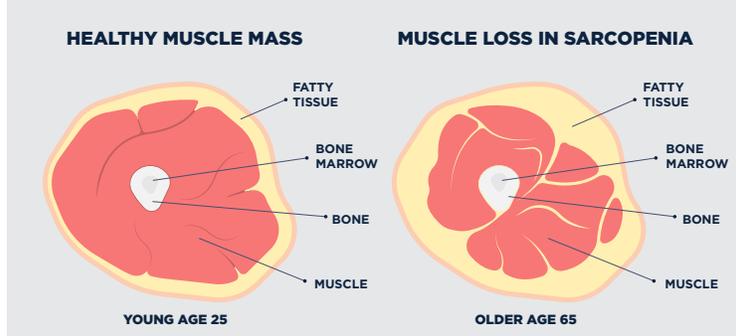


Sarcopenia Protocol

Clinical Protocol to Support Patients with Sarcopenia*



The Pathophysiology of Sarcopenia

Sarcopenia is defined as the loss of skeletal muscle tissue as part of the natural aging process characterized by a decline in skeletal muscle mass, quality, and strength, and it is often associated with certain chronic illnesses such as cancer.¹⁻³ It is estimated that after 50 years of age, approximately 1% to 2% of muscle mass is lost annually, which is generally more pronounced in men than women.⁴ The prevalence of sarcopenia in those older than 60 years of age is approximately 10%. This percentage is even higher in older individuals and in those in nursing homes.⁵

The development of sarcopenia may be influenced by a variety of factors including age, chronic illness, protein metabolism, hormonal changes, physical inactivity, poor nutrition, protein energy malnutrition, and alterations to the peripheral and central nervous systems.¹ Sarcopenia increases the risk of falls, fractures, and disability, and impacts the quality of life, including a loss of independence.²⁻⁴ Sarcopenia is associated with an increased risk of hospitalization, mortality, and adverse health outcomes including cognitive impairment, depression, respiratory disease, and cardiovascular disease.^{2,6}

Sarcopenia is generally diagnosed by a combination of clinical assessments, physical performance tests, and diagnostic screenings that measure muscle strength and mass.² Dietary and lifestyle changes may help to promote muscle mass, quality, and strength.

This clinical protocol is designed to promote the retention of skeletal muscle mass in patients with sarcopenia or those seeking prevention through evidence-based dietary, lifestyle, and supplemental interventions.*

Diagnostic Biomarkers and Clinical Indicators of Sarcopenia

- Strength, assistance with walking, rising from a chair, climbing stairs, and falls questionnaire (SARC-F)²
- Appendicular skeletal muscle mass (ASM) by dual-energy X-ray absorptiometry (DXA)^{2,7}
 - ASM <20 kg for males and <15 kg for females²
 - ASM/height² <7.0 kg/m² for males or <5.5 kg/m² for females²
- Designs for Health's Metabolomics Spotlight™ - Krebs's Cycle Report, Urea Cycle Report
- DFH Genomic Spotlight™ - Structural Report
- Physical tests:²
 - Grip strength
 - <27 kg for men and <16 kg for women
 - Chair stand test
 - >15 seconds for five rises
 - Gait speed
 - ≤0.8 miles per second
 - Short physical performance battery
 - ≤8-point score
 - Timed up and go test
 - ≥20 seconds
 - 400-meter walk or long-distance corridor walk
 - Non-completion or ≥6 min for completion

Therapeutic Diet and Nutritional Considerations

- Counsel patients to incorporate an anti-inflammatory, antioxidant-rich diet, as chronic inflammation and oxidative stress are associated with an increased risk of developing sarcopenia⁸⁻¹⁰
- Advise patients to consume a diet that contains 1 gram of protein per pound of ideal body weight per day to promote muscle protein synthesis^{4,5,7}
- Recommend patients consume foods rich in the amino acid leucine, as this amino acid has been shown to increase protein synthesis⁴
 - Beans
 - Chicken
 - Dairy products
 - Eggs
 - Tofu
 - Tuna

Lifestyle Interventions

- Instruct patients to incorporate an exercise routine that includes resistance training, as it has been demonstrated to help promote protein synthesis and increase skeletal muscle mass and strength^{1,5,7}
- Counsel patients on smoking cessation, as there is an association between tobacco use and sarcopenia^{11,12}
- Advise patients on strategies for maintaining a normal circadian rhythm, as circadian disruption may increase the risk of sarcopenia¹⁰
- Recommend adding yoga exercises, as it has been shown to increase whole-body protein utilization and support muscle mass and function^{13,14}

Supplement Protocol

Primary Support:



MyoStim™	
Dose	Mix 1 stick pack in 8 ounces of water per day
Duration	Ongoing as needed
Formula Highlights	
A complete suite of muscle-supportive nutrients formulated to promote muscle tissue preservation and healthy aging in a delicious clementine-flavored, easy-to-mix powder.* MyoStim™ combines clinically useful amounts of collagen peptides, L-leucine, β-hydroxy β-methylbutyrate (HMB), creatine, geranylgeraniol (GG), and vitamin D3 to help mitigate the effects of age-related muscle loss and support lean body composition.*	

Performance Peptides™	
Dose	4 capsules per day
Duration	Ongoing as needed
Formula Highlights	
Performance Peptides™ is a plant-based bioactive peptide complex sourced from fava bean protein hydrolysate (as PeptiStrong™). This formula is ideal for adults seeking muscle retention, strength, and recovery support as a key part of their healthy aging journey.*	

WheyCool™ or PaleoMeal®	
Dose	Mix 1 scoop into at least 8 ounces of water twice per day
Duration	Ongoing as needed
Formula Highlights	
WheyCool™ is a non-GMO grass-fed whey protein concentrate powder that is ideal for supporting muscle protein synthesis.*	
For individuals who cannot tolerate dairy, PaleoMeal® features a grass-fed bone broth protein isolate and is the perfect choice to complement any meal lacking calories and nutrients or as a convenient, nutrient-dense snack.*	

OmegAvail™ Hi-Po	
Dose	2 softgels twice daily with meals
Duration	Ongoing as needed
Formula Highlights	
OmegAvail™ Hi-Po is our highest concentration of omega-3, providing 1,600 mg of eicosapentaenoic acid (EPA)/docosahexaenoic acid (DHA) per 2-softgel serving. Omega-3 fatty acids, especially EPA, have been shown to possess anabolic properties by stimulating mTOR signaling pathways promoting muscle protein synthesis.*	

Secondary Support:



Creatine Monohydrate Powder	
Dose	Mix 5 grams in 8 to 10 ounces of water per day
Duration	Ongoing as needed
Formula Highlights	
This product delivers 5 grams of micronized creatine per scoop to support skeletal muscle growth and strength, healthy aging, cognitive function, and bone health.*	

Performance Peptides™ Bar	
Dose	1 bar per day
Duration	Ongoing as needed
Formula Highlights	
Consider taking this satisfying high-protein supplement as a snack for extra muscle support, featuring a delicious chocolatey salted caramel flavor.* This product features PeptiStrong™ and whey protein to help support muscle retention.*	

For a list of references cited in this document, please visit:

<https://www.designsforhealth.com/api/library-assets/literature-reference---sarcopenia-protocol-reference>

Dosing recommendations are given for typical use based on an average 150-pound healthy adult. Health-care practitioners are encouraged to use clinical judgement with case-specific dosing based on intended goals, subject body weight, medical history, and concomitant medication and supplement usage. Any product containing botanical substances has the potential for causing individual sensitivities, appropriate monitoring, including liver function tests (LFT) is recommended.

For considerations regarding herb-drug and nutrient-drug interactions, please refer to reliable, evidence-based resources such as the Natural Medicine Database or Stargrove MB, Treasure J, McKee DL. *Herb, Nutrient, and Drug Interactions: Clinical Implications and Therapeutic Strategies*. St. Louis, MO: Mosby-Elsevier; 2008.

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*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.