



Nutraceutical Newsletter

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The Hustle for Muscle After 40. Aging out of healthy Muscle Mass & Quality.

Let's address the fact that starting some time after the age of 40, a person is expected to lose as much as half a pound of skeletal muscle per year. Between the ages of 50 and 70, a 25% loss of total lean muscle mass is about average. Compounding this, muscle quality also declines with age as fat tissue creeps in, diminishing strength and contributing to reduced mobility, increased risk of falls, and lowering quality of life.

By 2050, the number of adults 60+ years of age will double to constitute approximately 10-20% of the world's population. The prevalence and impact of this age-related loss in muscle mass is now formally recognized as sarcopenia, and has a Diagnosis Code (ICD-10-MC) that healthcare professionals in the USA can use to bill for care. That care should include a tailored diet, functional exercise, and supplementation with AstaReal® Astaxanthin.

Why Sarcopenia? Why Now? Why Astaxanthin?

Today Sarcopenia affects 50 million people, and is expected to affect 200 million by 2060. The impact on society will be increased spending on assisted living and hospitalizations. The impact on the individual includes loss in grip strength, reduced mobility, increased frailty, and greater risk of falls that may lead to more serious injury.

Circumstances typical of advancing age, including a sedentary lifestyle, decreased protein intake, mitochondrial dysfunction, inflammation, and shrinking muscle capillary beds, also contribute to deteriorating muscle health. Exercise alone is often not enough to increase muscle mass in the elderly, partly because muscle metabolism and energy production is affected with age.

The role of mitochondria in aging muscles is crucial. Mitochondria produce both the energy used to power muscles, and the free radicals that can damage muscles. Mitochondrial activity declines with age, but some nutrients may help support mitochondrial health.

The antioxidant and anti-inflammatory properties of natural astaxanthin may support healthy muscle as we age. By preferentially localizing in mitochondrial membranes, astaxanthin has special access to the site of ROS synthesis. In mitochondria-rich muscles, that means the potential to curb rising levels of oxidative stress in aging muscle.

AstaReal® Astaxanthin Making Progress in Sarcopenia Management.

A randomized, double blind, placebo-controlled human study was conducted with 42 participants (aged 65-82) with AstaReal® Astaxanthin (n=23) or placebo (n=19). The dietary formulation used in the study was 12 mg AstaReal® Astaxanthin, 10 mg tocotrienol and 6 mg zinc daily. Subjects participated in a 12 week functional exercise regimen consisting of treadmill interval training, 3 times/week, using alternate periods of high incline (9-12% grade) and low incline (5-7% grade).

The AstaReal® Astaxanthin group managed longer exercise times, greater exercise intensity, and an 8% increase in a 6 min distance walking test. Leg muscle strength and muscle cross-sectional area, and muscle function improved by 14.4% (p<0.02), 2.7% (p<0.01) and 11.6% (p<0.01), respectively.

In other studies, AstaReal® Astaxanthin prevented inhibition of PGC-1 α enzyme, which is a factor in mitochondrial dysfunction with aging. AstaReal® Astaxanthin has also been shown to support blood flow and lower exercise-induced inflammation, ultimately promoting active, healthy muscles.

AstaReal® Astaxanthin is the only natural astaxanthin brand with 60 human clinical studies, produced in a USP certified and NSF GMP registered indoor facility in the USA. AstaReal's proprietary cultivation process produces the highest quality natural astaxanthin that is clean, safe, and effective - attributes that savvy consumers demand.

Consumers 40+ are becoming increasingly aware of the benefits of antioxidants with an anti-aging, and whole body benefits. While, most products targeting sarcopenia focus on protein, AstaReal® Astaxanthin takes the next step by providing targeted mitochondrial support against oxidative stress, as well as promoting blood flow for healthy muscle.

AstaReal® Astaxanthin supports muscle strength, mass, and quality, and boosts the effects of functional training in the elderly. AstaReal® Astaxanthin together with functional exercise, produced better results than exercise alone this sarcopenia study - giving people a better chance to stay more mobile, healthier, and living independently for longer.

References: 1. T. N. Manini, *Exerc. Sports Sci Rev*, 2013. 2. T. Rantanen, *J Prev Med Public Health*, 2013. 3. M. Kanazashi et.al, *Exp Physiol*, 2014. 4. T. J. Marcell, *Journ of Gerontology*, 2003. 5. K. Sakuma, *Eur J. Physiol*, 2015. 6. F. Landi, *Nutrients*, 2016. 7. Sophia Z. L. et. al, *Journ of Cachexia, Sarcopenia and Muscle*, 2018. 8. Sarcopenia- a new pandemic? White paper by AstaReal Inc.