

It's Never Too Late to Begin Resistance Training

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STORY AT-A-GLANCE

- › Sarcopenia, or age-related muscle loss, affects adults over 60, with a higher prevalence in hospitalized and nursing home residents. Resistance training is recommended as the primary treatment
- › Resistance training creates micro-tears in muscles, which repair and strengthen during recovery. Beginners are advised to start with comfortable weights for eight to 12 repetitions in three sets, prioritizing proper form
- › Regular resistance training improves muscle strength, bone density, balance and reduces fracture risk. It also has positive effects on insulin sensitivity, glucose regulation and inflammation
- › Blood flow restriction (BFR) training, or KAATSU, enhances muscle growth using very light or no weights. It's particularly beneficial for elderly individuals who may risk injury by heavy lifting
- › The ideal strength training regimen is 20 to 40 minutes, two to three times weekly. Excessive training may reduce longevity benefits. Pair resistance training with adequate protein intake for optimal muscle maintenance and growth

Sarcopenia, also known as age-related muscle loss, is a leading health concern among the elderly. According to research compiled by the Alliance for Aging Research, the prevalence of sarcopenia is prevalent in adults ages 60 and older:¹

- 11% in men and 9% in women who live in communities

- 23% in men and 24% in women who are hospitalized
- 51% in men and 31% in women who are in nursing homes

Once your body starts to lose muscle mass, your quality of life drastically reduces. For example, it affects your ability to perform simple tasks, such as walking upstairs or standing from a chair.²

If these events happen, how do you prevent losing muscle as you age? The most practical approach is resistance training. In fact, it's actually the recommended "first-line treatment for counteracting the deleterious consequences of sarcopenia in older adults."³

How Resistance Training Builds Bigger Muscles

Resistance training is defined as a form of exercise wherein you use a weight, such as dumbbells and barbells, to target your muscles. In addition, other devices can be used if weights are not around, such as resistance bands. But what if you currently don't have access to any of those tools? Don't worry, as you can even use your own body weight to build muscle.⁴

How does muscle-building occur via resistance? When you use your muscles against a weight, you're intentionally creating miniscule tears in your muscles. After training, your body repairs the affected muscles, making them stronger.⁵

If you're just beginning with weightlifting, here's an easy guide to follow by Yahoo! Life — pick a weight you can lift comfortably between eight and 12 times (also known as repetitions) for a single set. Then, repeat that same exercise two more times, taking breaks in between.⁶

According to personal trainer Lance Johnson, the reason for going with a comfortable weight is to prevent injuries. In addition, he recommends consulting with a professional trainer to help you with proper weightlifting form and intensity.⁷

Resistance Training Provides Multisystem Benefits

Getting into the habit of lifting weights will do your health plenty of good. In an interview for Yahoo! Life, geriatric kinesiologist Mercedes Fernandez explains that your body needs strong muscles because it "creates stability within the skeletal system and maintains bone density."⁸

"Our bones are connected by tendons, ligaments and muscles," Fernandez explains. "When our muscles are weak, there is a higher risk to the stability of the skeletal system. There are more chances for injury and immobility as the muscular system that protects joints and facilitates movement diminishes."

There's plenty of research supporting Fernandez's argument. For example, one study⁹ has shown that sarcopenia affects your balance, thereby increasing your risk of fractures. To counter muscle loss, the researchers recommend a resistance training program that involves upper- and lower-body muscle groups.

In another study,¹⁰ which is a meta-analysis of 14 other papers, researchers noted that resistance training improved markers such as grip strength and muscle mass after resistance training.

Another important point Fernandez brought up earlier is the positive effect of resistance training on bone mineral density. It's estimated that 10 million Americans over the age of 50 have osteoporosis right now, a skeletal disease marked by reduced bone strength, which increases the risk of fractures.¹¹ So, if you take up strength training, not only are you making your muscles stronger, but your bones will get similar benefits, too, as noted in a study published in Sports Medicine.¹²

The benefits of strength training go beyond increased muscle mass and bone mineral density. A study published in Frontiers in Sports and Active Living highlighted the following:

"Even though cardiovascular exercise (low-intensity or intermittent training) has been shown to improve insulin sensitivity and glucose tolerance via glucose

transporter 4 (GLUT4) regulation, robust evidence highlight how resistance training also offers advantages in glycemic regulation.

Last but not least, strength training has also anti-inflammatory actions due to its exclusive effect on mechano growth factor (MGF) and downregulation of the tumor necrosis factor α (TNF α) pathway. This might be linked to the improved action of insulin and blood glucose regulation."

Consider Blood Flow Restriction Training to Boost Muscle Growth

If you want to take your weightlifting to a new level, try incorporating blood flow restriction (BFR) training into your exercise regimen. I believe this is the greatest innovation in exercise training in the last century. It is also known as KAATSU in Japan, and was developed by Dr. Yoshiaki Sato in 1966.

BFR training is essentially a method wherein bands partially obstruct blood flow while you're exercising, which creates intermittent hypoxia. This process creates anti-inflammatory myokines, the muscle version of cytokines, which result in beneficial hormonal processes.

KAATSU is a useful tool in increasing muscle mass to combat sarcopenia. It increases the blood supply to your satellite stem cells, providing the necessary metabolic support to boost muscle protein synthesis and grow your muscles.

Moreover, the elderly won't be intimidated by lifting heavy weights anymore – in KAATSU, you can lift very light weights, or none at all, and still achieve the same benefits. In fact, you can even use it while going about your day. As explained in [my interview with Steven Munatones](#), a KAATSU practitioner who mentored under Sato:

"KAATSU cycle is basically a very clever biohack that will allow the muscles to work and allow the vascular tissue to become more elastic. You don't perceive the pain of heavy lifting, but your vascular tissue and muscle fibers are being worked out just as effectively, and you can do it for a longer period of time.

Putting the KAATSU bands on your legs and walking down to the beach, walking your dog or just walking around the neighborhood, standing, cleaning your windows of your house, folding your clothes, banging out emails, all of these things can be done with the KAATSU bands on your arms or legs. You're getting the benefit of exercise.

Beta endorphins are being produced; hormones and metabolites are being produced as you're doing simple things – and that is the way to get the older population in Japan, in the United States, around the world, to understand that you can stop sarcopenia, but you have to exercise. You don't have to run a 10K, you don't have to go down to Gold's Gym. Just put on the KAATSU bands and live your life."

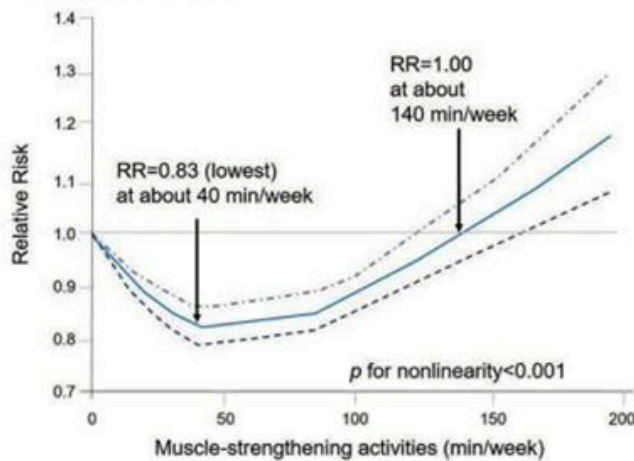
The Sweet Spot for Strength Training

In [my interview with cardiologist James O'Keefe](#), he noticed in his research that vigorous exercise backfires, especially when done in high volumes. In fact, I radically changed my exercise program after he presented his data. Specifically, people who were doing a total of four to seven hours of high-intensity training start losing health benefits that exercise confers. According to O'Keefe, more is not necessarily better when it comes to lifting weights:

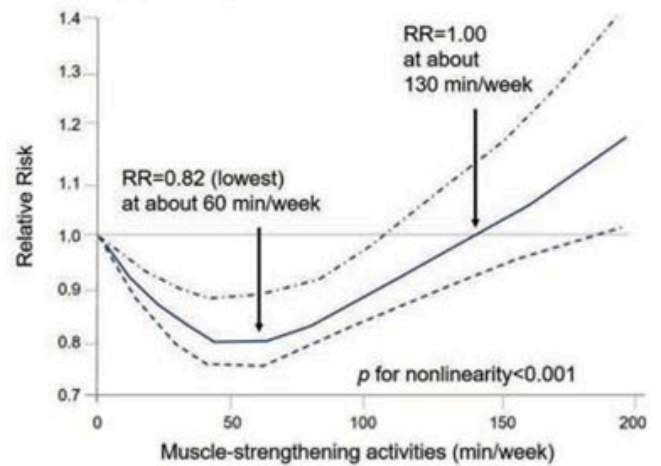
"I've always been a fan of strength training ... But again, the devil is in the details about the dosing. When you look at people who do strength training, it adds another 19% reduction in all-cause mortality on top of the 45% reduction that you get from one hour of moderate exercise per day.

When I strength train, I go to the gym and spend anywhere from 20 to 40 minutes, and ... I try to use weights that I can do 10 reps with ... After that, you're feeling sort of like spent and ... it takes a couple of days to recover. If you do that two, at the most three, times a week, that looks like the sweet spot for conferring longevity."

All-cause Mortality (6 Studies)



All-cause Mortality (5 Studies)



The graphs above, which come from O'Keefe's meta-analysis,¹³ show the J-shaped dose-response for strength training activities and all-cause mortality. As you can see, the benefits max out at around 40 to 60 minutes per week. Beyond that, you're not gaining anything.

When you're doing strength training for a total of 130 to 140 minutes per week, the longevity benefits of exercise go down to the point as if you're not exercising at all. In short, if you train for three to four hours a week, your long-term survival is actually worse than people who don't do strength train at all.

Again, when you're doing intense vigorous exercise in excess, you're still better off than people who are sedentary. But for some (yet undetermined) reason, excessive strength training leaves you worse off than being sedentary.

The lesson here is to keep strength training to 20 minutes twice a week on non-consecutive days, or 40 minutes once a week. Moreover, it's just an add-on to your exercise regimen – don't center your entire exercise sessions around it. Moderate-intensity exercise such as walking gives you far greater benefits.

Protein Intake Goes Together with Resistance Training

While resistance training certainly helps improve muscle mass, don't forget the other side of the equation – dietary protein, especially animal-based protein. This

macronutrient is important for muscle maintenance and building bigger muscles as you train.

Building mass isn't just about helping make your everyday activities easier. The more muscle you have, the higher your survivability against diseases, including cancer. As noted in a 2020 study,¹⁴ cachexia – the loss of muscle mass – accounts for 20% of all cancer deaths. One reason for this is because your muscles also act as storage for amino acids, which are crucial during times for illness.

In addition, your muscles help regulate metabolism¹⁵ and is integral for glucose disposal, as noted in a study¹⁶ published in the Journal of Biological Chemistry. Glucose disposal is an important component in the management of insulin sensitivity.

According to a study¹⁷ published in the European Heart Journal, higher levels of estimated glucose disposal rate (eGDR) play a protective role against heart failure (HF). Polling the data from 1,685 patients affected with Type 2 diabetes, here's what they discovered:

"A higher level of eGDR is strongly associated with a lower risk for incident HF in patients with Type 2 diabetes, suggesting that insulin resistance may play an important role in pathogenesis of HF. This simple novel biomarker may be explored to stratify risk for incident HF in individuals with Type 2 diabetes."

For most adults, the ideal protein intake is 15% of daily calories. To help you compute the specific amount, follow this guide – most adults need about 0.8 grams of protein per kilogram of ideal body weight, which is your target weight, not your current weight.

For example, if your target weight is 135 pounds (61.23 kilos), multiply 61.23 by 0.8. This puts your daily protein requirement right around 49 grams.

For most normal-weight adults, 30 grams per meal is the minimum you need to stimulate muscle protein synthesis. Kids typically need 5 to 10 grams of protein per meal. One-third of your total protein (in the example given, that would be about 16 grams) should be collagen, to ensure you're getting a healthy amino acid ratio.

Sources and References

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