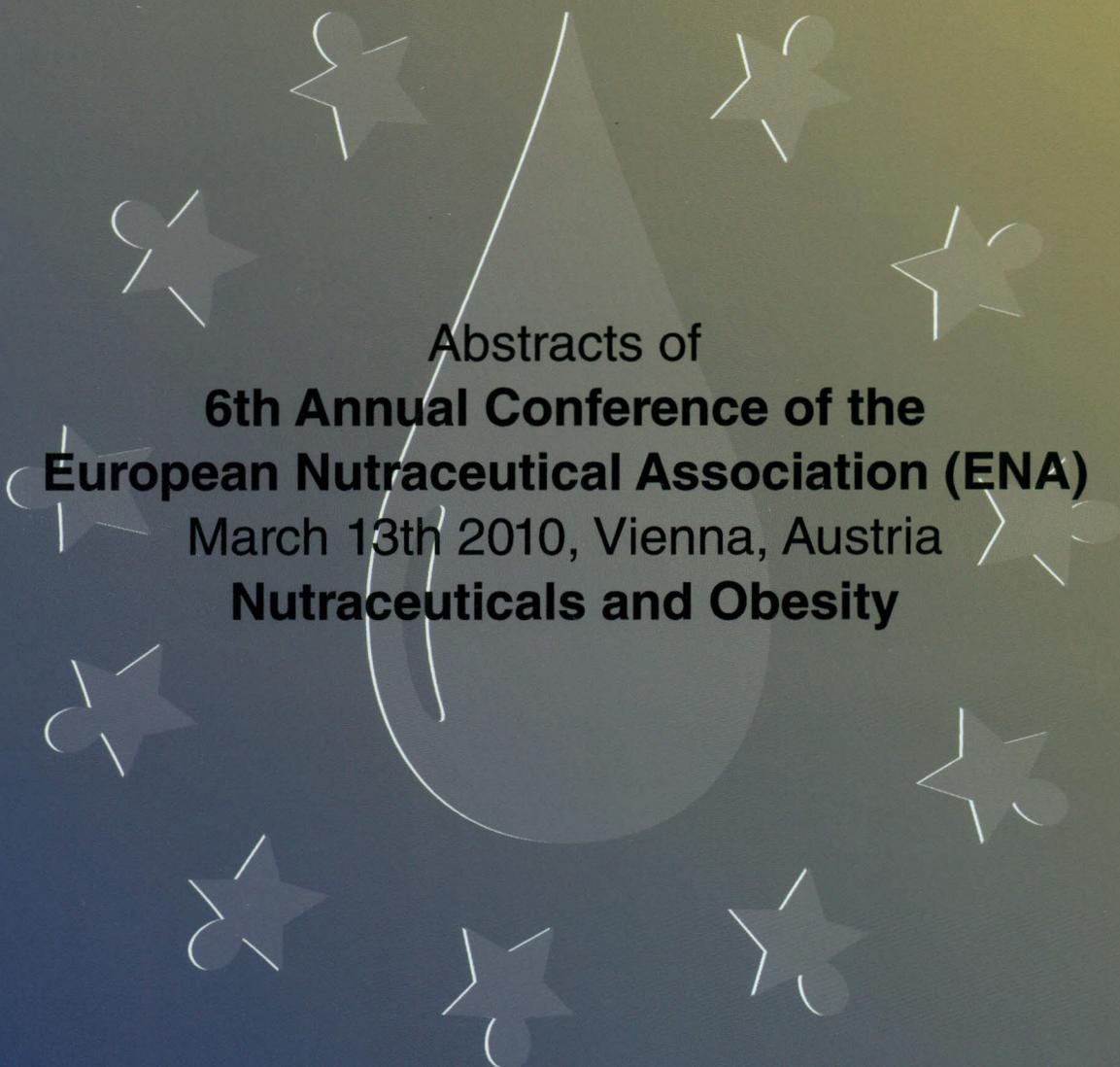


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### Supplementation with athletic performance formula decreases lactate concentrations in trained athletes after exhausting incremental cycle ergometer test

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**Introduction:** Intense and prolonged physical exercise cause lactic acidosis via accumulation of intramuscular hydrogen ions [1]. Skeletal muscles "go acid", a condition which creates fatigue and decreased exercise performance [2]. Thus, a lot of sport nutrition supplements focus on buffering lactic acidosis but scientific evidence is still scarce. In this study we hypothesized that supplementation with a Nano Absorption Formulation® (NAF, Extreme Endurance, Euronutrition BV, Netherlands) attenuates lactate concentration after exhaustive exercise.

**Methods:** 19 male athletes joined this placebo-controlled, double-blind, cross-over study and conducted incremental cycle ergometer step tests until individual exhaustion. The 1st ergometer test (day 0) was conducted to determine performance (P) data (VO<sub>2</sub>, lactate, P<sub>max</sub>). Then, subjects were randomly assigned to placebo or NAF tablets. After 10 days of NAF or placebo treatment the 2nd test was performed (day 10), followed by a 10 days wash-out. On day 20 the groups exchanged the treatments from the first 10 days. Finally, on day 30, the 3rd test was conducted. The provided dosage was 2 × 4 tablets for the 1st 2 days (load dosage) and then daily dosage was calibrated to subject's body weight. The NAF tablets provided a.o. minerals, antioxidants and protease enzyme papain. To determine lactate, capillary blood from earlobe was collected before exercise, at every step of the incremental test, at the end of exercise (P<sub>max</sub> lactate) and 5 min post exercise (recovery lactate).

**Results:** We analyzed a significant difference in P<sub>max</sub> lactate concentrations between treatments ( $p < 0.05$ ). With NAF, P<sub>max</sub> lactate was attenuated by a trend compared to placebo ( $p = 0.062$ ). There were no differences between treatments concerning recovery lactate ( $p > 0.05$ ).

**Conclusion:** The NAF treatment decreased lactate concentrations at exhaustion (P<sub>max</sub>) compared to placebo indicating a substantial buffer capacity of the applied nutraceutical at high intense exercise.

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### Soy protein treatment of children and adolescents with Familial Hypercholesterolemia (FH)

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**Background and Aims:** In several studies it has been shown that soy protein consumption can decrease elevated serum cholesterol levels [1–5]. The long-term effects of soy consumption in children and adolescents with familial hypercholesterolemia (FH) are unknown. This study investigated the effects of long-term soy substituted diet on serum lipid levels.

**Methods:** The pilot-study included data from a sample of 6 male and 5 female children and adolescents with classical FH (mean age  $8.7 \pm 4.2$  years; mean BMI  $19.9 \pm 2.5$  kg/m<sup>2</sup>). Dietary intervention was based on a low-fat-modified dietary regime. After three months fat-modified diet, including training, a soy substituted diet ( $0.47 \pm 0.35$  g soy protein/kg BW/d) has been started. To improve long-term compliance, commonly available soy drinks and desserts of the same brand were used. Data analysis was performed with a paired sample T-test and was evaluated with the SPSS, version 16.0.

**Results:** This soy-substituted diet significantly decreased triglyceride (TG) levels by 21.7% ( $-35.3$  mg/dl,  $p < 0.029$ ) after 10 months, respectively. Serum lipids pattern improved markedly: Total cholesterol (TC), a decrease of 18.2 mg/dl ( $p < 0.05$ ) and low density lipoprotein (LDL) cholesterol, a decrease by 13.8 mg/dl ( $p < 0.05$ ). During soy treatment, in 6 out of 11 patients, LDL cholesterol dropped down under the cut-off level, which is considered to be the borderline for the introduction of drug treatment (160 mg/dl).

**Conclusion:** Soy supplemented diet significantly decreased triglycerides after 10 months of intervention and lowered TC and LDL-C. Furthermore, in the majority of the young patients with FH the criteria for drug treatment has been prevented; thus soy substitution can be considered as a strategy in the long-term dietary treatment of paediatric patients affected with FH.

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