

Five Reasons for Doing Sprints for Physique Development

In the world of physique transformation, high intensity energy system training is king, and for good reasons. You can achieve better results in less time while doing less total work than with traditional aerobics training. If you'd rather sweat buckets for hours on end and still look like a melted candle this article is not for you. For those of you who want to carve out their abs fast, I suggest you switch to HIIT work (that's short for High Intensity Interval Training, just so you know).

Here are the top 5 reasons sprint intervals are superior for body composition and physique improvements.

1. You will lose fat faster with less work

In the pharmaceutical world, there is a concept called “the dose-response”, which is defined as the minimal dose needed to elicit a response; the smaller the dose for a given response, the more powerful the drug. Well, in the realm of fat loss, sprint intervals is the drug of choice, as it's definitely the one with the lowest dose-response. There are many protocols for intervals, some easier than others, but it should always be hard enough to qualify as what Vince Gironda called “an honest workout”. In my terms, it means that your spleen should be coming out of your left eye.

No matter the time spent doing intervals, from the 4-minute Tabata to the 20 + minute protocols found in some studies, the effort should always be worth it, otherwise you're just wasting your time. But if you are willing to put your nose to the grinding stone, both science and practical experience have shown that sprints can produce far better results than aerobics, and this is achieved through the up-regulation of metabolic fat oxidation (aka fat burning) pathways.

The mass of scientific data on this topic is quite clear: the fat loss from intervals trumps steady state-aerobics in just about every study done with a respectable design, and the effects can often be seen after only two weeks. They affect both beginner and advanced trainees, as shown by a 2007 study where active women increased fat burning during exercise by 36%. This is echoed by a 2010 study where results on participants indicated a 3 cm (1 ¼ inch) loss on their waist as well as an increase of

oxidation of fat during exercise and a decrease of oxidation of carbohydrates. These results came from 6 sessions comprising 6 sprints of 30 seconds of all-out cycling with 4 minutes of recovery in-between.

Another 2008 research that is now a classic, shows that sixty bouts of 8 second sprints with 12 seconds of active rest between each sprints, for a total time of 20 minutes workout, lead to a 2.5 kg (5.5 lbs) of fat loss and a 1 kg (2.2 lbs) gain in lean body mass.

The main takeaway is that while you do less total work, you will get better results. Want to burn fat? Stick to short, intense repeated bouts of sprints interspersed with active recovery.

2. Sprint your way to a 6-Pack?

Sprint intervals can lead to rapid fat loss, and everyone likes that, as a defined physique is a symbol of hard work and dedication for everyone. But all “shreddedness” isn’t equal. The mystique of 6-pack abs is hard to beat, whether you are a gym rat, an aspiring bodybuilder or a trainer who wants his physique to be his calling card. So how to reduce the fat covering your abdomen? This has been a burning question for quite some time; but recent studies have shown that such a method DOES exist; one that can lead to specific fat loss in one area more than in another.

What’s important to know is that endocrinology, which is your hormonal make-up, will play a big role in not only how fast you will lose the fat, but also on WHERE you will lose it. Any type of energy system work and resistance training will have an impact on your metabolism, and it’s important to know this is not limited to just your muscles, heart and circulatory system, but also to your hormonal system, something I teach in my many courses.

If you’ve spent any amount of time on StrengthSensei, you know I’m not big on boring traditional cardio, and one of the reasons is that it tends to favor a poor testosterone to cortisol ratio. Sprint intervals, on the other hand, are free from this drawback, as any fat loss that occurs through the energy expenditure does so without increasing cortisol when used in short protocols as in the studies. The other endocrine benefit it brings to fat loss is that it increases production of growth hormone, and

stimulates the release of adiponectin, which increases the production of another molecule called PGC-1 alpha. These last two act together to modulate the activity of the fat cells, particularly those located around the waist, and this might explain the waist size reduction noted in studies mentioned in point 1.

More studies need to be done on the subject, as adiponectin might be a double-edged sword, because its fat burning action in overweight people might be explained by the fact that it is an adipokine, a family of chemical messengers that are secreted by fat cells, and in larger quantities by fat cell situated behind the abdominal wall, called intra-visceral fat.

Even if science behind this result needs to be clarified, the point remains: sprint intervals do have an effect on fat loss that is more present on the abdomen. So you want a 6-pack? Lace up your running shoes and hit the track for a couple of 100-meters dash.

3. Become a fat burning furnace

Although sprints don't use a large portion of the aerobic energy system, the one that uses fat as a fuel source, it is quite good at turning your body into a fat burning machine, and fat burning, or fat oxidation, is certainly a desirable trait. It's the one thing you WANT to become better at, and sprint training has this effect on the body by enhancing the activity of certain metabolic pathways.

Actually, the harder and the more anaerobic the sprints, the more effective they are for fat loss, fat oxidation and body composition changes. A 2006 review study explained that the more you tap into the anaerobic nature of the sprint intervals, the more you are going to increase your EPOC, namely excess post-exercise oxygen consumption. EPOC is often called the "afterburn", or the increase in fat oxidation that lasts for a few hours after you stopped exercising. This is the 2nd great gift of sprint intervals: you keep burning more fat 12 to 24h (depending on sources) after you finish your last workout.

This effect is one of the ways in which sprint intervals produce results in a much shorter time frame compared to traditional cardio. One study published in 1994, for example, compared 15 weeks of sprint interval training to 20 weeks of traditional

cardio at a steady heartbeat. Despite doing less total work and training for 75% of the duration, the interval group lost 9 times more fat.

These results not only come in a shorter time, they also require less total work as sprint intervals are the one that counts, not the active recovery between bouts, as seen in point 1.

Another part of the explanation for this fat burning phenomenon might come from the adiponectin/PGC-1 α action seen in the previous point. A benefit of the increased production of these two substances is that the body starts manufacturing more mitochondria, a part of every human cell that acts as the little batteries that produce the energy the cell needs in order to do anything. This phenomenon, called mitochondria biogenesis, is an adaptation to chronic activity but is especially linked to the adiponectin trigger.

At this point, it's worth mentioning that the fuel mitochondria burn to produce energy is fat, so the more often you sprint, the more adiponectin gets produced, the more mitochondria the body creates in reaction to this, and the more fat they collectively burn. And so the wheel turns.

Peroxisome is another organelle of the cell, similar to mitochondria. It is responsible to produce energy, but also heat, and it does so through the same fat oxidation mechanism. Adiponectin and PGC-1 α have been strongly linked to peroxisomal activity, providing another avenue for fat loss.

Hence sprints increase your metabolism after a session, burn more fat for a few hours, and they also make you produce more mitochondria and increase peroxisome activity, making you better able to use fat as energy in the long run.

4. Bigger, stronger and faster legs

Protein synthesis is correlated with activity of the anaerobic pathways, whether this comes from sprints or resistance training, that statement holds true. There is a difference between protein synthesis and muscle-building though. Proper rest and recovery, and adequate nutrition should also be in place. If this is the case, then you can enjoy a 230% increase in the pathways that synthesize more protein in the muscles targeted, mostly the legs, as seen in some studies.

An even more interesting benefit is that maximal sprints have been shown to recruit preferentially the fast-twitch fibers, those that are hard to tap into, and have the most potential for hypertrophy and strength. This is true even in studies where the protocol does not involve running but uses other activity, such as cycling. This was evidenced during a research where subjects lost 2 kg of body fat while increasing the size of the leg musculature by 0.5 kg over a period of three months.

Add to this that sprints make the body produce more growth hormone and promote a better, more advantageous testosterone to cortisol ratio, and you are on the fast track for stronger and bigger glutes, quads, hamstrings, and calves.

5. Increased Work Capacity

Sprint intervals have been shown in several studies to improve endurance capacity, maximal oxygen uptake and time to fatigue, doing so better than traditional steady-state cardio. This is partly mediated by the mitochondrial biogenesis seen in reason 3. The increase in peroxisome activity participates as well, albeit in a lesser proportion than mitochondria. Peroxisomes produce some energy, but the impact is lesser since they seem more geared toward producing heat.

Repeated bouts of maximal or sub-maximal sprints with sub-optimal or incomplete recovery, is one of the best way to increase the density of mitochondria within muscle cells. It is also an excellent way to promote growth of new capillaries, which are the minuscule blood vessels that perfuse the cells and provide more blood flow to bring oxygen and nutrients. They help removing waste products and metabolites as well, thereby causing an increase in muscle buffering effect. The latter is the time it takes for lactic acid to impair significantly muscle performance. The better your muscle buffering, the longer you can produce lactic acid without feeling its drawback on performance, and sprints can increase this by up to 50%.

Sprint intervals also increase the strength-endurance and the endurance of the muscle, delaying time to fatigue. Finally, they can cause an increase in glycogen storage within the muscle cell of up to 20% as well.

All of these factors increase work capacity and recuperation, two crucial factors in training which dictate the magnitude of the volume you can handle in a given time

period, and recover from until the next workout. This can make a dramatic impact not only on fat loss, but also on athletic performance.

As you can see, working out for shorter duration but in a smarter and more intense way can get you a lot of benefits for your physique, promoting many more health gains as well. No matter what form of sprint interval workouts you choose, keep the total duration short, the rest incomplete, and the sprints maximal or near maximal, and you can't go wrong.

Stay strong,

Coach Charles R. Poliquin

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