



The Effect of Vitamin D Level on Exercise-Induced Oxidative Stress

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Abstract:

Repetitive muscle contractions performed during endurance exercises lead to a variety of phenotypic and physiological responses. These responses include activation of mitochondrial biogenesis, fiber type transformation, and angiogenesis. Together, they increase the muscle's aerobic metabolic capacity and resistance to fatigue. High muscle activity also leads to a strong increase in the production of reactive oxygen species (ROS). These unstable molecules and ions contain oxygen and are highly reactive due to an unpaired electron. Oxidative stress results from an imbalance between antioxidant defenses and pro-oxidant production between pro-oxidant production. Vitamin D has both a pro- and anti-oxidative effect potential. Vitamin D can control serum calcium concentrations by directly affecting muscle contraction through receptors on muscle fibers. Vitamin D deficiency is predicted to be responsible for insufficient Ca²⁺ intake by mitochondria, which causes impairment of cellular metabolic homeostasis. Vitamin D is thought to trigger metabolism in mitochondrial oxygen consumption. Vitamin D deficiency has been reported to increase oxidative stress. It has been observed that antioxidant therapy has the same positive effects on skeletal muscle as vitamin D supplementation. The effects of vitamin D level on disease pathogenesis are known. There are no adequate studies on the relationship of oxidative stress with vitamin D level and the antioxidant effect of vitamin D. More clinical studies are needed on the subject.

Biography:

Nezihe ENGÜN, I am a PhD student at Firat University, Faculty of Health Sciences, Department of Physical Education and Sports. I'm 27 years old. I'm a nutritionist. I follow vocational



training and developments closely. I have made oral and written poster presentations before. I wrote a chapter. My academic studies continue.

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