

## What's the Best Way to Improve Cardiovascular Function – Removing the Confusion

In September we introduced our Exercise is Science theme and kicked it off with a simple self-assessment you can do on your own to determine where you are at right now. Over the next several months we'll be providing some programs you may choose to follow with the goal being an improvement in your results during a reassessment. This month we are focusing on the cardiovascular portion of the assessment. Based on your results you may decide cardiovascular function is an area to focus on, but what is the best way to improve it? Should you do HIIT (High Intensity Interval Workouts) or a moderate intensity workout? You can find information in support of each approach, which can be confusing, so we took a look at the latest research and here's what we found.



A [meta analysis study](#) of healthy young to middle aged adults found both HIIT workouts and traditional endurance training elicited improvements in VO<sub>2</sub>Max, with HIIT showing possible greater gains. Another [study](#) involving patients with coronary artery disease showed similar improvements in exercise capacity regardless of method. Yet another [study](#) compared Sprint Interval Training with Moderate Intensity Continuous Training and the results showed similar improvement in insulin sensitivity with both methods. However SIT required only a 30 minute commitment per week vs MICT which required a 150 minute per week commitment.

However, when it comes to exercise adherence, personal preference cannot be underestimated. A [study](#) of low active, obese women found that although HIIT may be promoted as a time saving solution, this group had a lower enjoyment level associated with HIIT which can lead to a reduced likelihood for adherence. An additional [study](#) found that during a 5 week study comparing High Intensity Training to Moderate to Vigorous Training with obese young women, both forms of exercise improved cardiovascular fitness, but this group rated the HIIT higher on a Physical Activity Enjoyment Scale.

For a further comparison, here is an infographic that summarizes the difference between HIIT (High Intensity Interval Training) and LISS (Low Intensity Steady State), which although a lower intensity than moderate exercise, still provides a good overview of the differences.

# HIIT

# LISS

# 80%

You need to work at this percentage of your max heart rate for it to count as 'high-intensity'. Go all out, rest, then repeat



# VS

# 65%

The percentage of your max heart rate to aim for during LISS to reach the fat-burning zone



When you're going hard and working anaerobically, it's the fast-twitch muscles that are doing their thing. These are the ones you need to engage to build power and strength.



The science

LISS can be any form of low-intensity cardio where you maintain a constant pace. Slow-twitch fibres used during LISS provide their own source of energy, so you can work out for longer.

Your metabolism keeps burning calories long after you hit the showers. A short daily session can cut 5% body fat in just 45 days, according to researchers from Southern Illinois University in the US.



The good

Any form of regular cardio strengthens your heart and lungs and builds endurance. Plus, a 2013 study comparing high- and low-intensity regimes found that a gentler approach was more likely to lead to long-term success.

HIIT pushes your body to the max. A study\* found that participants with lower fitness levels found vigorous HIIT training less enjoyable. You can also increase your injury risk if you dive into a sesh that's beyond your ability.



The bad

If you're not into it, LISS can feel like a chore. A study from the University of Florida found that those who varied their workouts enjoyed their session 45% more than those who repeated the same workout. Mix it up.

Consuming a snack with a 3:1 ratio of carbohydrates to protein within 30 minutes of completing your HIIT workout is best for replacing energy stores and aiding recovery.



The nutrition

Fasted or fed? According to one study, fasted cardio may burn up to 20% more fat than eating pre-LISS. Plus, we reckon breakfast tastes better post-workout.

'HIIT stimulates production of growth hormones and testosterone for muscle growth, and endorphins and adrenaline to help you keep up the pace. It also increases your ability to use fat as an energy source.' Doug Tannahill, osteopath at the Centre for Health & Human Performance



The expert verdict

'Less abrasive on the body, LISS is a great way to keep active and burn fat while you're recovering. But when used alone, the body adapts quickly to the movement and its rhythmic cardio pattern, so the benefit is limited.' Abi Dewberry, master trainer at Best's Bootcamp

LISS: GETTY IMAGES; \*SOURCE: SCIENCE OF SPORT AND EXERCISE

So what does all of this mean? Both HIIT and Moderate Intensity provide cardiovascular benefit, so unless you have very specific goals where one training method may give you an advantage, choose to do the one you have time for and enjoy! The key to getting results is consistency, so when you are deciding what approach is right for you, consider what you are willing to make time for and how much time you are will to make. Then just go do it!

With that in mind, here are two different plans you can follow to test it out and see what is right for you!

## HIIT

A high intensity interval workout means you are performing short intervals of work at a high intensity with a recovery period in between. The key is working at an intensity high enough to significantly increase heart rate. Using the methodology in one of the studies, you can follow this plan 3 times per week for 12 weeks; choose your method of activity and perform it at a light intensity for 5 minutes as your warm up. Then increase the intensity so you are going all out for 20 seconds,

then reduce your intensity for 2 minutes to recover. Repeat 2 more times and then cool down for 5 minutes. Your time commitment per workout is 15 minutes.

### **Moderate Intensity Training**

A moderate intensity continuous training plan can also be done 3 times per week with a longer working time. Again, perform 5 minutes at a light intensity as your warm up. Then increase your effort so that you are working at moderate intensity. This means you are working hard enough that you can't sing but you can talk and carry on a conversation. Continue working for 30 minutes at this level and then cool down for 5 minutes at a light intensity. Your time commitment per workout is 50 minutes.