



[The Importance of Exercise Intensity](#)

Exercise is a uniquely beneficial health practice, one that improves health, decreases mortality, and that just generally improves overall quality of life. Anyone who exercises regularly knows the feeling of well-being that exercise causes, both during it and afterwards. But there are obviously both different kinds of exercise, and different levels of intensity. To improve physical fitness, the goal of exercise, one must pay attention to the importance of exercise intensity.

What exercise does

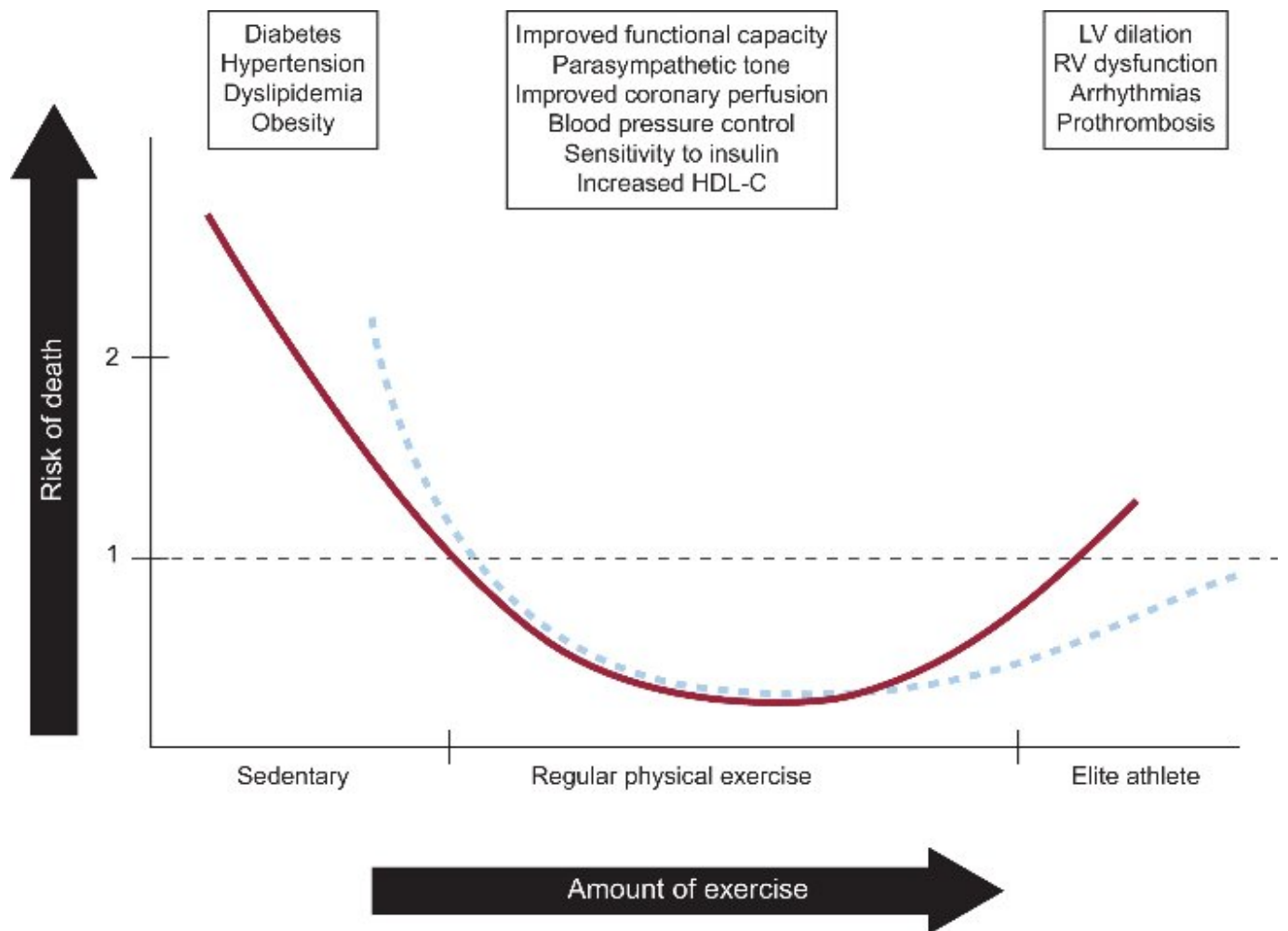
The effects of exercise are many. Exercise

- improves insulin sensitivity
- increases cardiorespiratory fitness (VO₂max)
- increases strength of bones and muscle
- decreases risk of cardiovascular disease
- decreases cancer risk
- improves mental health
- prevents frailty and decline in aging
- helps weight control.

All of these effects are intertwined and can't be readily separated.

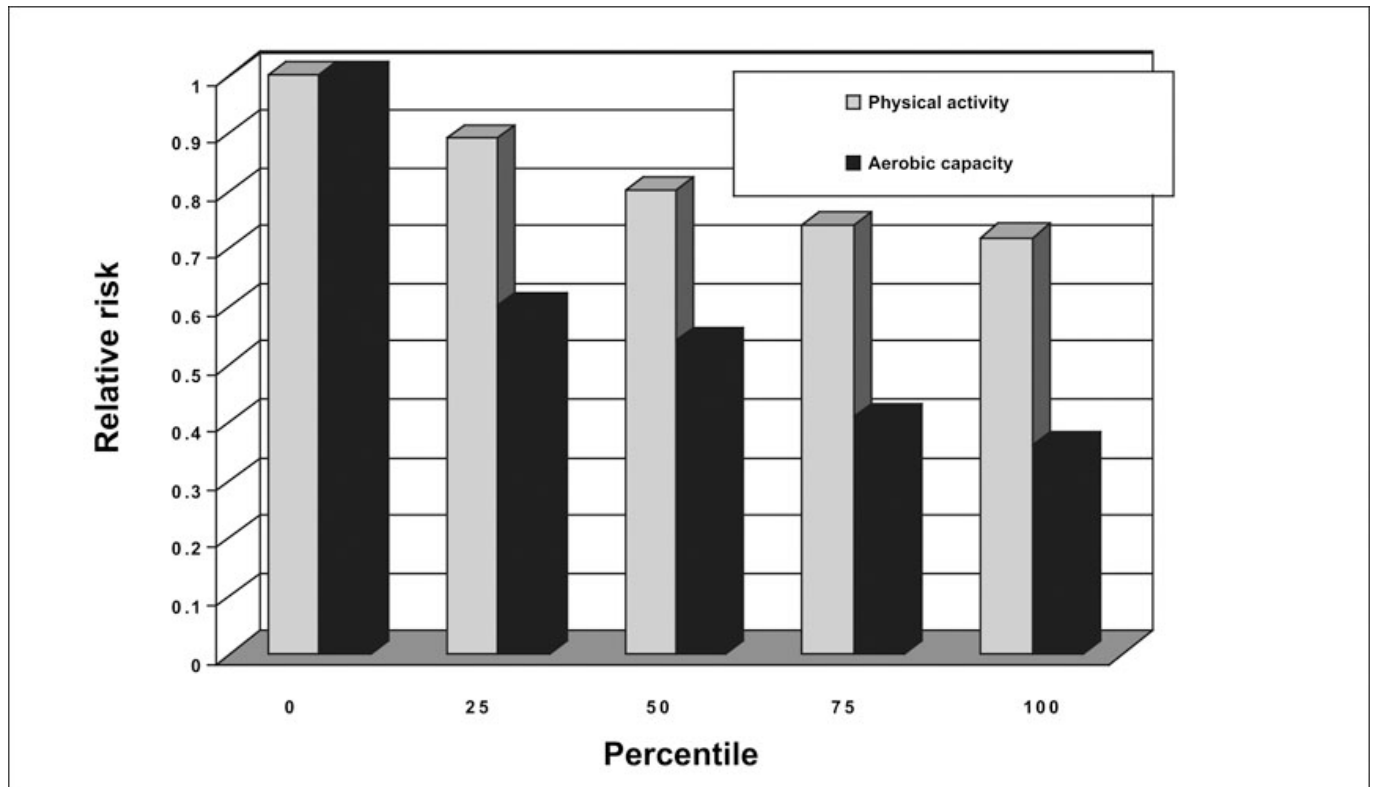
The effects of exercise can be viewed according to [the FITT principle](#): frequency, intensity, time (duration), and type.

For frequency, intensity, and duration, in general, the more the better, but it's possible to overdo it. Why is that? Because exercise means the placing of stress on the body with the aim of improving health, and is therefore a form of [hormesis](#), in which a low dose of a stressor or toxin results in better health and stress resistance. As such, exercise is characterized by the J-curve typical of hormesis; see chart below. ([Source.](#))



A low to moderate amount of exercise improves health compared to being sedentary, while a very high amount (such as hard daily training at elite level athletics, or ultramarathon running, for example) can lead to [overtraining](#) and worse health. In this article, we'll be concerned with how much exercise is necessary rather than with excessive exercise and overtraining.

Since exercise is by definition a stress, any physical activity that does not place a stress on the body doesn't improve fitness. While any physical activity itself can improve health and is far better than being sedentary, aerobic (cardiorespiratory) fitness is a much stronger determinant of health. See chart below – aerobic capacity is twice as strong a reducer of cardiovascular risk as is physical activity.



Therefore, to lower your health risks, just moving around isn't enough. The activity you do must be intense enough, or long enough, or frequent enough, or some combination of these, to increase fitness. Type of exercise is also important, since some forms of exercise are inherently more demanding than others. Boxing, for example, places a greater demand on the body than zumba.

Levels of exercise

Intensity of exercise appears partially to override the factors of frequency and duration. For example, [higher intensity exercise improves aerobic fitness more than lower intensity](#), even when duration is adjusted so the the same number of calories are burned.

[High-intensity interval training](#) improves cardiorespiratory fitness as much or more than traditional steady-state aerobic exercise, in far less time.

In bodybuilding, other things equal, [intensity trumps volume and frequency](#).

Low intensity exercise improves fitness only in people with a low level of fitness. This is an important point.

[Walking, for example, improves insulin sensitivity in obese, type 2 diabetics](#). These people have a low fitness level and high insulin resistance, and walking therefore represents enough of a stress on their bodies to improve their health.

Now, suppose you're a regular reader of this site, you lift weights and/or do

other forms of high-intensity training, you are of normal weight and have good insulin sensitivity. Will walking improve your health further?

Not likely. You need either more frequent exercise of the same intensity you're already doing, a longer duration of it, or an even higher intensity.

Fitness level determines whether an exercise improves it

If you have low aerobic fitness, almost any exercise will help. Someone who's been ill and in bed for a long time will improve just by getting out of bed. Likewise, walking can improve the fitness of someone who's overweight and sedentary.

But how can we determine whether a given bout of exercise improves our fitness or not? In other words, how can we put this matter on a more scientific basis?

Exercise physiologists have done this, and [have determined](#) that exercise intensities below 45% of $\dot{V}O_2$ reserve in subjects with high fitness do not increase fitness, while for those with low fitness, at least 30% of $\dot{V}O_2$ reserve is necessary.

So, what's $\dot{V}O_2$ reserve? It's the [difference between resting oxygen consumption \(\$\dot{V}O_2\$ \) and maximum oxygen consumption \(\$\dot{V}O_{2max}\$ \)](#). $\dot{V}O_2$ reserve differs greatly between fit and less fit individuals.

In the real world, without the assistance of an exercise physiologist, probably the best way to look at exercise intensity is through metabolic equivalents, or METs.

[One MET is the amount of energy expended at rest](#). Different types and intensities of exercise can be expressed in multiples of METs.



The above chart shows some sample exercises in terms of METs. A more comprehensive list can be found [here](#).

High-intensity vs steady-state exercise

Steady-state exercise ("aerobics" or "cardio") has long been prescribed as the exercise that uniquely increases cardiorespiratory fitness, but we now know that [high-intensity exercise](#) does that as well, and in less time.

One problem with steady-state exercise, such as jogging or treadmill running, is that the only way to increase the exercise stress is by increasing the duration of exercise. You see this method of training in distance runners, for example, who end up running for hours daily to increase the amount of training they do.

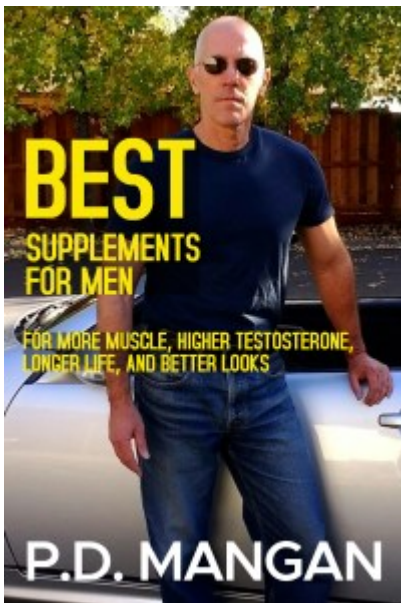
In contrast, using high-intensity training, you are always working out at the edge of your physiological capabilities.

So, with high-intensity training, there's never a question whether you're exercising intensely enough to increase your fitness, because you are always doing so.

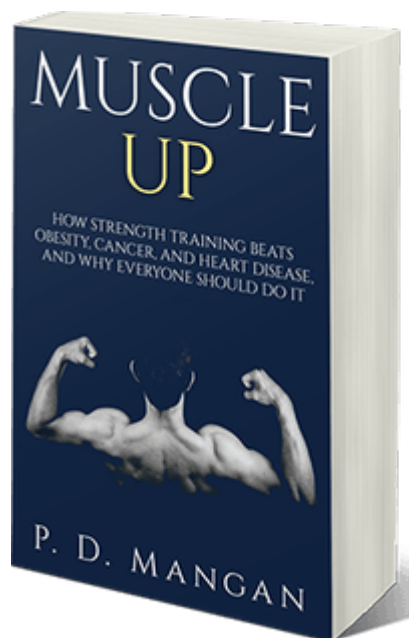
Conclusion

Low-intensity exercise improves fitness only for those who are not fit. As you move up the fitness ladder, exercise needs to become more intense to improve fitness.

PS: My most recent book is [Best Supplements for Men](#).



For a more comprehensive discussion of exercise intensity, as well as practical ways to incorporate intensity into your exercise program, see my book [Muscle Up](#).



PPS: [Check out my Supplements Buying Guide for Men.](#)