



Myostatin Inhibition: a Novel Way to Suppress Muscle Atrophy

by Dr. Chris Meletis | Feb 15, 2025

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Muscle loss is inevitable with age. After age 30, people lose about 3% to 5% of their muscle mass each decade, with the most significant losses occurring in inactive people.¹ At around age 60, muscle loss

accelerates. After age 80, research indicates that 11% to 50% of people have sarcopenia,¹ the significant loss of skeletal muscle mass, muscle strength, and/or function that occurs during advancing age.

Lean body mass is primarily made up of skeletal muscle. Reduced skeletal muscle mass and function in adults are associated with chronic diseases, poor quality of life, physical disability, increased risk of fractures, and risk for frailty.² Muscle loss becomes a vicious cycle since it promotes injury, contributing to a more sedentary phase of life, leading to muscle loss.

When you argue with the muscles, the muscles will always win. Hence, when performing a therapeutic realignment of the spine and distal joints, tight muscles and weak muscles dramatically impact the outcome of therapeutic interventional support. When patients have tight muscles, it becomes difficult to fully address the subluxations/misalignment.³ They often come back reporting, “I don’t seem to hold my adjustment.” Therefore, it is critical to address muscle health in patients.

A Novel Way To Build Skeletal Muscle Mass

The two standard ways to increase or maintain skeletal muscle mass are protein consumption and resistance exercises. In this article, we propose an additional way to build and maintain muscle mass: inhibiting myostatin through an all-natural molecule derived from fertilized chicken yolk. However, before we address this novel solution, let’s review the causes and symptoms of muscle loss.



Causes of Muscle Atrophy

The leading cause of muscle atrophy (sarcopenia) is aging itself. During this time, a number of things happening in the body can lead to muscle loss. These include:

- Reduced activity in nerve cells responsible for coordinating movement.
- Lower levels of growth hormones, testosterone, and insulin-like growth factor.
- A reduced ability to convert protein into energy.
- Elevated inflammation.
- Anabolic resistance, the age-related suppression of muscle protein synthesis after a dose of protein/amino acids.⁴

In addition to aging, muscle atrophy can also be caused by disuse, such as when patients are sedentary for long periods.

Diagnosing Muscle Atrophy

Muscle atrophy is usually diagnosed by measuring loss of muscle mass and a questionnaire to measure strength and other factors related to muscle loss. A hand grip test to measure grip strength is also an effective tool. In addition, symptoms are evaluated including:

- Muscle weakness
- Loss of stamina during activity
- Difficulty performing daily activities

- Walking slowly
- Difficulty climbing stairs
- Balance issues
- Increased incidence of falls
- Shrinking muscles

Muscle Loss Is a Risk of Weight Loss

Maintaining muscle while losing fat is critical to the success of weight loss efforts. This is one of the challenges of the popular GLP-1 agonist drugs, which lead to both fat loss and muscle loss during long-term treatment.⁵

Muscle is involved in weight loss in a number of ways, including:

- Regulating metabolism – As metabolically active tissue, muscle burns more calories at rest compared with fat tissue. The preservation of muscles leads to a higher basal metabolic rate, vital for keeping the extra weight off during the long term.
- Preserving physical function and strength – Maintaining muscle mass helps patients stay active as they age.
- Maintaining insulin sensitivity and blood sugar – Muscles are involved in glucose metabolism and insulin sensitivity. Muscle loss, on the other hand, can lead to disrupted glycemic control even in patients who are losing fat.
- Maintaining weight over time – If muscle is lost while a person is on a weight-loss diet, keeping the pounds off over time is more difficult. The

lower metabolic rate that accompanies reduced muscle mass leads to patients being more prone to regain the lost weight.

Therefore, sustaining muscle during weight loss is critical to maintain a healthy weight over time.

The Solution: Inhibiting Myostatin

A lot of research revolving around the therapeutic interventions to prevent, slow, or reverse sarcopenia spotlights myostatin, which is involved in suppressing muscle growth and is found primarily in skeletal muscle. It inhibits the Akt/mammalian target of rapamycin (mTOR) pathway and therefore, reduces protein synthesis.⁶

Evidence suggests that myostatin levels rise during aging. In a study of younger, middle-aged, and older men and women, serum myostatin levels increased with age.⁷ The study also indicated myostatin levels are the highest in physically frail older women and that the higher the skeletal muscle mass, the lower the myostatin levels.

In rodent models, animals with a mutated or deleted myostatin gene experience beneficial effects such as resistance to obesity, hepatic steatosis, and atherogenesis, as well as macrophage infiltration/activation in skeletal muscle and adipose tissue.¹ Myostatin-null mice also experienced increased bone mineral density.¹

According to researchers writing in the journal *Gerontology*, “Myostatin inhibition provides a promising means to attenuate or reverse skeletal muscle loss in the context of sarcopenia as well as cachexia (disease-associated muscle loss), and to enhance skeletal muscle regeneration in the context of congenital disease (i.e. muscular dystrophies) and injury.”¹

Decrease Myostatin and Increase Protein Synthesis

An emerging new strategy for reducing muscle atrophy and inhibiting myostatin is a bioactive complex known as Fortetropin, derived from raw, fertile egg yolk. Supplementation with Fortetropin increases lean body mass, reduces markers of protein breakdown consistent with inhibition of myostatin, and increases mTOR signaling, which is associated with muscle growth. These results were evident in human, rat, and animal studies.

For example, in one human study of 37 resistance-trained college-age males, lean body mass significantly increased in patients given Fortetropin compared with placebo.⁸ Subjects given 19.8 grams experienced greater improvements in lean body mass compared to those given 6.6 grams. Both of those groups experienced significant increases in muscle thickness and Fortetropin decreased markers of protein breakdown.

Another human study investigated the effects of 21 days of Fortetropin supplementation on muscle protein synthesis in older adults.⁹ The randomized, placebo-controlled, double-blind study of 20 participants found that average muscle protein synthesis rate in the Fortetropin group was 18% higher compared with the placebo group. The study indicated that Fortetropin has potential for managing age-related muscle loss (sarcopenia) in older adults. According to the lead researcher, “Stimulating muscle protein synthesis in elderly patients could potentially result in increased muscle mass and better outcomes for those with sarcopenia.”

In a study of dogs suffering from disuse muscle atrophy after having undergone tibial plateau leveling osteotomy (TPLO) surgery, the dogs given Fortetropin experienced no change in myostatin levels while the

placebo-treated dogs experienced an increase in myostatin over eight weeks.¹⁰ The dogs given Fortetropin also experienced no change in thigh circumference while the placebo-treated dogs had a reduction in thigh circumference over eight weeks.

Conclusion

A number of strategies can be used to prevent muscle atrophy in our patients. Here is the clinical approach I take to support muscle health:

- Breaking through anabolic resistance by inhibiting myostatin and supporting healthy mTOR levels within skeletal muscle through the use of Fortetropin.
- Testing for diabetes, altered cortisol levels, DHEA, and testosterone for both males and females.
- Ensuring patients are eating sufficient protein and diverse phytonutrients.
- Adequate and appropriate exercise should be recommended by meeting the patient where they are in their exercise journey.
- Ensuring patients have good sleep hygiene (quality and quantity) to help the body heal itself.

For more information, readers can e-mail me about my approach – NaturalMedMan@hotmail.com

Dr. Chris D. Meletis, is an independent educator for www.MYOSMD.com, the company that offers Fortetropin.

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Dr. Chris D. Meletis, ND, is an educator, international author, and lecturer. His mission is “Changing the World’s Health One Person at a Time.” Dr. Meletis has authored 19 books and over 200 national scientific articles in journals, including Natural Health, Alternative and Complementary Therapies, NDNR, Townsend Letter for Doctors and Patients, Life Extension, Natural Pharmacy, and articles appearing on PubMed.gov. Dr. Meletis served as Dean of Naturopathic Medicine and Chief Medical Officer for 7 years for the National College of Naturopathic Medicine (now the National University of Natural Medicine). The American Association of Naturopathic Physicians awarded him 2003 Physician of the Year. He has a deep passion for helping the underprivileged and spearheaded creation of 16 free natural medicine healthcare clinics in the Portland, Oregon metropolitan area.

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