Author's response to reviews

Title: Can supplementation with vitamin C and E alter physiological adaptations to strength training? Design and rationale.

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In the submitted protocol paper we describe the first study that investigates the interaction between vitamin C and E supplementation and traditionally strength training at the cellular level (biopsies) in humans; young and elderly individuals.

The topic of antioxidant supplementation and exercise has recently received much attention; and indeed, several studies have investigated the effects of antioxidants (typically a combination of vitamin C and E) on the adaptations to endurance training (5; 6; 9). However, surprisingly few have focused on resistance exercise/strength training (see the Introduction). We test the supplementation with vitamin C and E on both young and elderly participants because the literature indicates that antioxidant supplementation could have positive effects older individuals, but negative effects on healthy, young individuals. Both studies (young and elderly participants) are double-blind, randomized controlled trials; and we have applied a solid set of well-established measurement methods to monitor relevant effects on muscle growth and muscle strength. Strength training is not only important for athletes, but has also a very potent health promoting effects (3; 7), which seemed increasingly important with age (1). Moreover, exercise induced an up-regulation of the natural antioxidant systems, which may be blunted by high dosages of antioxidant supplements (8; 9). Thus, vitamin/antioxidant supplements are widely used (2; 4) it is important to unravel potential positive and negative effects – especially the adverse effects.

Based on the hypothesis and the number of analyses/assessments, we plan to publish 7-10 original research papers.

Reference List


