



Fundamental Fitness in the Frederick News Post

Going the Distance - Learning the value of VO2 testing

By Karen Gardner, Frederick News Post
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ENERGY IS THE key to life, and runners need lots of it. I got a chance to find out just how much energy I have, and how much I burn.

Eva Rosvold, owner of Fundamental Fitness Personal Training Studio in Frederick, recently began offering resting metabolic rate testing and anaerobic threshold testing, better known as VO2 max testing.

Runners are generally obsessed with numbers. They count the miles they run each week. Many of us know our personal records from 5K to marathon. As we get older, we may not be setting PRs, but we know where we should be when we run a race. Some runners even time workouts to better gauge their training.

Metabolic testing and VO2 max are tools in our quest to become fitter, faster runners. Metabolic testing shows how many calories you burn in a half-hour of moderate exercise.

The metabolic test provides recommended daily calorie intake ranges for maintenance and weight loss, and suggests a calorie range for those who want to go on medically supervised diets. The test also provides a recommended time frame on weight loss.

The VO2 max test indicates cardiovascular fitness. Athletes can determine heart rates for low, moderate, high and peak zones. Using a heart rate monitor, athletes can gain a good idea of their target heart rates for speed and endurance training.

"We all want to be the best we can be," Rosvold said. "What the test does, whether for a beginner or experienced athlete, is provide a baseline."

About an hour is needed to take both tests. The metabolic test is probably more difficult than the VO2 max test, only because it requires you to sit with a tube in

your mouth, breathing through your mouth. Noseclips are pinned on your nose to prevent the temptation of breathing through your nose.

On the day of the metabolic test, you should not consume any caffeine. The test takes about 12 minutes, and Rosvold gave me a magazine to read. After a while, I got into a rhythm, and forgot about the discomfort of breathing only through my mouth.

When it was over, she indicated my metabolism is fast, which makes calorie burning easy. I can eat up to 2,800 calories a day without doing much activity. However, I'm not going to use that as an excuse to sit on the couch.

I was a bit apprehensive about the VO₂ test, because it takes place on a treadmill. Many runners run on the treadmill as much or more as they run outside, but I am a bit clumsy, and wasn't sure I'd be able to hold my balance on the moving surface. I had nothing to worry about, though. Once I got going, I realized it isn't much different from running outside.

The VO₂ max test requires you to wear a heart rate monitor, and to place a mask over your nose and mouth, with a tube attached. Just breathe normally, and the test proceeds. It takes about 12 to 15 minutes to reach your maximum. VO₂ max stands for maximum oxygen volume.

Rosvold adjusts the speed and incline of the treadmill about every two minutes, until you begin to feel breathless. After about 15 minutes, it was finished. Rosvold told me not to exercise that day, and not to exercise hard the day before.

I felt fine as the speed and incline intensified. It really was no different than going out for a speed session. When it was all over, however, I had information I can use to determine how I should feel in my training, which Rosvold went over with me.

When you have reached your maximum, you should feel as though you can go no farther. Your aerobic threshold is the level beyond which your heart and lungs can provide all the oxygen your body needs.

For me, that threshold is a heart rate of 159 beats per minute. Between 159 and 177 beats per minute, I am still below my anaerobic threshold. At that level, I can build my endurance. I should be comfortable maintaining this level for a fairly long run. When my heartbeats exceed 177 beats per minute, I'm getting to the breathless stage. That's the level where I want to be for speedwork. A heart rate monitor would tell me if I'm working hard enough during speedwork.

VO₂ max is expressed in kilograms per minute, and varies between 20 and 90. Elite endurance athletes average a score of about 70. Mine was nearly 20 units below that. Genetics plays a big role in the score, but VO₂ max can be improved using short bursts of speed. It has to do with the way muscle fibers can contract. Developing those fast-twitch muscle fibers improves their ability to contract, allowing the body to use more oxygen and work harder.

Once you've hit that anaerobic level, the body starts producing lactic acid. By running below the aerobic threshold, the body can get its energy from our stored fat levels. Most of us have more stores of fat than sugars available for our muscles to use. Once we progress to the endurance level, we want to be sure

there are enough sugars available to our bodies that we don't tap into the body's supply of muscle. The VO2 max test lets you know when you've gone over the aerobic threshold into the endurance zone.

The test is a good indicator of overall fitness. A recent NOVA episode converted a dozen non-runners into marathon runners in nine months. Not only did all 12 complete a marathon, the VO2 max scores of all the runners following marathon training were in the superior range, no matter what their marathon time was.

VO2 testing can also be valuable for beginning athletes and those who want to lose weight. Beginners can monitor their fitness progress, and those who want to lose body fat can concentrate on remaining in their fat-burning zone until reaching the desired weight.

"As you go into your moderate or high zone, you may be uncomfortable but still safe," Rosvold said.

The metabolic test lets us know just how much exercise we really need to be at our desired weight. The VO2 test can help us figure out how to get there.

The VO2 test can also be an asset to anyone with a heart condition who works out. For the rest of us, however, it can be a valuable training tool for use in speedwork. And we all know that speedwork improves our times.

The cost of the tests reflect the expense of the equipment needed. Metabolic testing is \$125; VO2 max testing is \$150. For information on the tests at Rosvold's studio, check the website, www.fundamentalfitness.biz.