

The Futility of Aerobic Exercise for Weight Loss:

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When talking about exercise, aerobic exercise is the worst way to reach your weight loss goals. You must be thinking that this can't be true. After all, experts and the media have been telling us for decades that aerobic exercise is the best way to lose weight. They are wrong. If you are serious about weight loss and health, you should seriously rethink your exercise program and replace an aerobic regime, which yields small benefits, to a resistance or interval workout.

The fact that aerobic exercise is not optimal for weight loss is supported by real world evidence, confirmed by practical experience, and is corroborated by science. Science is often thought of as the only criteria necessary for proof, but it usually operates without an organizing context and therefore provides mixed messages and sometimes wrong conclusions. Although it has taken time, science is now proving other forms of exercise superior to aerobics when it comes to weight loss.

Cardiovascular vs. Aerobic Exercise

There is an important distinction to be made: aerobic and cardiovascular training are not the same thing. Cardiovascular exercise refers to the heart, lungs and vessels of the body working at an accelerated rate to sustain exercise. Aerobic exercise refers to the use of oxygen to burn fuel for energy. Why is this important? Aerobic exercise is limited; in other words, once oxygen becomes limited, you are no longer doing aerobic activity. While cardiovascular exercise is maintained as long as the muscles of the body are working, aerobic exercise by its very nature must be done at a low enough intensity to ensure adequate oxygen consumption. Therein lies the problem. In order for the body to get leaner, it must be continually challenged with increasing intensity. Aerobic exercise has a built-in intensity ceiling and therefore becomes a limiting factor for adaptation.

Aerobic enthusiasts will quickly point out that more fat is burned with aerobic exercise than with anaerobic exercise. This is true only from a relative perspective—the lower the exercise intensity, the higher proportion of fat is burned compared to sugar. However, exercise of higher intensity and beyond the aerobic training zone burns more total energy and fat.

EPOC and Extended Energy Usage

Analysis shows that aerobic cardiovascular exercise does NOT burn more total fat than higher intensity anaerobic cardiovascular exercise, but the differences do not stop there. In the last decade, exercise research has shown that it is not just what happens during exercise, but also what happens after exercise that makes a difference. Have you ever walked up a large flight of stairs? When do you breathe the hardest during that activity? It is not until you reach the top of the stairs that your body really begins to gasp for air. In exercise research, this is known as EPOC (Excess Post exercise Oxygen Consumption) and it refers to the “catch up effect” the body has in response to intense exercise. This

increased metabolism induced by intense cardiovascular exercise can last as long as 48 hours!! (19) As it turns out, the largest increases in EPOC occur with anaerobic cardiovascular exercise like resistance training and interval exercise and not training in the “aerobic zone.”

EPOC in Evolutionary Context:

The mechanism of EPOC is not fully understood, but with a little context and some known science we can get a good idea of what is going on. When early man had to kill his dinner or avoid being eaten, his level of fitness and adaptation determined success or failure. Every time he missed a kill or barely escaped being dinner, his body got leaner, faster, and stronger in order to survive. Hormonal signals brought on by his intense activity are what stimulated this growth. Every time we eat, exercise, or sleep hormones are released that act as chemical messengers telling the body to get stronger or weaker, fatter or leaner, and age faster or slower. When it comes to exercise there is a threshold of intensity beyond which cascades of growth hormones are released leading to a “ripple effect” on the metabolism forcing the body to adapt. Part of this adaptation is the EPOC phenomenon. With aerobic exercise this threshold is never breached and the body never gets the signals to get lean, fast, and strong.

Hormonal Effects of Intense exercise:

Many researchers and clinicians have been confused with the hormonal fat burning effect that may be behind EPOC. While they are aware that hormones are the messengers that tell the body how to use its fuel, they sometimes forget how hormones work together. If we realize that the net action of a single hormone depends on other hormones around with it, we get a far better understanding than looking at its action in isolation. Let's take cortisol for instance. Cortisol has been blamed for causing fat storage around the belly, increased aging, and lowering the immune system. However the negative effects of cortisol only surface when human growth hormone, testosterone and other growth hormones are not around with it.

Cortisol is a hormone that raises sugar in the blood and if activity does not use up this liberated fuel, insulin will be needed to lower blood sugar. Unfortunately, insulin lowers blood sugar by storing it away as fat and then locking it in the fat cell. As long as insulin is around, fat burning cannot take place. When cortisol acts to raise blood sugar it is doing so as a natural protective mechanism. The natural response to stress is to release cortisol and adrenaline so that we have high energy sugar to fight or flee. If we don't move or move slowly in response to stress, large amounts of cortisol, adrenaline, and sugar are still released, but never used. The lack of intense movement that we are designed for means the unused sugar gets stored as fat while cortisol, adrenaline, and other stress hormones “rev our engines” doing damage to our physiology; making us susceptible to fat storage and increased aging.

Stress hormones like cortisol are designed to work with growth hormones like testosterone and HGH. When cortisol is unopposed by these growth producing

counterparts it leads to muscle wasting and fat storage around the waist. However, when testosterone and HGH are present with cortisol, fat storing at the tummy is blocked and the three hormones together amplify fat burning. This scenario results in weight loss, not weight gain. So you see, stress hormones in high amounts are appropriate when they act with the growth hormones of the body. Interestingly enough, this is exactly how early man's hormonal systems worked in the world of actual fight or flight. By simulating this action in exercise we can literally program our bodies to burn fat, build muscle, and slow aging. Aerobic exercise, by its very nature never allows the body to reach the intensity required to release growth promoting testosterone and HGH and continually exposes the body to unopposed cortisol which makes weight loss more difficult.

Stress hormones can not lead to fat gain and aging when they are followed by high intensity activity. In the natural world, stress leads to increased availability of sugar which leads to the ability to fight or flee. High intensity activity works with this process by generating protective fat burning and anti-aging hormones that make us leaner, faster, and stronger the next time we encounter stress. Low intensity activity, like walking or jogging, does not have the same effect. There is actually research suggesting that long duration exercisers who stop running are more prone to higher levels of unopposed cortisol, a situation that may actually lead to fat gain (16)

It is useful to point out that humans in natural conditions did low intensity activity all day everyday. To a prehistoric caveman or modern day hunter-gatherer walking is considered a necessity not exercise. Modern humans should do as much of it as they can, but the last thing one needs to do in response to high levels of stress and blood sugar is engage in slow-mo aerobic exercise. This runs counter to inherited physiology and biochemical understanding. Our genes and metabolic processes are tuned to the lifestyle of our hunter-gather ancestors. Intelligent exercise works along with this ancient machinery.

The Science:

Still skeptical? A 2001 study in the American College of Sports Medicine's flagship journal, *Medicine and Science in Sports and Exercise* illustrates our point nicely. This study compared two groups of women. One group exercised using standard zone aerobic training while the other group used anaerobic interval exercise. The interval group exercised for 2 minutes at a highly intense 97% max heart rate. They then rested by doing three minutes of low intensity activity. The more aerobic group performed moderately intense activity at close to 70% of max heart rate. The researchers made sure that each group burned exactly 300 calories. Despite exercising longer and burning the same amount of calories, the aerobic group had less loss in body fat at the end of the study compared to the interval group. In addition, fitness in the interval group was also substantially greater than the aerobic group. This study demonstrates the effect of EPOC and shows that something other than just calories is driving metabolism.

A similar study published in the same journal in 1996 showed that an anaerobic trained interval group burned significantly more fat than their aerobically trained counterparts. Not only did the interval group burn more fat during exercise, but they exhibited

increased fat burning effects that persisted for 24 hours after the exercise had stopped. These results clearly show that anaerobic activity burns more overall fat and calories during exercise, and demonstrates EPOC will lead to a continued fat burn after exercise as well. Perhaps the most interesting thing about this study is that the interval group was able to accomplish all this with an exercise session that was a full 15 minutes shorter than the aerobic group. This shows that intelligent exercise moving away from the aerobic paradigm allows exercisers to have their cake and eat it too.

Perhaps the most telling study on the effects of anaerobic vs. aerobic cardiovascular training came in 1994 in the journal *Metabolism*. This study tracked two groups of people undergoing different modes of exercise. One group did zone aerobic training for a period of 20 weeks. Group 2 did 15 weeks of a high intensity interval program. The researchers wanted to see how each program would affect body fatness and metabolism. The results showed that the aerobic group burned 48% more calories than the interval group (120.4 MJ vs 57.9MJ) over the course of the study. However, despite the huge caloric disadvantage, the interval group enjoyed a 9 fold greater loss in subcutaneous fat (fat under the skin). Most remarkably, resting levels of 3-hydroxyacyl coenzyme A dehydrogenase (HADH), an enzymatic marker of fat burning, were significantly elevated in the interval group. The implications of this study are immense when you consider the interval group trained 5 weeks less than the aerobic group, had shorter workouts, and yet far exceeded the aerobic group in fat burning at rest and during exercise. The measurement of fat burning enzymes in this study shows for the first time that this new exercise technology can “teach” the body to be a more efficient fat burning machine.(3)

Aerobic exercise is not all bad. While it has marginal benefit in attaining weight loss, it does live up to its reputation in the realm of maintaining weight loss. It is a healthy and beneficial form of exercise, and lets face it any form of exercise is better than none. If you have gotten the idea that we want you to stop doing all aerobic exercise you are wrong. We just want you to get real and use aerobic exercise as it was intended, as a necessity not exercise. Walking and lower intensity exercise should be done as often as possible. They benefit the body, the mind, the spirit and are energizing. Just remember, if you want to lose weight, transform your body, and slow the aging process you will have to invest in high intensity exercise. It is far better to learn new exercise habits that will deliver results in accordance with your effort. A sole focus on aerobic training will only serve to make a difficult process more challenging.

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