

Matthew Cooke***Effects of Four Weeks of Daily Silk® Soymilk Versus Dairy Milk Ingestion on the Exercise-Induced Inflammatory and Proteolytic Responses in Serum and Skeletal Muscle in a Post-Menopausal Female Population***

(Health, Human Performance and Recreation / Education)

Aging is associated with oxidative stress and subsequent local inflammation in skeletal muscle. This invariably leads to cellular dysfunction and muscle protein degradation, as well as a decline in muscle mass and function. Loss of muscle strength has been associated with increased risk of frailty, disability, and mortality, and has been implicated in the pathogenesis of sarcopenia; a process that can begin as early as the fourth decade of life. In an attempt to attenuate the age-related progression of oxidative stress, inflammation, and subsequent increases in muscle breakdown, nutritional countermeasures such as antioxidants, protein, and amino acid supplementation are being studied. Of such, soy and whey proteins have been shown to play a role in the prevention of skeletal muscle wasting, frequently seen as a result of aging. Numerous studies have compared soy and whey protein isolates on skeletal muscle growth and breakdown as both provide a high biological value protein source to the body; however, in an aging population, data suggests that increases in muscle strength and size are not influenced by the predominant source of protein consumed, rather adequate total protein intake. Moreover, the added antioxidant components found in soy (i.e. isoflavones), are speculated to confer additional health benefits above and beyond whey. In clinical settings, exercise is often used to induce oxidative stress, inflammation, and subsequent muscle breakdown. To date, most of these studies have been performed in men and further research is needed to elucidate the effects that exercise and nutritional supplementation have on oxidative stress, inflammation, and muscle breakdown, in women. In addition, examining the effects of soyfoods on oxidative stress, inflammation, and subsequent increases in muscle breakdown could have important public health implications. Therefore, the overall purpose of the proposed study is to investigate the actions of different milk-beverages on serum and skeletal muscle markers of inflammation and oxidative stress in women.