Aerobic training is the devil

The global financial crisis, war for oil, Snooki from Jersey Shore. The first decade of the 20th century bore witness to many heinous misdeeds. Now add another to that list the vilification of the aerobic system. In the past decade or so it became en vogue to dismiss all aerobic work, whether for athletic enhancement purposes or fat loss, as simply a waste of time. According to the dogma it was good for three things:

1. Getting slow
2. Getting skinny
3. Getting weak

Yep, aerobic work was the devil, and I, like so many other coaches, drank the Kool Aid. For a long time my training and that of my clients and athletes was the epitome of anaerobic training; Tabatas, HIIT, sprints, the whole nine yards. And the results were.... somewhat disappointing.

Don't get me wrong, anaerobic conditioning works. You will get fitter. Your test scores will improve. But when your conditioning work leaves you with blurred vision, shaking, drenched in sweat, wanting to puke and empty your bowels at the same time, you expect the results to be goddamn spectacular! Somewhat disappointing just doesn't cut it.

Time to reconsider

However after much frustration and listening to several coaches a lot smarter than myself, I am pleased to report that I have reconsidered my position on the value of the aerobic to athletic performance, which has paid dividends for my clients and athletes alike.

I've learned that a well developed aerobic system can lessen the accumulation of fatigue following training and competition. It can hasten recovery between sessions and bouts of intense activity, sparing precious anaerobic reserves of energy. It athletic competition it will allow you to sustain a higher power output and remain competitive from the first minute to the last. Last and best of all, aerobic training tends to be psychologically far easier than anaerobic conditioning to perform. I'm not advocating being a pussy, but it's always smarter to get the most gains from the least effort.

You will NOT get small and weak

From the outset I want to address the understandable concern that excessive aerobic conditioning will impair strength and size gains. Nobody reading this wants to be smaller and weaker. However much of the research used to validate such claims about aerobic training is flawed. Studies involving crazy high volumes of steady state work, studies in which no heavy resistance training is performed, studies in which energy intake does not rise to meet increased activity etc. Without careful consideration these findings studies like these can contribute to the misconception that aerobic exercise is the death knell of strength and size.

What is more, one only has to take a look at the well respected coaches who have championed aerobic work for athletes. Guys like Joel Jamieson, Dave Tenney, Mike Boyle, Mark Mclaughlin Charlie Francis (special thanks to all these individuals for their contribution to my continuing education); these coaches are not in the business of making slow, weak athletes. Aerobic work is good enough for them and it's good enough for me. In my capacity as a strength and conditioning coach for London Wasps Rugby, my athletes' strength and power scores continued to rise throughout this season despite the near total exclusion of anaerobic conditioning from their programming
5 Tools

#1 Cardiac output

This is the bread and butter of aerobic conditioning. Evidence shows that cardiac output is strongly linked to lactate threshold - the greatest work rate we can indefinitely sustain before entering anaerobic, puke your guts up territory - which is the strongest predictor of aerobic and repeated sprint (i.e. practically every field sport) exercise.

The rationale behind it goes like this: exercise creates an oxygen demand that the heart has to increase its supply of blood meet. Because your maximal heart rate is fixed at roughly 220 beats per minute minus your age, the only way to increase your maximal rate of oxygen supply is to increase the volume of blood ejected from the heart with every beat. One of the ways to achieve this is to increase the size of the heart's chambers and it is exactly this adaptation that cardiac output work targets.

Imagine the heart as a water filled balloon. If you fill the balloon with as much water as possible, eventually the balloon will stretch and increase how much water it can hold. The same is true of the heart. If you continually exercise at the intensity that fills the chambers of the heart with the greatest amount of blood, it will stretch over time, allowing for greater blood to be transported with every beat of the heart. The magical number for cardiac output work is 130-150 beats per minute. Shoot for around 90 minutes total per week at this intensity, completed over as many or as few sessions per week as you like. This can be jogging, on the step mill, on your bike, whatever takes your fancy.

Because it creates such little fatigue, this training method is suitable for any phase of a training program. It can also be beneficial in kick starting the recovery of the central nervous system after intense activity like sprinting, plyometrics and heavy lifting, which makes it ideal for non-training days.

#2 Cardiac power

If cardiac output training is like boring out your engine to make the chambers bigger, cardiac power training is like adding fuel injection. The goal behind this training method is to develop the thickness of the muscular walls of the heart, increasing the force with it contracts with every beat, boosting the rate at which oxygenated blood is transported round the body. As a side benefit you'll also boost the already high ability of your heart muscle to efficiently utilise oxygen.

In contrast to cardiac output training, the cardiac power method is extremely tough and should only be performed sparingly in the later stages of a training programming - 1-2 sessions per week will suffice. To perform a cardiac power session exercise for 2-4 minutes at the highest intensity you can sustain. When you finish each work interval you should be just short of tapping out. Rest for around 4 minutes, then repeat for 4 total sets. Again, this method can be trained using any equipment but here's my personal favourite: find a long, steep hill and get running.

#3 High resistance interval training

Not to be confused with High Intensity Interval Training (HIIT), high resistance interval training is a conditioning method that acknowledges a simple fact: the athletes who can produce the highest force for the longest time tend to win. Taking this into account, high resistance interval training aims to develop the ability of our fastest, strongest muscle fibres (fast twitch fibres) to better utilise the aerobic system, our most sustainable energy pathway.
This method entails 5-8 second periods of heavy, fast work that will tap into the highest possible number of fast twitch motor units. Rest as long as you need for your heart rate to return to around 130 beats per minute, and perform 15-20 sets per session. The key is keep a relatively constant level of oxygen delivery to the muscles and not slip into working anaerobically. This will ensure greater improvement in the activity of aerobic enzymes present within muscle tissue. When choosing this training method opt for activities like hill sprints, prowler pushes, heavy resistance spin biking or punching a heavy bag.

**#4 Threshold intervals**

Threshold intervals aim to directly target the much vaunted lactate threshold- the all important exercise intensity at which you can indefinitely sustain effort. Do not underestimate the value of this attribute. The higher your lactate threshold is, the more you can rely on aerobic energy whilst your competition is forced to tap into their finite reserves of anaerobic energy. It can mean the difference between gassing in the second half of a game and killing off the opposition with a strong finish in the closing stages.

This method works by forcing the body to increase its concentration of aerobic enzymes, along with the density and number of mitochondria within our cells- these are the like the body's aerobic power plants without which aerobic energy supply would be impossible. To achieve these adaptations aim to perform between 20-40 minutes total work divided into sets of anywhere up to 10 minutes in length. Aim to rest for 2-3 minutes between sets. Again, 1-3 sessions per week is sufficient with this method.

**#5 Tempo running**

This final training tool is a method that was popularised by the late sprint coach, Charlie Francis, who used to prescribe it to his athletes as a form of active recovery on rest days. This technique involves 10-15s periods of work at around 75% of maximal effort interspersed with light recovery for 20-30 minutes per session, performed 3-4 days per week.

Though scientific evidence is a little thin on the ground for this method but Charlie Francis believed it improved aerobic fitness by forcing the aerobic system to continually replenish the alactic energy pathway body's most short term, high power energy system. He also attributed improvements in fitness to an enhanced network of blood supply to the muscles, along with greater mitochondrial density. However it works, just know that it works and it is a tool that was routinely used in the training regimens of world record breaking sprinters.

**In conclusion**

Note that all of these methods require the use of a heart rate monitor. If you are an athlete and you want to experiment with these conditioning tools but don't have access to a heart rate monitor my advice to you is this: buy one. Energy system training without the use of a heart rate monitor is like trying to perform a lifting session blindfolded; without accurate knowledge of the load or intensity you are training with, you cannot accurately and efficiently elicit the correct physiological adaptations.

It is my hope that, by now, you are convinced that the aerobic system is not the devil but instead a vital component of athletic success, particularly in the field and combat sports. If you want to perform better for longer, and recover quicker with less effort, the aerobic system is the way forward. Give the above tools a try and watch your conditioning drastically improve.
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