

Loss of muscle mass, or sarcopenia as it is known in the medical world, is a significant problem for older adults. Simply put, we become less able to synthesize muscle protein as we age.

Adults over the age of 50 require a higher protein intake in their diet if they want to maintain muscle mass than adults in their 20s, 30s or 40s. And they also require more protein in their post-workout meal if they want increase muscle mass.

And, unfortunately, many older adults are simply not getting that extra protein in their diet. They tend to eat smaller meals and often avoid meats because of health concerns.

The result is that they lose muscle mass year after year until the simple act of picking up a grandchild or a sack of groceries represents a struggle. And because of the loss in muscle mass they become unsteady on their feet and prone to falls.

I've talked about this previously in my health tip "Protein Needs Increase As We Age", which is archived at <http://www.chaneyhealth.com>.

It also turns out that the naturally-occurring amino acid leucine is an important ally in the battle to maintain or increase muscle mass in older adults. In addition to its role as a protein building block, leucine specifically stimulates muscle protein synthesis.

As part of a diet providing adequate protein, leucine has been shown to help maintain muscle mass in older adults and help increase muscle mass in adults who are doing weight bearing exercises. And, it's not just older adults who benefit from leucine. It has also been shown to help maintain muscle mass on low calorie, weight loss diets.

I've described these effects of leucine in more detail in my health tips "Protein Needs Increase As We Age" and "The Importance of Leucine", which are archived at <http://www.chaneyhealth.com>.

The study that I am discussing today (Casperson et al, Clinical Nutrition, doi: 10.1016/j.clnu.2012.01.005) takes the leucine story one step further.

In this study the researchers asked the question of whether leucine supplementation would help older adults maintain muscle mass even if they did not work out or change the rest of their diet to increase protein intake.

They enrolled 8 health, but sedentary, older adults with an average age of 68 into the study. The study specifically excluded any adults who were working out. The subjects were given 12 grams of leucine every day for a two week period and told not to make any changes to their normal exercise and eating patterns.

On the day before and the day after the two-week leucine supplementation they were given a test meal containing 7 grams of essential amino acids and 10 grams of sucrose dissolved in a diet soda. The researchers designed this "meal" to be equivalent to approximately a half a chicken breast and a half cup of rice, which they considered to be a typical meal for someone in that age group. (I don't know about you, but I would have preferred the chicken and rice).

The researchers then took a series of muscle biopsies over the next several hours and measured the percentage of the amino acids from the test "meal" that were incorporated into muscle protein (something called "mixed muscle fractional synthesis rate" or FSR).

The results were pretty clear cut. Two-weeks of leucine supplementation significantly increased the FSR following ingestion of the test "meal". The researchers concluded that "The amino acid leucine may help older people synthesize muscle in response to lower protein diets"

So what is the bottom line for you?

1) While this study suggests that supplemental leucine may be able to help preserve muscle mass even in sedentary older adults consuming a relatively low protein diet, previous studies suggest that the extra leucine will be even more effective when the protein intake is also increased.

I personally prefer a holistic approach rather than just looking for the one magic "pill" that will take care of everything. My recommendation would be to work out on a regular basis and consider a protein supplement containing the extra leucine to make sure that protein intake is also where it needs to be.

2) We also need to remember that the test "meal" was pretty high in protein. Leucine supplementation is unlikely to help build muscle mass following a muffin and coffee for breakfast or a salad for lunch.

To Your Health!

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