MERCOLA
Take Control of Your Health

Excessive Weightlifting Will Shorten Your Life

Analysis by Dr. Joseph Mercola | January 19, 2024

STORY AT-A-GLANCE

- A systematic review and meta-analysis in the March-April 2023 issue of Missouri Medicine concluded that, above 60 minutes per week, strength training begins to backfire. Above 130 minutes per week, your life expectancy becomes the same as if you were sedentary
- A systematic review published in the British Journal of Sports Medicine in 2022 also found a J-shaped association between strength training and all-cause mortality, with a maximum risk reduction (10 % to 20%) being observed at a dose of 30 to 60 minutes per week. After 60 minutes, the benefits started to diminish, and above 140 minutes per week, it was associated with an increased risk of all-cause mortality
- A 2022 systematic review published in the American Journal of Preventive Medicine found a nonlinear relationship between resistance training and all-cause mortality. A maximum risk reduction of 27% was observed at around 60 minutes per week of resistance training. Beyond that, the reduction in mortality risk diminished
- Strength training should be an add-on, as you get far greater benefits simply from walking, or any other moderate exercise. Benefits of moderate exercise, loosely defined as exercising to the point where you're slightly winded but can still carry on a conversation, cannot be overdone. There's no point at which moderate exercise starts becoming negative
- A systematic review published in 2019, which found that, compared with no exercise, resistance training was associated with 21% lower all-cause mortality. When combined with aerobic exercise, it lowered all-cause mortality by 40%. Based on all of these findings, we can conclude that a combination of appropriately dosed strength training with unlimited moderate activity provides the greatest benefit

A systematic review and meta-analysis in the March-April 2023 issue of Missouri Medicine,[1] the journal of the Missouri State Medical Association, radically changed my views on exercise, as it concluded that, above a certain amount, strength training begins to backfire and, eventually, results in lower life expectancy than if you do no exercise at all.

I emailed that study in September to best-selling author and high performance coach Siim Land, who has been doing resistance training for over 10 years. He does quite a bit

of intense training, and he understood that he was putting himself at risk if he engaged in that too much. Thankfully he considered and sent me the video above which I'm sharing with you today.

I sent him the following note for his consideration as he seeks to understand the optimum dose of resistance training for him at his stage of life:

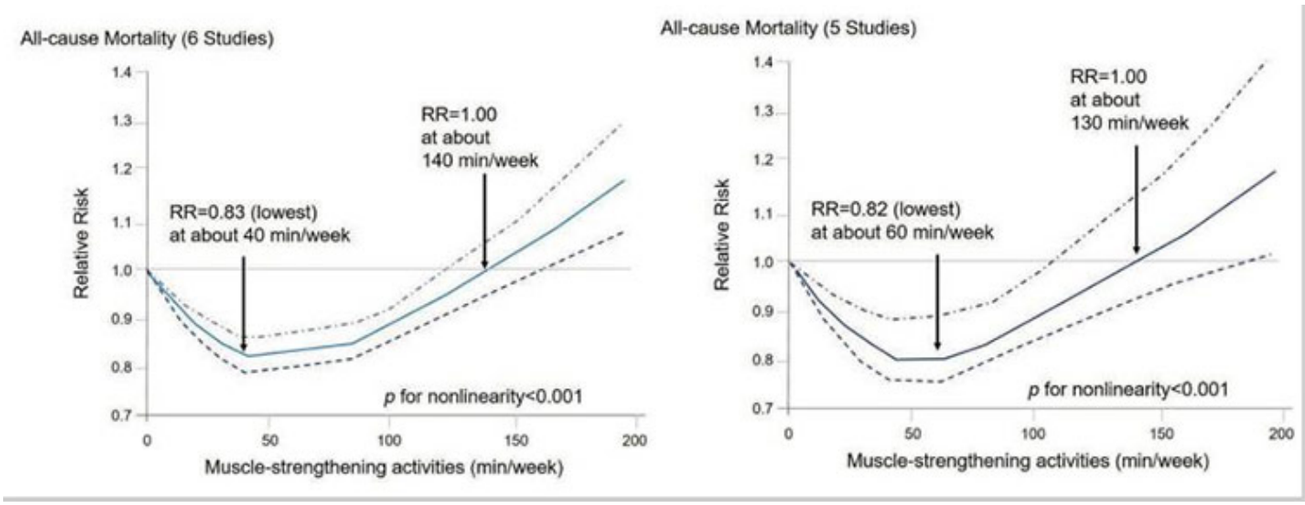
> *"Real time resistance training, while it can be highly effective, like most other health practices, can eventually reach a point of diminishing returns, partly because biology is so incredibly variable, not just between each of us, but different times, days and years.*
>
> *It is important to seek to understand how to pay attention to your progress and to ease off when necessary, and then to go forward when you feel that you are strong enough and capable.*
>
> *There's no reason to turn your biology into a gladiator. Some find that kind of focus and creation to be wonderful. However, that intense level of focus for most in one area eventually does cause one to hit limits that they may want to take a look at, because they may not find them to be productive or even enjoyable eventually."*

Overdoing Strength Training Is Worse Than Doing Nothing at All

Without question, strength training will improve muscle mass, muscle and bone strength. It can also boost your testosterone level if not overdone. It helps to improve mood and prevent falls. As you get into your 30s, you start to lose muscle mass and if you don't train to maintain muscle mass, you'll eventually end up with sarcopenia (low muscle mass) or osteoporosis (low bone density).

However, it's important to stay within the Goldilocks zone. The Missouri Medicine meta-analysis clearly shows there's a J-shaped dose-response for strength training activities and all-cause mortality. As you can see in the graphs below, the benefit maxes out right round 40 to 60 minutes a week. Beyond that, you're losing benefit.

What's worse, once you reach 130 to 140 minutes of strength training per week, your longevity benefit becomes the same as if you were sedentary. The take-home message from this is that 20 minutes two or three times a week on non-consecutive days, or 40 to 60 minutes once a week is the sweet spot. Anything above 60 minutes a week brings diminishing returns.



You also don't want your exercise regimen to center around strength training. It should be an add-on, as you get far greater benefits simply from walking, or any other moderate exercise (loosely defined as exercising to the point where you're slightly winded but can still carry on a conversation). There's no point at which moderate exercise starts becoming negative.

In late November 2023, I posted an interview I did with the lead author of this important study, **Dr. James O'Keefe**, a cardiologist with the Mid America Heart Institute at St. Luke's Hospital in Kansas City. I've included it again below for your convenience.

Other Studies Confirm Importance of Strength Training in Moderation

Land also reviews other studies that confirm the importance of strength training in moderation, keeping your weekly total to an hour or less. Among them is a systematic review and meta-analysis of 16 studies published in the British Journal of Sports Medicine in 2022.[2]

Muscle-strengthening activities were associated with a 10% to 17% lower risk of cardiovascular disease (CVD), total cancer incidence, Type 2 diabetes and all-cause mortality. As in O'Keefe's study, this review found a J-shaped association, with a maximum risk reduction of all-cause mortality, CVD and cancer (10 % to 20%) being observed at a dose of 30 to 60 minutes per week.

After 60 minutes, the benefits of strength training started to diminish, and above 140 minutes per week, it was associated with an increased risk of all-cause mortality. Another 2022 systematic review published in the American Journal of Preventive Medicine (AJPM) found that:[3]

> *"Compared with undertaking no resistance training, undertaking any amount of resistance training reduced the risk of all-cause mortality by 15% ... cardiovascular disease mortality by 19% ... and cancer mortality by 14% ...*

A dose-response meta-analysis of 4 studies suggested a nonlinear relationship between resistance training and the risk of all-cause mortality. A maximum risk reduction of 27% was observed at around 60 minutes per week of resistance training ... Mortality risk reductions diminished at higher volumes."

Why Does Too Much Strength Training Backfire?

None of the studies mentioned above provide an answer for why strength training backfires beyond a certain amount. A separate paper,[4] published in November 2023 theorized it might be due to increased arterial stiffness and chronic inflammation, but noted a lack of confirmatory evidence.

Land suspects the association may have to do with excessive catabolism in older people. The studies didn't separate people into age groups, so this potential explanation cannot be confirmed. But it makes sense that older individuals might accrue damage from excessive breakdown of muscle tissue. The question is, is that enough to account for the J-shaped curves seen when all age groups are included?

More Moderate Activity Outperforms More High-Intensity Exercise

Another fascinating conclusion of O'Keefe's analysis[5] is that moderate activity outperforms vigorous, high-intensity exercise once you get past 75 minutes a week. At around 75 minutes of high-intensity exercise, you've reduced your all-cause mortality risk by 17% and it doesn't get any lower than that, no matter how much you work out.

If you're over the age of 40, benefits may actually decrease a little, as the risk of atrial fibrillation skyrockets. The same is not true for moderate activity. Here, the reduction in all-cause mortality continues to accrue the greater the dosage, hitting a reduction of 35% around 850 minutes per week, or just over 14 hours.

An even more extreme benefit for moderate activity is seen when looking at the reduction in cardiovascular risk. Here, vigorous activity maxes out around 200 minutes with a risk reduction of 15%, whereas moderate activity continues reducing cardiovascular risk in a dose-dependent manner, hitting a 40% risk reduction at 850 minutes, but still not leveling off.

Limited Resistance Training Combined With Unlimited Moderate Activity Is Best

So, to wrap this up, when it comes to vigorous exercise and strength training, too much will backfire, resulting in higher mortality risk than had you trained less. But when it

comes to moderate exercise, like walking, dancing and gardening, just to name a few, you cannot overdo it, and the more active you are, the greater your benefits.

Land also includes a systematic review and meta-analysis published in 2019, which found that, compared with no exercise, resistance training by itself was associated with 21% lower all-cause mortality, but when combined with aerobic exercise, it lowered all-cause mortality by 40%.

> **“A combination of appropriately dosed strength training with unlimited moderate activity provides the greatest benefit.”**

Based on all of these findings, we can conclude that a combination of appropriately dosed strength training with unlimited moderate activity provides the greatest benefit.

My Updated Workout Recommendations

I’ve tweaked my own workout regimen considering these findings, reducing the amount of vigorous exercise and strength training I do, and instead making sure I walk more on a daily basis. Typically, I aim for 12,000 steps (about six miles).

Experimentation has also shown me that I really need to rest at least twice a week. Giving myself these rest periods has significantly boosted the quality of my sleep and ability to feel strong when I reengage my resistance training.

Overall, walking appears to be one of the best forms of exercise in terms of making you fitter and increasing your life span. So, focus on activities like daily walking, hiking, gardening, and leisurely bike rides first. Again, more IS better when it comes to moderate-intensity activities like walking. For most, I think it’s better to get your walking done before you start resistance training.

However, if you want to avoid frailty and sarcopenia (age-related muscle loss), it would be wise to consider doing both. So, if you’re already getting an hour of moderate activity per day, add in 20 to 30 minutes of strength training two to three times a week on non-consecutive days, or 40 to 60 minutes once a week.

To prevent injury, I recommend doing **KAATSU (blood flow restriction training)**, which gives you the same or better results as conventional weightlifting with very light or no weights. Considering you’re not pushing your body to the max with heavy weights, you can also likely train longer than one hour a week without nullifying benefits. It’s closer to moderate movement exercise than conventional resistance training.

If you have the time, also add some flexibility and balance training sessions like yoga or tai chi. Finally, make sure you rest and recover for a day or two after strenuous exertion. The recovery phase is just as important as the exertion phase in terms of producing a high level of fitness.

Sources and References

- [1, 5] Missouri Medicine March-April 2023; 120(2): 155–162
- [2] British Journal of Sports Medicine 2022; 0: 1-10
- [3] American Journal of Preventive Medicine August 2022; 63(2): 277-285
- [4] Curr Cardiol Rep November 2023; 25(11):1573-1580