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## Japanese Doctor Confirms Health Benefits of Working Out Less, But More Intensely

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By Dr. Mercola

A little over three years ago, I was introduced to high intensity interval training, commonly referred to as HIIT, when I met Phil Campbell at a fitness camp in Mexico. I refer to it as [Peak Fitness Training](#).

Since then, researchers have repeatedly confirmed the superior health benefits of HIIT compared to traditional and typically performed aerobic workouts.

For example, high-intensity interval-type training gives a natural boost to human growth hormone (HGH) production—which is essential for optimal health, strength and vigor—and has been shown to significantly improve insulin sensitivity, boost fat loss, and increase muscle growth.

Anaerobic HIIT can be performed on a recumbent bike or an elliptical machine, or sprinting outdoors (with proper guidelines to avoid injury).

While there are a large number of variations, the HIIT routine I recommend involves going all out for 30 seconds and then resting for 90 seconds between sprints. Total workout is typically 8 repetitions. In all, you'll be done in about 20 minutes, and you only need to perform HIIT two or three times a week.

But researchers such as Dr. Izumi Tabata have shown that *even shorter* workouts can work, as long as the intensity is high enough.<sup>1</sup>

The video above shows a modified high intensity workout from the DVD *Mash Up Conditioning*. It demonstrates 30 seconds of high intensity followed by 30 seconds of recovery with repeated intervals. There are 3 different levels demonstrated at the same time in the video.

### Personal Modifications

I personally modified the Peak 8 to a Peak 6 this year as it was sometimes just too strenuous for me to do all 8 and. So by listening to my body and cutting it back to 6 reps I can now easily tolerate the workout and go full out and I no longer dread doing them.

Another tweak is to incorporate Butenko breathing into the workout and do most of the workout by only breathing through my nose. This raises the challenge to another level. I will discuss more of the benefits of this in a future article but I do believe it has many benefits.

I then finish my Peak 6 workout with Power Plate stretches, 10 pull ups, 10 dips and 20 inverted pushups, and call it a day. I personally have never tried the Tabata protocol as it seems too intimidating and I'm not sure I could do it, but it is yet another option that people can use.

### Can You Get Fit in Just Four Minutes, Four Times a Week?

After monitoring the Japanese speed skating team in the early 90's, Dr. Tabata noticed that extremely hard but intermittent exercise appeared to be at least as effective as standard workouts that require several hours a week. The training protocol he came up with as a result requires a mere four minutes, four times a week. The caveat? *Extreme* intensity.

Dr. Tabata's HIIT protocol calls for just 20 seconds of *all-out* drop-dead effort, followed by a mere 10 seconds of rest. This intense cycle is repeated eight times. According to Dr. Tabata:<sup>2</sup>

*"All-out effort at 170 percent of your VO2 max is the criterion of the protocol. If you feel OK afterwards you've not done it properly. The first three repetitions will feel easy but the last two will feel impossibly hard. In the original plan the aim was to get to eight, but some only lasted six or seven."*

When performed four times per week for six weeks, participants in one experiment increased their anaerobic capacity by 28 percent, and their VO2 max (an indicator of cardiovascular health) and maximal aerobic power by 15 percent. This is in contrast to the control group, who performed an hour of steady cardiovascular exercise on a stationary bike five times a week. These participants improved their VO2 max by just 10 percent, and their regimen had no effect on their anaerobic capacity.

Dr. Tabata also has forthcoming research findings showing that his protocol reduces your risk of diabetes, which other HIIT studies have already suggested. And, according to the featured article:<sup>3</sup>

### Story at-a-glance

- » High-intensity interval training (HIIT) gives a natural boost to human growth hormone (HGH) production, which is essential for optimal health, strength and vigor. HIIT has also been shown to significantly improve insulin sensitivity, boost fat loss, and increase muscle growth
- » According to Japanese research, a mere four minutes of exercise performed at extreme intensity, four times a week, can improve your anaerobic capacity by 28 percent, and your VO2 max and maximal aerobic power by 15 percent in as little as six weeks
- » Study participants who performed an hour of steady cardiovascular exercise on a stationary bike five times a week only improved VO2 max by 10 percent, and their regimen had no effect on their anaerobic capacity after six weeks
- » Previous research showed that just three minutes of HIIT per week for four weeks improved participants' insulin sensitivity by an average of 24 percent

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"Another soon-to-be-published finding, which Tabata describes as 'rather significant,' shows that the Tabata protocol burns an extra 150 calories in the 12 hours after exercise, even at rest, due to the effect of excess post-exercise oxygen consumption. So while it is used by most people to get fit – or by fit people to get even fitter – it also burns fat."

### As Little as Three Minutes of HIIT Per Week Can Improve Your Health, Previous Study Suggests

Dr. Tabata's claims may sound crazy, but [previous research](#) has also found that performing high intensity exercises for just minutes per week can significantly improve important health indices. One such study found that just *three minutes* of HIIT per week for four weeks improved participants' insulin sensitivity an average of 24 percent. This truly is amazing, and while aerobic fitness is indeed important, improving and maintaining good insulin sensitivity is perhaps one of *the* most important aspects of optimal health.

Other research has also demonstrated that 20 minutes of high intensity training, two to three times a week, can yield *greater* results than slow and steady conventional aerobics done five times a week. But the fact that you can improve your insulin sensitivity by nearly 25 percent with a time investment of less than ONE HOUR A MONTH really shows that you can significantly improve your health without having to eliminate hours of other commitments from your calendar.

As I mentioned previously I have not even attempted this protocol as I know how hard Peak 8 is with a 90 second recovery. I shudder to think how painful the Tabata protocol is with only 10 seconds to recover. That said, I believe that while it's theoretically possible to reap valuable results with as little as three minutes once a week, it might be more beneficial to do these exercises two or three times a week for a total of four minutes of intense exertion, especially if you are not doing strength training.

You do *not* need to do them more often than that however. In fact, doing HIIT more frequently than two or three times a week can be counterproductive, as your body needs to recover between these intense sessions. If you feel the urge to do more, make sure you're really pushing yourself *as hard as you can* during those two or three weekly sessions, rather than increasing the frequency. Remember, intensity is KEY for reaping all the benefits interval training can offer. To perform it correctly, you'll want to raise your heart rate to your anaerobic threshold, and to do that, you have to give it your all for those 20 to 30 seconds. Phil Campbell suggests that it needs to be even higher than your maximum calculated heart rate, which is about 220 minus your age.

### Why High Intensity Interval Training May Be Ideal for Most

Contrary to popular belief, extended extreme cardio actually sets in motion inflammatory mechanisms that *damage* your heart. So while your heart is indeed designed to work very hard, and will be strengthened from doing so, it's only designed to do so *intermittently*, and for short periods—not for an hour or more at a time. This is the natural body mechanics you tap into when you perform HIIT.

Repeatedly and consistently overwhelming your heart by long distance [marathon running](#), for example, can actually prematurely age your heart and make you more vulnerable to irregular heart rhythm. This is why you sometimes hear of seasoned endurance athletes dropping dead from cardiac arrest during a race.

Compelling and ever-mounting research shows that the ideal form of exercise is short bursts of high intensity exercise. Not only does it beat conventional cardio as the most effective and efficient form of exercise, it also provides health benefits you simply cannot get from regular aerobics, such as a tremendous boost in human growth hormone (HGH), aka the "fitness hormone."

### What Makes HIIT so Effective?

Your body has three types of muscle fibers: slow, fast, and super-fast twitch muscles. Slow twitch muscles are the red muscles, which are activated by traditional strength training and cardio exercises. The latter two (fast and super-fast) are white muscle fibers, and these are only activated during high intensity interval exercises or sprints.

According to fitness expert Phil Campbell, author of *Ready, Set, Go*, getting cardiovascular benefits requires working all three types of muscle fibers and their associated energy systems -- and this *cannot* be done with traditional cardio, which *only* activates your red, slow twitch muscles. If your fitness routine doesn't work your white muscle, you aren't really working your heart in the most beneficial way. The reason for this is because your heart has two different metabolic processes:

- The aerobic, which requires oxygen for fuel, and
- The anaerobic, which does not require any oxygen

Traditional strength training and cardio exercises work primarily the aerobic process, while high intensity interval exercises work both your aerobic AND your anaerobic processes, which is what you need for optimal cardiovascular benefit. This is why you may not see the results you desire even when you're spending an hour on the treadmill several times a week. Interestingly enough, when it comes to high intensity exercises, *less really is more*. You can get all the benefits you need in just a 20-minute session, start to finish, performed two or a max of three times per week.

### How to Properly Perform Peak Fitness Exercises

If you are using exercise equipment, I recommend using a recumbent bicycle or an elliptical machine for your high-intensity interval training, although you certainly can use a treadmill, or sprint anywhere outdoors. Just beware that if you sprint outside, you must be very careful about [stretching prior to sprinting](#).

I personally prefer and recommend the Peak Fitness approach of 30 seconds of maximum effort followed by 90 seconds of recuperation, opposed to Dr. Tabata's more intense routine of 20 seconds of exertion and only 10 seconds of recovery. But some might like his strategy more. His approach may be better suited to fitter athletes who want to kick it up another notch, but may be too intense for most people. For a demonstration using an elliptical machine, please see the following video. Here are the core principles:

- Warm up for three minutes
- Exercise as hard and fast as you can for 30 seconds. You should be gasping for breath and feel like you couldn't possibly go on another few seconds. It is better to use lower resistance and higher repetitions to increase your heart rate
- Recover for 90 seconds, still moving, but at slower pace and decreased resistance
- Repeat the high-intensity exercise and recovery 7 more times. (When you're first starting out, depending on your level of fitness, you may only be able to do *two* or *three* repetitions of the high-intensity intervals. As you get fitter, just keep adding repetitions until you're doing eight during your 20-minute session)
- Cool down for a few minutes afterward by cutting down your intensity by 50-80 percent

By the end of your 30-second high-intensity period you will want to reach these markers:

- It will be relatively hard to breathe and talk because you are in oxygen debt.
- You will start to sweat. Typically this occurs in the second or third repetition unless you have a thyroid issue and don't sweat much normally.
- Your body temperature will rise.
- Lactic acid increases and you will feel a muscle "burn."

### Some Suggestions to Take Into Consideration

Remember, while your body needs regular amounts of stress like exercise to stay healthy, if you give it more than you can handle your health can actually deteriorate. So it's crucial to listen to your body and integrate the feedback into your exercise intensity and frequency.

When you work out it is wise to really push as hard as you possibly can a few times a week, but you need to wisely gauge your body's tolerance to this stress. When you're first starting out, depending on your level of fitness, you may only be able to do two or three repetitions of Peak Fitness. That's okay! As you get fitter, just keep adding repetitions until you're doing eight. And if six is what your body is telling you, then stop there.

If you have a history of heart disease or any medical concern please get clearance from your health care professional to start this. Most people of average fitness will be able to do it though; it is only a matter of how much time it will take you to build up to the full 8 reps, depending on your level of intensity.

### For Optimal Health, Add Variety to Your Exercise Program

In addition to doing high intensity interval exercises a couple of times a week, it's wise to alternate a wide variety of exercises in order to truly optimize your health. Without variety, your body will quickly adapt and the benefits will begin to plateau. As a general rule, as soon as an exercise becomes easy to complete, you need to increase the intensity and/or try another exercise to keep challenging your body. I recommend incorporating the following types of exercise into your program on days when you're not doing high intensity anaerobic training:

- **Strength Training:** If you want, you can increase the intensity by slowing it down. You need enough repetitions to exhaust your muscles. The weight should be heavy enough that this can be done in fewer than 12 repetitions, yet light enough to do a minimum of four repetitions. It is also important NOT to exercise the same muscle groups every day. They need at least two days of rest to recover, repair and rebuild.

For more information about using super slow weight training as a form of high-intensity interval exercise, please see my interview with [Dr. Doug McGuff](#).

- **Core Exercises:** Your body has 29 core muscles located mostly in your back, abdomen and pelvis. This group of muscles provides the foundation for movement throughout your entire body, and strengthening them can help protect and support your back, make your spine and body less prone to injury and help you gain greater balance and stability.

Exercise programs like Pilates, [yoga](#), and [Foundation Training](#) are great for strengthening your core muscles, as are specific exercises you can learn from a personal trainer.

- **Stretching:** My favorite type of stretching is Active Isolated Stretching (AIS) developed by Aaron Mattes. With AIS, you hold each stretch for only two seconds, which works with your body's natural physiological makeup to improve circulation and increase the elasticity of muscle joints. This technique also allows your body to repair itself and prepare for daily activity. You can also use devices like the [Power Plate](#) to help you stretch.

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