studies, University of Canberra, Canberra, Australia.

OBJECTIVES: The aim of the study was to determine if Lyprinol(®) is effective in reducing pain, indicators of inflammation and muscle damage, and in turn improving performance in well trained athletes suffering from delayed onset muscle soreness (DOMS).

DESIGN: A double blind randomised placebo controlled trial.

SETTING: Twenty well trained male volunteers, matched by VO(2max) were randomly assigned to consume 200mg of Lyprinol(®) or an indistinguishable placebo daily for 8 weeks prior to a downhill treadmill running episode designed to induce DOMS.

MAIN OUTCOME MEASURES: Performance measures (Kin-Com, counter movement and squat jump), pain assessments (visual analogue scale, algometer) and blood analyses (Interleukin-1, Interleukin-6, Interleukin-10, tumour necrosis factor-a, C-reactive protein, myoglobin, creatine kinase) were assessed at 7 time points over 5 days (pre, post, 4, 24, 48, 72 and 96h after the downhill run).

RESULTS: No statistically significant differences were identified in any parameters between the active and placebo groups at any time point.

CONCLUSION: After 2 months ingestion of Lyprinol(®) at the currently recommended dosage (200mg/day) and a demanding eccentric exercise intervention, Lyprinol(®) did not convincingly

affect DOMS and indicators of muscle damage.

Statin-associated changes in skeletal muscle function and stress response after novel or accustomed exercise. Meador BM, Huey KA

Muscle & nerve 44(6):882-9, 2011 Dez Department of Kinesiology, University of Illinois at Urbana-Champaign, Urbana, Illinois, USA.

Introduction: The most common side effect of statins, myopathy, is more likely in exercisers. We investigated the interaction of statin treatment with novel vs. accustomed exercise on muscle function, heat shock protein (Hsp) expression, and caspase activation. Methods: Mice received daily cerivastatin or saline for 2 weeks, with/without wheel running (RW) (novel/sedentary). Accustomed groups completed 2 weeks of RW before statins. At 4 weeks, plantarflexor isometric force, Hsp25, aB-crystallin, caspase-3 and -9, and plasma creatine kinase (CK) were quantified. Results: Statins reduced force in sedentary and novel groups, compared with saline, by 15% and 27%, respectively. Muscle fatigability increased 21% and 30% with statins compared with saline in sedentary and novel groups, respectively. Accustomed exercise prevented statin-associated force loss and increased fatigability. CK did not correlate with functional outcomes. RW increased Hsp protein in all groups. Conclusion: Our results suggest that exercise prior to statin treatment can protect against decrements in muscle function. Muscle Nerve 2011.

Soy protein based supplementation supports metabolic effects of resistance training in previously untrained middle aged males. Deibert P, Solleder F, K Nig D, Vitolins MZ, Dickhuth HH, Gollhofer A, Berg A

The aging male : the official journal of the International Society for the Study of the Aging Male 14(4):273-9, 2011 Dez
Department of Rehabilitative and Preventive Sports Medicine, University Hospital, Freiburg, Germany.

Abstract Objective.?To determine changes in body composition, physical performance, metabolic and hormonal parameters induced by lifestyle counselling, resistance training and resistance training with soy protein based supplemention in middle aged males. Design.?Randomised controlled study consisting of resistance training without (RT-G) or with (RTS-G) a soy protein based supplement and a control group with lifestyle education only (LE-G). Subjects.?Forty healthy middle aged men (50?65 years, BMI 25?29.9 kg/m(2)). Measurements.?Changes in body weight (BW) and waist circumference (WC) were measured and body composition (BC), fat mass (FM), lean body mass (LBM) were measured by skin fold anthropometry at baseline and after 12 weeks of intervention. In addition, changes in physical fitness, metabolic and hormonal parameters (lipids, glucose, fructosamines, insulin, insulin-like growth factor-1, Leptin, human growth hormone, dehydroepiandrosterone, testosterone, hs-CRP, Il-6) were evaluated. Results.?Thirty-five participants completed the 12 week study. No significant changes in BW were noted although RM and WC dropped and LBM increased after training, particularly in the RTS group (FM 22.6???5.5?kg to 21.2???4.7?kg; LBM 68.5???7.2?kg to 70.1???7.4; p?

Quercetin and Endurance Exercise Capacity: A Systematic Review and Meta-analysis. Kressle r J, Millard-Stafford M, Warren GL

Medicine and science in sports and exercise

43(12):2396-404, 2011 Dez
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UNLABELLED: Quercetin is a dietary flavonoid purported to improve human endurance exercise capacity. However, published findings are mixed.

PURPOSE: The study's purpose was to perform a systematic review of the literature and meta-analysis to examine whether quercetin ingestion increases endurance exercise capacity.

METHODS: A search of the literature was conducted using the key words quercetin, performance, exercise, endurance, and aerobic capacity. Eleven studies were identified as meeting the inclusion criteria providing data on 254 human subjects. Across all studies, subject presupplementation V?O2max ranged from 41 to 64 mL·kg·min (median = 46), and median treatment duration was 11 d with a median dosage of 1000 mg·d. Effect sizes (ES) were calculated as the standardized mean difference, and meta-analyses were completed using a random-effects model.

RESULTS: The ES calculated for all studies combining V?O2max and endurance performance measures indicates a significant effect favoring quercetin over placebo (ES = 0.15, P = 0.021, 95% confidence interval = 0.02-0.27), but the magnitude of effect is considered between trivial and small, equating to a ~3% improvement of quercetin over placebo. Using a subgroup meta-analysis comparing quercetin's effect on endurance exercise performance versus V?O2max, no significant difference was found (P = 0.69). Meta-regression of study ES relative to subjects' fitness level or plasma quercetin concentration achieved by supplementation was also not significant.

CONCLUSIONS: On average, quercetin provides a statistically significant benefit in human endurance exercise capacity (V?O2max and endurance exercise performance), but the effect is between trivial and small. Experimental factors that explain the between-study variation remain to be elucidated.

Oral tyrosine supplementation improves exercise capacity in the heat. Tumilty L, Davison G, Beckmann M, Thatcher R
European journal of applied physiology
111(12):2941-50, 2011 Dez
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Increased brain dopamine availability improves prolonged exercise tolerance in the heat. It is unclear whether supplementing the amino-acid precursor of dopamine increases exercise capacity in the heat. Eight healthy male volunteers [mean age 32 ± 11 (SD) years; body mass 75.3 ± 8.1 kg; peak oxygen uptake ([Formula: see text]) 3.5 ± 0.3 L min(-1)] performed two exercise trials separated by at least 7 days in a randomised, crossover design. Subjects consumed 500 mL of a flavoured sugar-free drink (PLA), or the same drink with 150 mg kg body mass(-1) tyrosine (TYR) in a double-blind manner 1 h before cycling to exhaustion at a constant exercise intensity equivalent to 68 ± 5% [Formula: see text] in 30°C and 60% relative humidity. Pre-exercise plasma tyrosine:large neutral amino acids increased 2.9-fold in TYR (P 0.05). Subjects cycled longer in TYR compared to PLA (80.3 ± 19.7 min vs. 69.2 ± 14.0 min; P 0.05) despite longer exercise time in TYR. The results show that acute tyrosine supplementation is associated with increased endurance capacity in the heat in moderately trained subjects. The results also suggest for the first time that the availability of tyrosine, a nutritional dopamine precursor, can influence the ability to subjectively tolerate prolonged submaximal constant-load exercise in the heat.

Effects of acute supplementation with Rhodiola rosea and L-carnitine on exercise

performance, cognitive function and cortisol in healthy active volunteers. M uÃ±iz-Pumares D, Lage-Guede A, Firth-Clark A, Allgrove J

British journal of sports medicine 45(15):A1, 2011, Dez

Rhodiola rosea (RR) is an adaptogenic herb suggested to improve exercise and cognitive performance and reduce stress responses. Further, some evidence reports that L-carnitine (LC) can alter metabolism during exercise and improve performance. This study examined the effects of acute ingestion of a commercially available RR beverage (250 mg, 3% Rosavin) with and without LC (500 mg) on exercise performance, cognitive function and salivary cortisol. In a double-blind, randomised, crossover-design, 18 healthy, active men and women (age, 21±6 years; maximal oxygen uptake, VO(2)max 43±9 ml/min/kg) consumed 250 ml of a RR-LC, RR and placebo beverage 45 min before a cycle to fatigue at 77±11% of VO(2)max. Immediately before and after exercise, computerised cognitive tasks of Rapid Visual Information Processing (RVP), Visual Recognition Memory (VRM) and Stroop Colour-Word (Stroop) were completed. Expired gas and heart rate were recorded continuously during exercise. Capillary blood samples were taken for lactate analysis 2 min after cycling and saliva samples were collected before beverage ingestion, before and immediately after cognitive tests for cortisol analysis. Data were analysed using repeated measures ANOVAs with significance set at P