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Slowing Down for Success

In about a month, we will finally return to the streets of Grand Rapids for the Amway River Bank Run. It will be exciting to see the culmination of participants' hard work and training.

Success can take many different forms. It might mean increased distance, a personal best or just crossing the finish line. During training, many of us find ourselves trying to run or walk as fast as we can because we think this will make us more successful. However, increased pace and speed can be detrimental to your speed, endurance and overall training. In the long run, it is better to slow your pace during training.

Slowing your pace may seem counterintuitive, but there are many reasons that it is better for your training, race day speed and endurance. The most elite long-distance runners train at slower paces and there is scientific evidence to support how this contributes to their success. Our bodies use multiple energy sources for daily activities and exercise. To understand why it is better to slow down in training we must first understand how our bodies use and convert energy on a cellular level. The two main energy pathways the body uses during exercise are aerobic and anaerobic.

Aerobic exercise is a sustained level of exercise such as running or walking long distances at slower paces. Aerobic exercise uses oxygen to convert the body's fat, glycogen (carbohydrates) and protein into energy. The main fuel source the body wants to burn in aerobic exercise is fat. By using fat as an energy source and having enough sustained oxygen supply, the body has a fuel that allows the muscles to work optimally. There is almost an unlimited source to keep the body moving. Aerobic exercise improves blood flow to the cells by increasing small blood vessels known as capillaries. Capillaries help to move oxygen and have a direct effect on the cells by improving the function of mitochondria, which are the powerhouses of the body's cells. Influencing the blood vessels and mitochondria can also help the respiratory and cardiovascular systems function more efficiently and, in turn, improve endurance and performance as well as build muscle.

On the other hand, anaerobic exercise occurs when your body runs out of oxygen or is not getting enough oxygen to the body's cells. Anaerobic exercise occurs when you run at a faster pace that increases your target heart rate. It changes the main fuel source from fat to glycogen. Using glycogen as a fuel source is not as efficient for exercise. Plus, there is only a limited source in the body. When you deplete your glycogen storages, your body will slow down and you may "hit the wall," which is when you suddenly start to feel fatigued and run down during an intense exercise session. This is evidence of the body changing from aerobic to anaerobic exercise. Significant soreness of the muscle is a by-product of glycogen breakdown and represents anaerobic exercise.

The aerobic exercise zone is different for every individual. It depends on fitness and conditioning, so should be discussed with your physician or sports medicine provider. The best zone for aerobic exercise is 60-70% of your maximal heart rate. The easiest way to calculate your maximal heart rate is to take your age and multiply by 0.7; then subtract that number from 208. This will be your maximal heart rate. To find your aerobic zone target heart rate, multiply your maximal heart rate result by 0.6 and 0.7. For example, in the following

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equation for a 40-year-old, the maximal heart rate is 180 beats per minute and the target heart rate for aerobic exercise is 108-126 beats per minute.

40 x 0.7 = 28
208 – 28 = 180 (maximal heart rate)
180 x 0.6 = 108 (beats per minute for aerobic zone heart rate)
180 x 0.7 = 126 (beats per minute for aerobic zone heart rate)

To stay in your targeted zone, you can monitor your heart rate during exercise by using an exercise watch or wrist band., Another easy yet unscientific way to target the aerobic exercise zone is the “talk test.” If you can hold a conversation comfortably while running with a partner (without running out of breath too much if you pause the conversation occasionally), but still break a sweat, this is the sweet spot that you are looking for in the aerobic zone. If you can talk and are not sweating, you are not working hard enough. And vice versa: if you can’t hold a conversation and you are running out of breath, you are working too hard.

A great benefit of aerobic zone exercise is weight loss. Aerobic exercise will speed your weight loss by using the fat stores for energy. You will not burn as many calories if you run nine miles per hour versus five miles per hour for 30 minutes. However, you will burn more of your fat stores and you will be able to exercise for a longer period of time, which will ultimately burn more calories.

Slowing your pace can also result in fewer injuries. The body will better adapt to your walking or running pace by making muscles, tendons and ligaments stronger and helping them work more efficiently, decreasing stress through joints. This can mean fewer overuse injuries and an improved running gait. Improved muscle function also can lead to quicker recovery from long runs because the body will be working more efficiently.

This is not to say you can’t run at faster paces during training. A faster pace should be part of your training program. Many elite runners will typically run at slower paces in about 75-90% of their runs. If you do follow a slower pace program, you can and will see a change in your training, endurance and overall fitness. This should also translate into improved times on race day.

If you have any questions or concerns regarding an injury or pain, please reach out to one of our experienced sports medicine physicians at Corewell Health Medical Group Orthopedics at (616)267- 8860. You can also find more information about our orthopedic program and providers on our website.