

Opening Your Metabolic Window

Posted in Cycleops™ training on February 16, 2008

Exercise is like opening a metabolic window. It is always easier to open the window from the top which is equivalent to pushing the training window up by training in Zone 1 and Zone 2. It is common to see athletes trying to open their metabolic window by pushing on the glass (training in the gray zone – the point where slow twitch fibers and fast twitch fibers are not working to their full potential, or both aerobic and anaerobic systems are not fully involved) or worse pulling on the latch (training too much in Zone 4 and Zone 5). Training from the top down leads to frustration, injury, plateau, or illness – undeveloped potential.

Training zones are best determined through metabolic testing or a [power test](#) using a Power Tap/CycleOps Power test. The results of these tests are the basis for effectively scheduling your training. Yes, there is a time and place for all training – it is called Periodization, or planned change. By identifying your unique training zones you will know how to raise your own metabolic window safely and effectively. Knowing your threshold is the best way to open your window (by increasing mitochondrial density, neuromuscular connections, and capillary perfusion for substrate delivery and waste removal). This means you become more efficient while at play or work.

The average person burns ten times their body weight at rest in calories. Remember, though, this is a very general formula, and like any formula, it varies widely depending on multiple factors. This is known as resting metabolic rate or RMR. Depending on sex, height, fitness level, activity level, genetics, muscle weight, and more, you might burn 15-30% more or less of your resting metabolic rate in daily activity calories. Exercise is the final part of this equation, and this is where the advantage of the PowerTap comes into play. Your Club Pro 300PT console displays the metabolic cost of the exercise. Thus, you can create energy balance, deficit, or surplus! For example, a 155lb male who is 5'9" and of average activity level and job might burn 1550kcal at rest + 310kcal in a normal day (at 20% of RMR) + exercise. Now let's say that person went out and did a 500kj ride. That person would need to take in 2360kcal to maintain their weight. Take in a little less, weight is lost (or glycogen isn't fully replenished), or too much...well, over time you know what happens!

Try the aerobic engine revving workout (next page) on your next indoor ride:

Time (minutes)	Training Zone	RPM	Purpose
10-15	Zone 1	80-100	Active warm-up, challenge yourself to stay in Z1 with cadence changes every five minutes!
5	Zone 2	90	Aerobic stimulation
5	Zone 1	100	Slow twitch maximization, and continued aerobic stimulation
5	Zone 2	80	Aerobic challenge, can you keep in the zone and maintain the rpm?
5	Zone 1	60-70	Aerobic challenge, can you keep in the zone and maintain the rpm? This is the HARD part of this workout, if you can't stay in the zone, up the rpm...observe what happens.
10	Zone 2	90	Steady state endurance
5-10	Zone 2	90-105	Work those aerobic surges!
10-15	Zone 1	90	Begin the cool down and set up the next planned workout to succeed with a full recovery! Note your KJ's and plan intake accordingly.

We all enjoy a good sweat and heart-pumping workout, and yes you burn up a lot of KJ's when you blast a workout. But are you opening your metabolic window efficiently? Like any training, there is a time and place for the higher wattages. We can feel when we are sweating and huffing and puffing, we enjoy the adrenaline and endorphin surge. Yet, when we are training Zone 1 and Zone 2, we are giving our body what it needs – a foundation. Everyone can feel the sweat, everyone can feel the pain of Zone 4 and above – but, when was the last time you did a Zone 1 or Zone 2 ride and said to yourself, “WOW! What a great workout, I laid down some new mitochondria and some new capillaries and I'm raising my metabolism one cell at a time!”?

Yet, that is exactly what happens when you are base building in Zone 1 and Zone 2. You are laying the foundation for later in the season by having an aerobic engine that can stay in the game longer AND you will have your metabolic window more fully open – which means you will have a higher resting metabolic rate! You will be burning more calories throughout the day, whether at work or play. So, use those KJ's to your advantage, and Bon Appetit!