



American Society for Nutrition
Excellence in Nutrition Research and Practice
www.nutrition.org

***Advances in Nutrition* September Media Alert**

September 15, 2014

Is Muscle Loss a Fact of Life as We Age?

Review finds protein plus regular physical activity is the key to maintaining muscle mass

As we age, we become more and more susceptible to sarcopenia, the loss of both muscle mass and muscle function. In addition to facilitating movement, skeletal muscle is an essential storage reservoir for amino acids. Moreover, a reduced amount of lean body mass is linked to a greater risk of hospitalization and a greater length of stay. Therefore, the protection and preservation of muscle is vital to maintain overall health, function, and a higher quality of life with advancing age.

Daniel R. Moore, Assistant Professor at the University of Toronto's Faculty of Kinesiology and Physical Education, set out to evaluate the wealth of research that has delved into the causes of muscle loss as well as strategies to limit its loss or augment its mass as we age. His review, ["Keeping Older Muscle 'Young' through Dietary Protein and Physical Activity,"](#) published in the September 2014 issue of *Advances in Nutrition*, finds that adding more protein to your diet isn't generally sufficient to ward off muscle loss. Instead, Dr. Moore found the key to maintaining healthy muscle mass is the right amount of dietary protein coupled with habitual physical activity.

Evidence points to the body's diminished muscle protein synthetic response to protein, commonly referred to as "anabolic resistance," as a major underlying cause of progressive muscle loss as we age. Dietary strategies to overcome this decreased dietary amino acid sensitivity include the ingestion of leucine-enriched, rapidly digested proteins (e.g., whey protein) and greater protein ingestion with each main meal to maximally stimulate muscle growth.

The development of anabolic resistance is also a hallmark of a sedentary lifestyle. Given that older adults are more likely to experience periods of reduced activity either voluntarily or through acute illness, researchers believe that inactivity is the precipitating factor in the development of anabolic resistance and the subsequent progression from healthy aging to frailty.

Studies of lifelong endurance athletes aged 70 and older have found levels of muscle mass and strength that are generally indistinguishable from individuals almost half their

age. In other words, these active older adults do not suffer from anabolic resistance and continue to convert ingested protein into muscle.

Fortunately, you don't need to adhere to an intense exercise regimen to reap the benefits of an active lifestyle. Moderate activity levels are also associated with greater muscle mass and function. For example, a moderate 45-minute walk has been shown to enhance the muscle protein synthetic response to ingested amino acids for up to 16 hours. This demonstrates that regular physical activity need not be particularly intense for older muscle to obtain a benefit from a nutritional standpoint.

According to Dr. Moore, "provided physical activity is incorporated into the daily routine, muscle in older adults should retain its capacity for a robust anabolic response to dietary protein comparable to that in their younger peers. Therefore, through its ability to 'make nutrition better,' physical activity should be viewed as a vital component to maintaining muscle mass and function with age."

Is It Better to Eat a Tomato or Take a Lycopene Supplement?

The tomato offers more health benefits than a lycopene supplement

With the discovery of an immense range of bioactive food components beyond the traditional essential nutrients, the multi-billion dollar dietary supplement industry continues to expand, offering a growing array of options for consumers hoping to improve their health, heal themselves, and ward off disease.

Lycopene is just one example of a food component that has attracted the attention of both nutrition researchers and consumers for its role in supporting heart health. Lycopene is found most abundantly in tomatoes. Initially, lycopene consumption was linked to reductions in prostate cancer risk. More recently, lycopene consumption has been associated with a reduced risk of cardiovascular disease. A major question, however, is whether taking lycopene as a supplement is as effective as or more effective than consuming whole food sources that contain lycopene, specifically the tomato.

Researchers Britt M. Burton-Freeman and Howard D. Sesso set out to address that question by comparing the clinical results of tomato intake versus lycopene supplementation on several known cardiovascular risk factors. They examined more than a hundred studies that focused on the effect of lycopene and tomato consumption on oxidative stress, inflammation, endothelial function, blood pressure, and lipid metabolism.

Their review, "[Whole Food Versus Supplement: Comparing the Clinical Evidence of Tomato Intake and Lycopene Supplementation on Cardiovascular Risk Factors](#)," published in the September 2014 issue of *Advances in Nutrition*, finds that consumers are mostly better off eating tomatoes than taking lycopene supplements. With the exception of blood pressure management, where lycopene supplementation was favored, whole tomatoes provided more favorable results on cardiovascular health than lycopene supplementation.

The findings of this review are consistent with other studies comparing the health benefits of other individual food components and nutrients (e.g., probiotics, bioflavonoids, etc.) to whole foods. In general, researchers are finding that consuming whole foods produces better health outcomes than relying on supplements. Nonetheless, there continues to be great interest among consumers in taking supplements. As a result the dietary supplement industry is booming with sales of both naturally and synthetically derived individual nutrients and dietary components.

In addition to lycopene, tomatoes contain many other components that benefit heart health, such as potassium, vitamin C, polyphenols, and phenolic acids. This may explain why clinical findings have generally supported tomato consumption over lycopene supplementation. According to the authors, “the package of nutrients and bioactive components that tomatoes deliver suggests an important protective role of tomatoes in a heart-healthy diet.”