

Original Paper

## Effect of vitamin C and E supplementation on lipid peroxidation and delayed onset muscle soreness in professional basketball players

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### Abstract

**Background and Objective:** An activity performed through a new motional pattern and very intensively often leads to a kind of muscle soreness whose indicator is delayed onset of pain, which is called Delayed Onset Muscle Soreness (DOMS). This study was done to determine the effect of vitamin C and E supplementation on lipid peroxidation and delayed onset muscle soreness in professional basketball players.

**Methods:** In this clinical trial study, 24 male professional basketball players were randomly divided into four groups including vitamin C (1000 mg), vitamin E (800 IU), vitamin C (500 mg) + vitamin E (400 IU) and placebo (Glucose 500 mg). Supplement was consumed two hours before and 24 hours after leg press and squat exercise. Blood samples were collected before the first supplementation and immediately (post-exercise), 24 hour and 48 hour after exercises. Serum creatine kinase (CK), malondialdehyde (MDA), vitamin C and vitamin E and the level of perceived muscle soreness were evaluated.

**Results:** MDA in Vitamin E group significantly decreased in the 24-hr to 48-hr after the exercise in compared to beginning of exercise ( $P < 0.05$ ). Serum CK significantly increased 24-hr and 48-hr after the exercise in all groups ( $P < 0.05$ ). Muscle pain perception non significantly increased after the exercise in all groups in compare to baseline level.

**Conclusion:** Short period supplementation of vitamin C and E, either alone or in combination can not reduce pain and muscle damage and lipid peroxidation following the leg press and squat exercise in professional basketball players.

**Keywords:** Delayed onset muscle soreness, Creatine kinase, Malondialdehyde, Vitamin E, Vitamin C

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