Inhibit Myostatin for Muscle Growth and Longer Life

Myostatin is a hormone that inhibits muscle growth, so that higher myostatin means less muscle. Weightlifting decreases the level of myostatin, which is to be expected, since weightlifting promotes muscle growth. Let's take a look at how to inhibit myostatin for muscle growth and longer life.

Human myostatin level rises with age; this is one of the mechanisms that causes the loss of muscle as people get older, a well-documented phenomenon in which both men and women lose muscle beginning in their fourth decade (after age 30). The average person loses a full 50% of his muscle mass by age 80, a condition known as sarcopenia.

Deletion of a myostatin gene in mice so that they are heterozygous for it (+/-) results in increased lifespan. Centenarians were found to have a increased rates of a myostatin gene variant, such that someone who possesses this variant has about a 3.5 times higher likelihood of reaching the age of 100 than someone without it.(1)

Longtime readers may recognize a paradox here, namely that growth and longevity are inversely related. The bigger and faster that an organism grows, the faster it ages and the shorter the lifespan, in general.

But myostatin appears to both increase growth – muscle growth – and longevity.

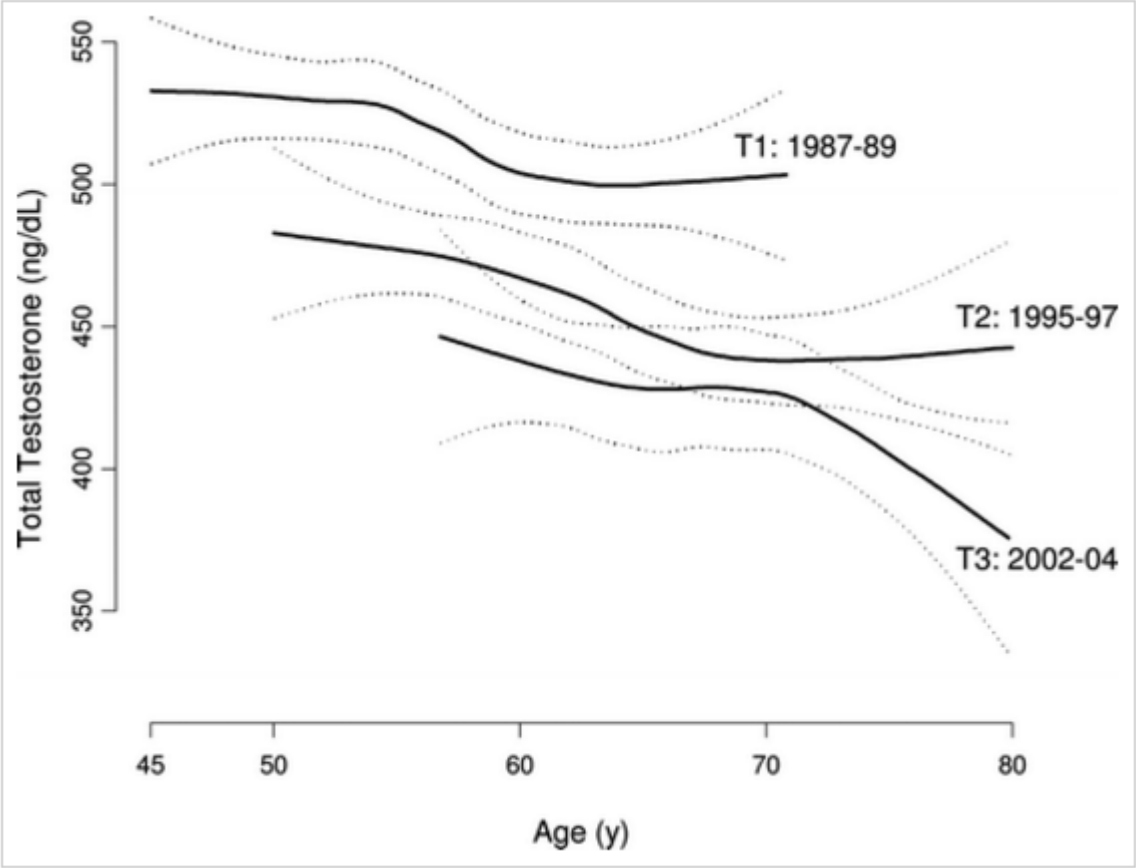
How to inhibit myostatin

There are several ways to inhibit myostatin to promote muscle growth. Please keep in mind that this is important not just for those of us who want to boost the results of weight lifting. It's very important for older people,

who lose muscle and become frail and become dependent on assistance to perform tasks of everyday life, and who in a worst-case scenario end up in a nursing home for that reason.

Testosterone

The male hormone testosterone decreases with age, and also is decreasing over time. Check out the chart below, which shows three different cohorts of men, by age. Testosterone is declining, rapidly. This trend spells disaster for older men in terms of their ability to retain muscle and have normal life activities. In younger men, this may explain some of the epidemic of obesity, man boobs, and generally effeminate demeanor.



In old mice, testosterone treatment abolished muscle loss, besides suppressing oxidative stress. It does this through multiple muscle pathways, one of which is the inhibition of myostatin.(2)

We already know that testosterone treatment of men greatly increases muscle mass. Now we have a better idea why.

If you need more muscle, have symptoms of low energy and/or libido, or depression, get your T level checked. To raise testosterone, you can consider, in order of ease

1. Changing your diet to eliminate sugar and most refined carbohydrates, and increase fat content
2. Lifting weights, if you don't do so already
3. An aromatase inhibitor, like DIM or berberine

4. Testosterone replacement therapy

Epicatechin

Epicatechin is a polyphenol found in green tea and chocolate. Giving it to old mice decreases myostatin by 18% and increases follistatin, a myostatin inhibitor, by 56%. In humans, epicatechin increased grip strength by 7% in only 7 days, and the follistatin/myostatin ratio increased 49%.(3)

The human dose used was 50 mg/d, in two divided doses.

You can get large doses of epicatechin in chocolate and tea (4), which varies quite a bit depending on quality and quantity. Dark chocolate and cocoa powder (such as CocoaVia) appear to have the most. If you drank several cups of cocoa and tea daily, you could get quite a bit of epicatechin. (Note: "cocoa" means made yourself with real, 100% cocoa powder, not that processed, sugared so-called hot chocolate that comes in a little envelope.)

Leucine and creatine

Leucine, one of the branched-chain amino acids, as well as creatine, decrease expression of myostatin-related genes.(5)

Creatine can be supplemented at 5 grams a day. Leucine can be supplemented at 2 to 3 grams up to 3 times a day.

Follistatin

Follistatin is the hormone that is an antagonist of myostatin, and it may be of use in the treatment of muscle atrophy.(6)

In humans, the use of follistatin, isolated from egg yolks, increased muscle mass in recreational bodybuilders. With 10 grams a day and after 12 weeks of resistance training, they gained 1.7 kg (3.75 lbs) of lean mass, while the placebo group had no significant gains.(7)

The follistatin product used in this study was Myo-X, and it's available at Amazon, and presumably elsewhere. It reduces myostatin by an average 46% in 12 to 18 hours, after which myostatin increases, necessitating daily dosing.

Synergy

You could of course combine all of these methods to inhibit myostatin; whether they might be synergistic isn't known.

Decreasing myostatin looks like a much healthier way of growing muscle than using drugs for that purpose. Since myostatin increases in aging, decreasing it may mean reversing aging. In fact, myostatin is homologous with the hormone GDF11, the increase of which may promote aging.(8)

PS: If you need to lose weight and you want to save yourself years of poor results with bad information, I've put everything in a simple guide for you.

The World's Simplest Fat-Loss Plan.