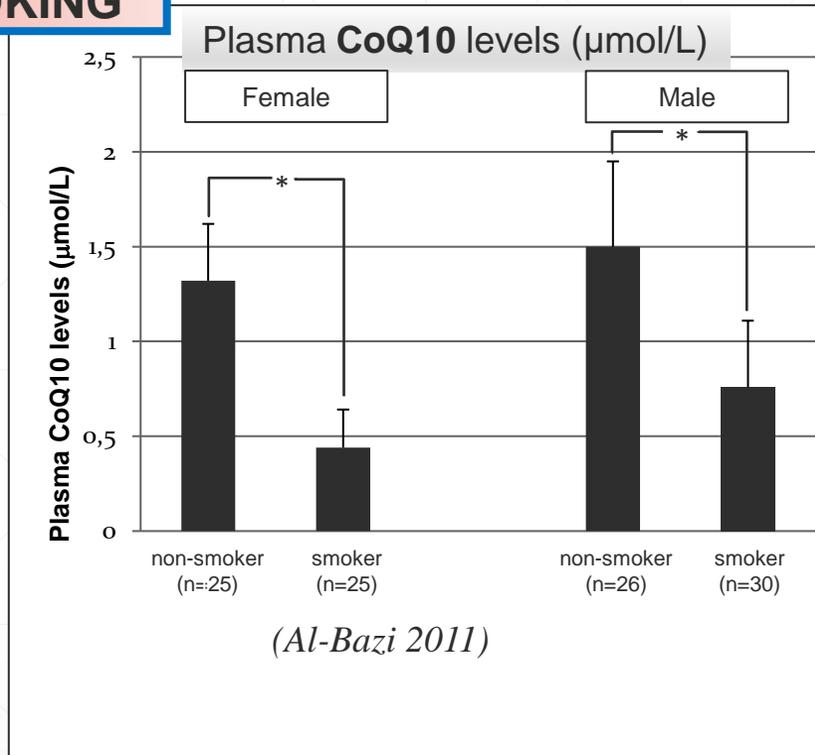


in SMOKING



During INTENSE EXERCISE

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Effect of ubiquinol supplementation on biochemical and oxidative stress indexes after intense exercise in young athletes

Patrick Orlando^{a*}, Sonia Silvestri^a, Roberta Galeazzi^b, Roberto Antonicelli^c, Fabio Marcheggiani^d, Ilenia Cirilli^d, Tiziana Bacchetti^a and Luca Tiano^{a*}

Methods: 21 male young athletes (26 ± 5 years of age) were randomized in two groups according to a double blind cross-over study, either supplemented with ubiquinol (200 mg/day) or placebo for 1 month. Blood was withdrawn before and after a single bout of intense exercise (40 min run at 85% maxHR). Physical performance, hematochemical parameters, ubiquinone/ubiquinol plasma content,

unchanged.

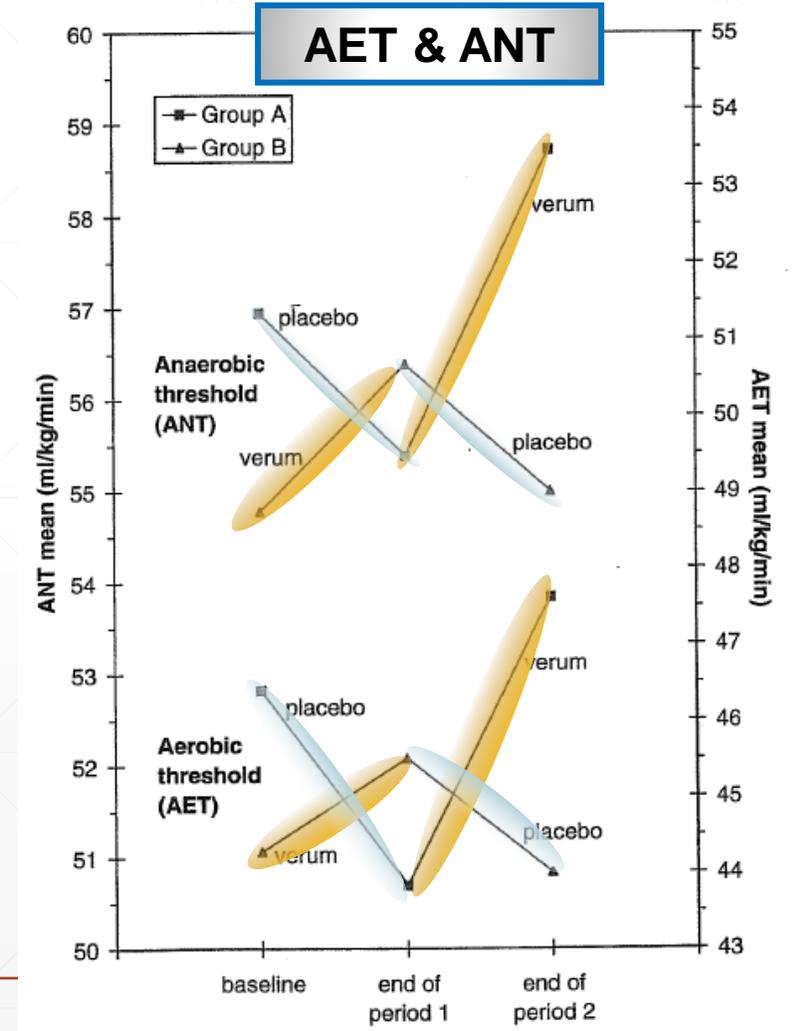
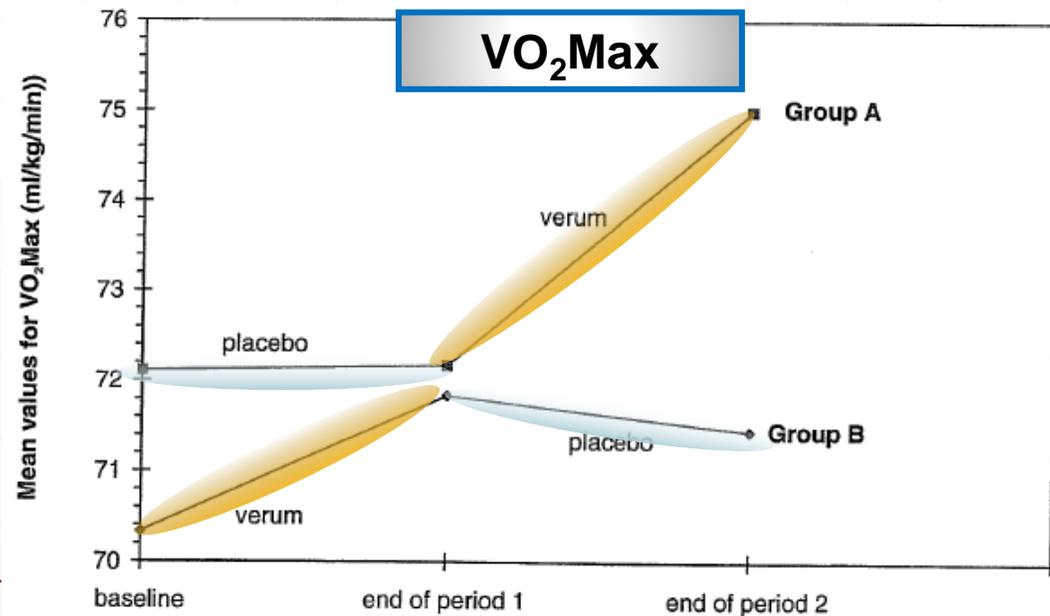
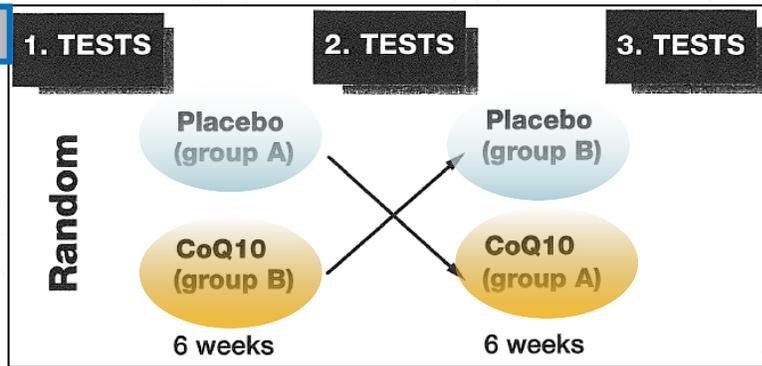
Discussion: Data highlights a very rapid dynamic of CoQ depletion following intense exercise underlying an increased demand by the organism. Ubiquinol supplementation minimized exercise-

Q10 improves physical performance

Procedure:

- double-blind cross-over study of 25 Finnish top-level cross-country skiers
- Q10 (90mg/D) improved significantly all measured indexes of physical performance (AET, ANT and VO₂Max)

Study Design



(Ylikoski 1997)

Q10 enhances Peak Power Production in Athletes

Randomized, Double-Blind, Placebo controlled study

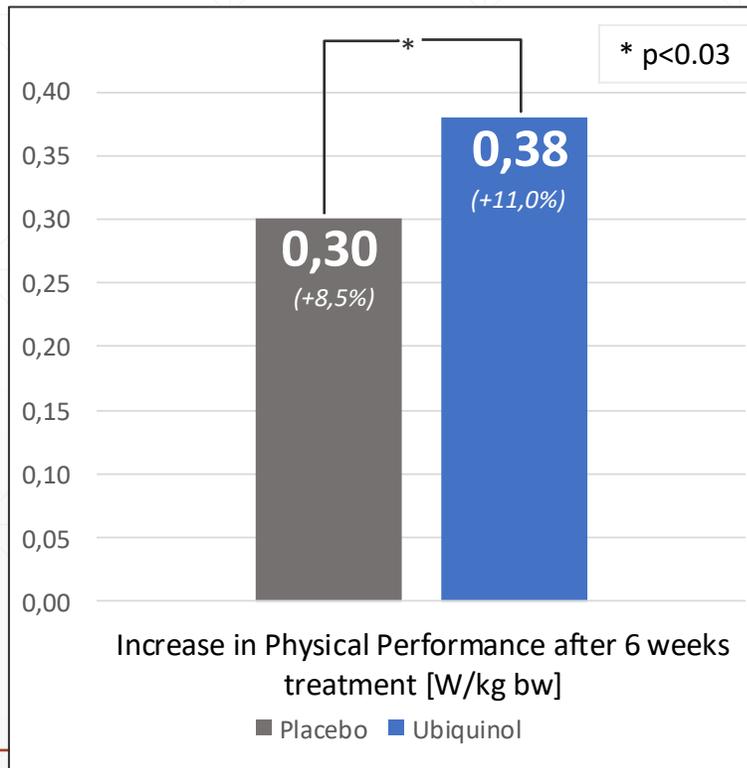


Subjects: 100 young (53 male, 47 female) German well trained athletes - Age: 19.9 ± 2.3 years in preparation for the Olympic Games in London 2012

Test: + Athletes performed a **maximum power output test** on a cycling ergometer
+ Before (T0) and after 6 weeks (T6) of supplementation

Performance in W/kg of bodyweight was measured at the 4 mmol lactate threshold

Supplementation: 300 mg Ubiquinol-Q10/day or placebo for 6 weeks.



CONCLUSION:

Ubiquinol-Q10 increases short-term maximum performance (i.e. increased anaerobic output) in elite athletes vs placebo (+0,08 W/kg bw) (p < 0.03)

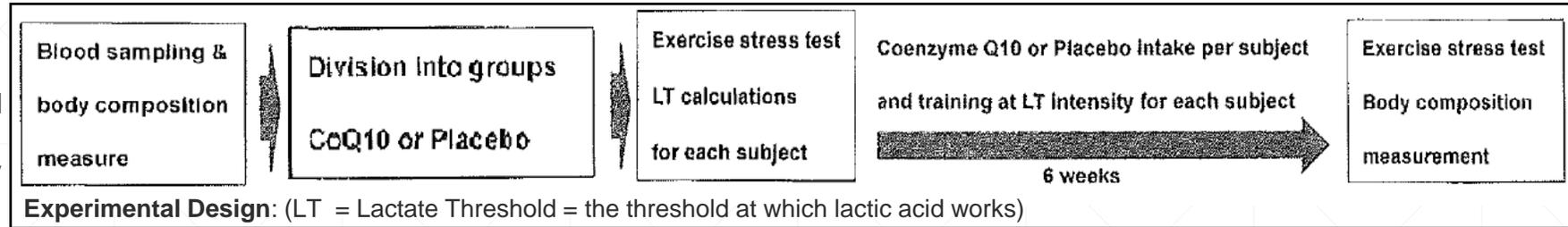


(Alf 2013)

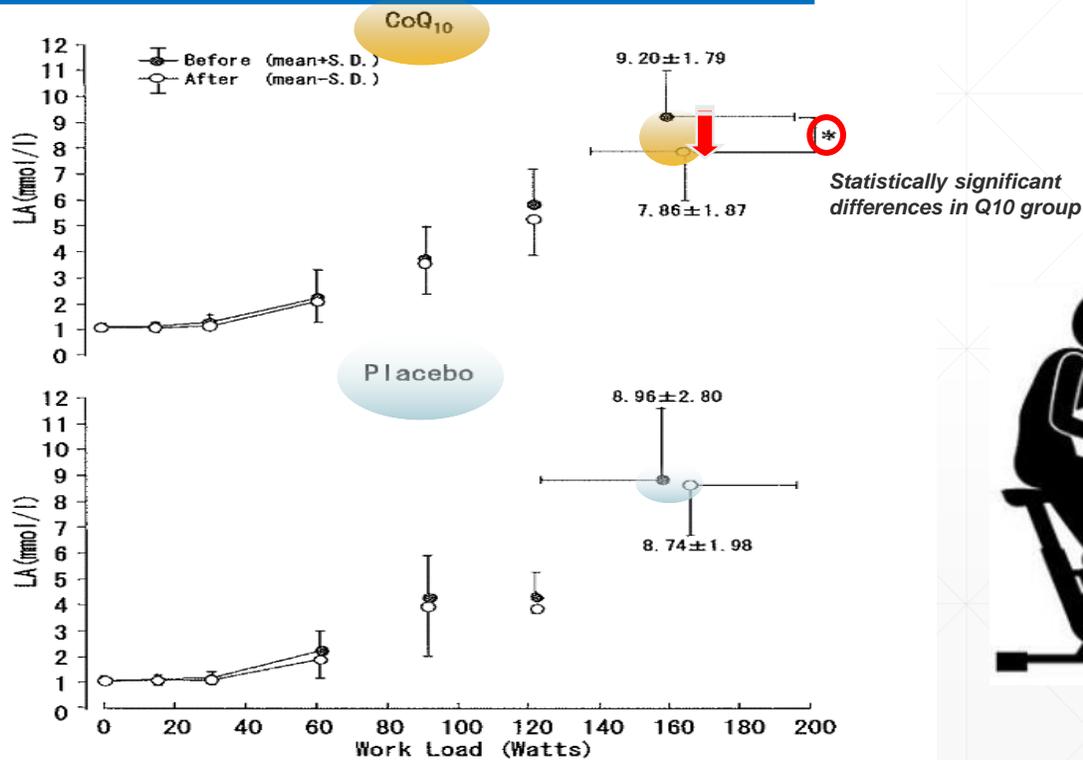
Q10 reduces muscle fatigue during high intensity exercise

Study

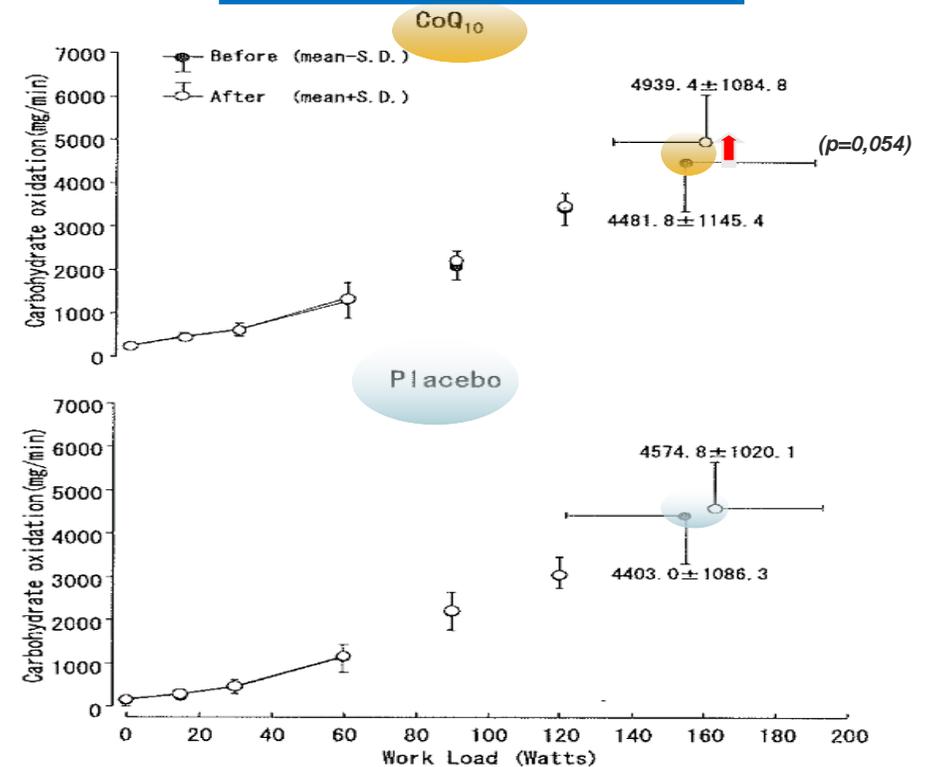
- double-blind study. 20 healthy young female subjects (age 19.8 ± 1.3 yr). Q10 group (n=10) and placebo group (n=10)
- Watersoluble Q10 taken as a drink (300mg/day for 6 weeks)



Blood Lactate Levels during Exercise Stress Testing



Carbohydrate oxidation levels



Findings

- **Lactic acid values** were statistically significantly decreased vs placebo & **carbohydrate oxidation** tended to increase ($p = 0.054$)
- Watersoluble Q10 taken as a drink reduces muscle fatigue during high intensity exercise in young healthy subjects.
- 40SP (watersoluble Q10) shows potential in sports nutrition

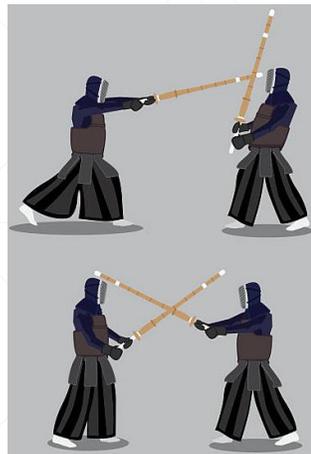
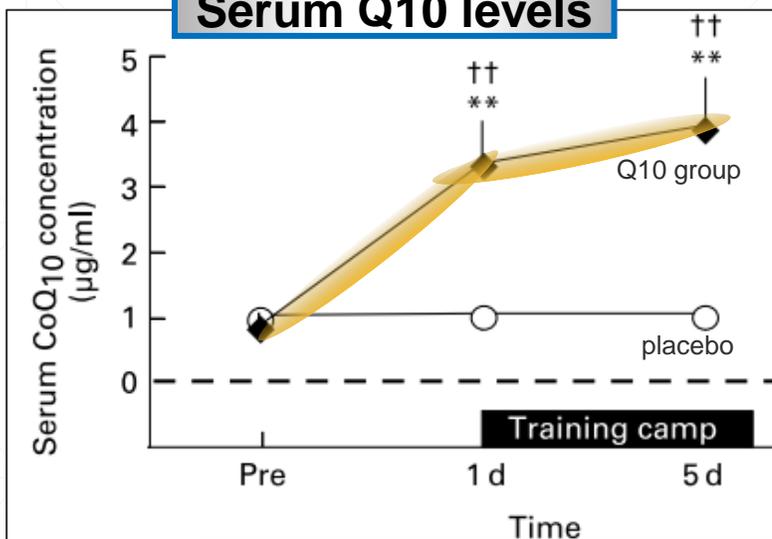
(Sasaki 2008)

Q10 reduces exercise-induced muscular injury

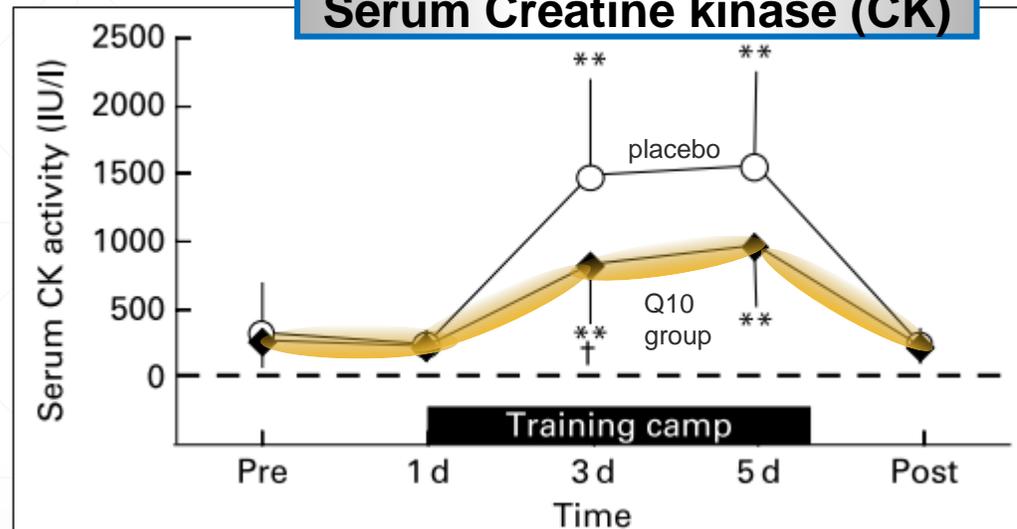
Procedure:

- 18 male elite Japanese kendo athletes: **Q10 group (n=10)** & placebo (n=8) in kendo exercise in training camp
- 300 mg Q10/day or placebo for 20 days

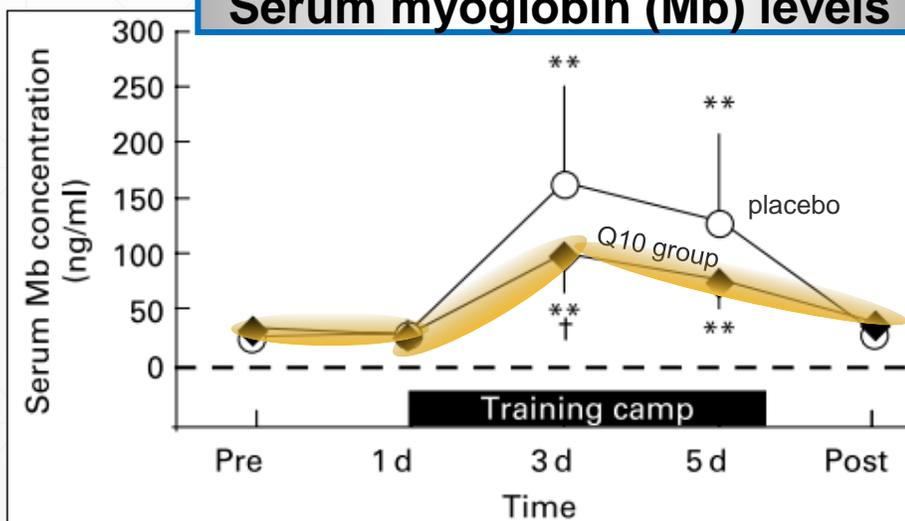
Serum Q10 levels



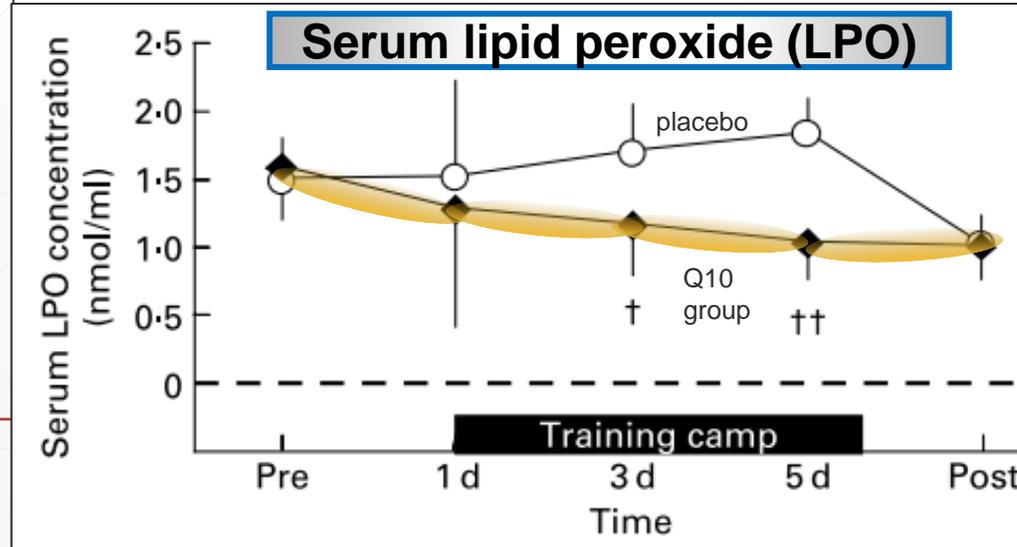
Serum Creatine kinase (CK)



Serum myoglobin (Mb) levels



Serum lipid peroxide (LPO)

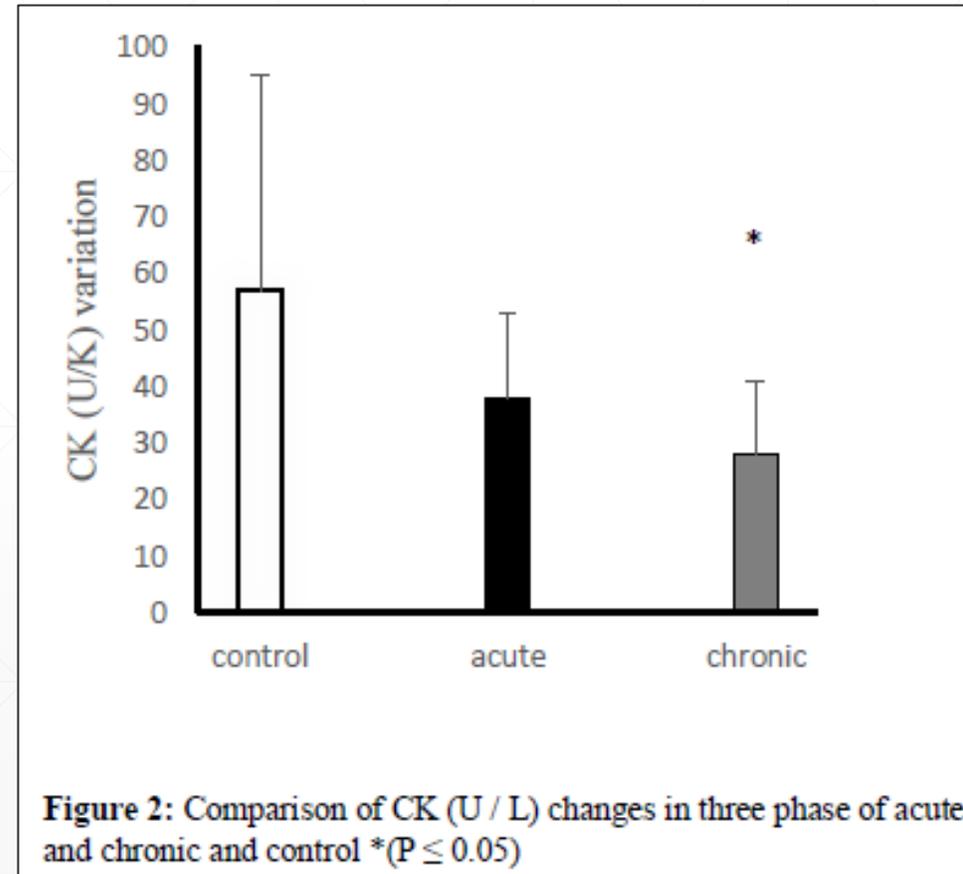


(Kon 2008)

Q10 reduces levels of muscle damage markers

Procedure:

- 12 male soccer players with induced muscle damage by Bruce exhaustive test (running treadmill 10% gradient)
- RCT study with 200 mg Q10/day acute and chronic



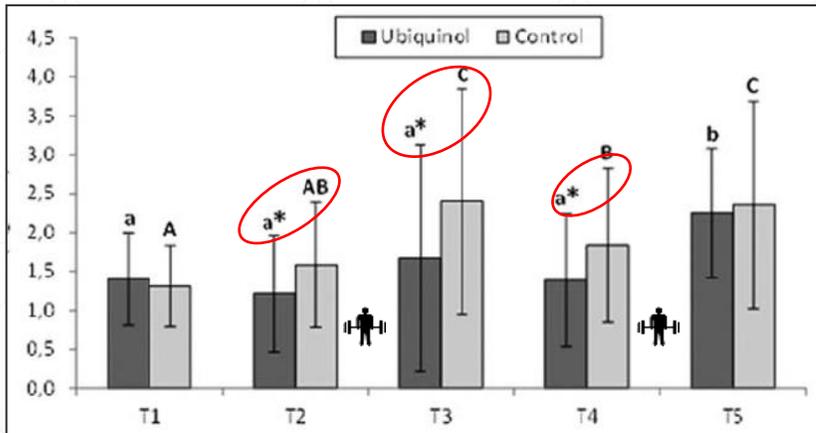
Ubiquinol-Q10 reduces oxidative stress in strenuous exercise

Study

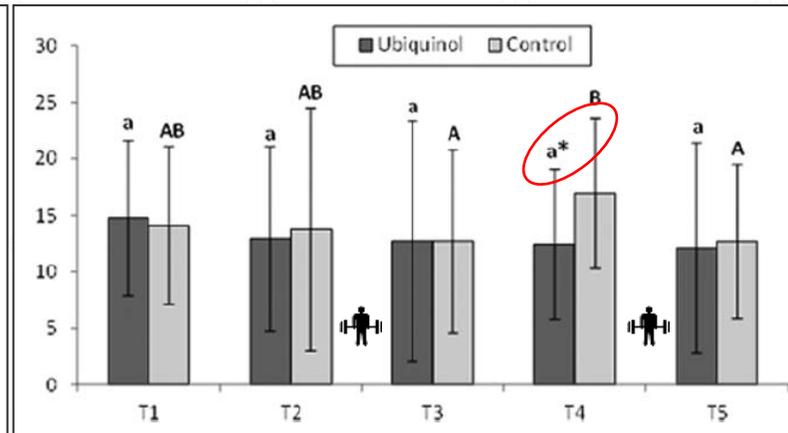
- 100 healthy, well trained firemen performing intense physical activity (to induce muscle damage)
- 200 mg Ubiquinol-Q10 /day for 2 weeks vs placebo
- RCT double blind: [T1] 2 wks supplementation [T2] strenuous exercise [T3] 24 hour rest [T4] strenuous exercise [T5]



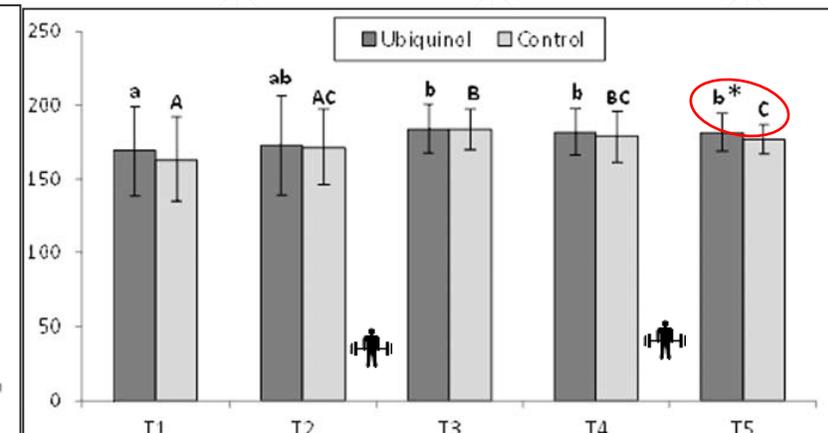
Urinary Isoprostanes (ng/mL) ↓



Urinary 8-OHdG (ng/mL) ↓



Plasmatic Nitric Oxide (μmol/L) ↑



* Statistically significant differences between Q10 and placebo groups ($P < 0.05$).

Findings

- Ubiquinol-Q10 protects DNA and lipids from oxidative damages as shown by urinary 8-OHdG and Isoprostane method
- Ubiquinol-Q10 prevents NO decrease

Q10 improves subjective fatigue sensation and physical performance

- double-blinded RCT crossover with 17 healthy volunteers
- 3 groups: placebo, 100mg Q10/day, 300mg Q10/day
- fatigue-inducing workload trials on a bicycle ergometer

