

Principles of a Rehab Specialist: From Fat Loss to Performance Ready, Part 2

METABOLISM AND THE BENEFITS OF INTERVAL TRAINING

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In the previous article, I introduced you to Sheldon, who has been diagnosed with a pre-insertional tear of the Achilles tendon. Sheldon is now out of acute pain and has to start his exercise training in preparation for playing basketball in the upcoming Maccabi Games.

Eliminate Conventional Aerobics

What led Sheldon to an ankle injury was his personal choice in preparation for the games. He started spending about an hour on the treadmill three days per week and then played basketball another three times per week. He did not properly stretch or warm up prior to his activities. The probable mechanism of injury to his ankle was repetitive stress and faulty movement patterns. Sheldon's diagnosis was a pre-insertional tear in the Achilles tendon. Initially, walking and running were painful. However, he could ride a stationary bike.

One of the first changes I make to a cardio program is to have my clients eliminate conventional aerobics. For example, if a client is spending 60 minutes on a treadmill or elliptical machine, I recommend they spend that hour of time performing: 10 minutes on the foam roll; 10 minutes isolated stretching; 20-25 minutes doing a combination of body-weight exercises, resistance exercises and/or lifting free weights; and 15-20 minutes of cardio training, especially using interval training techniques.

The foam roll is used as an inhibitory technique to release tension and/or decrease activity of overactive neuro-myofascial tissues in the body. After using the foam roll, clients are instructed to participate in static stretching of muscles to increase the extensibility, length and range of motion of neuromyofascial tissues in the body.

The next phase of the workout is muscle-activation techniques, often performing body-weight exercises. These exercises are used to increase intramuscular coordination and strength. Squats, lunges, push-ups and step-ups are examples of dynamic movements. When I train my clients to lift free weights, I want them to lift heavy weights. When I teach free-weight training, I recommend creating circuits of five exercises, performing six repetitions of each exercise and then performing the circuit three times. The sixth rep of each set should be difficult to complete if you are using the correct amount of weight.

In three separate half-hour, in-office sessions, (once per week for three weeks) I can teach my clients approximately 15 different resistance, body-weight and/or free-weight exercises. At the end of the three sessions, they have learned and practiced enough to perform a 15-minute, 30-minute or 45-minute whole-body, customized workout routine. The amount of time they work out and spend on the home program depends on the number of sets they perform. They can adjust this to

their own schedule.

If clients are not ready to lift free weights, I use a fitness tool that combines a stick and exercise bands into one effective workout. You can do hundreds of different exercises and combination movements to improve strength and flexibility. Every Tuesday and Friday morning, I teach a small-group exercise class. My experience has shown that resistance-band or resistance-bar exercises can be performed for one-minute intervals and then changed to the next exercise for the next minute. This routine can be continued for 20-45 minutes. This provides a great cardio, strength and flexibility workout.

Teach Interval Training

Sheldon needed to get cardio fit and "court ready" for the basketball tournament. The best choice of training for his cardio is interval training. Interval training is broadly defined as alternating brief periods of very high-speed or high-intensity work, followed by periods of rest or very low activity. Simply put, interval training is based around the concept of "Go fast, then go slow, then repeat." You can perform interval training routines on pretty much any machine you want, such as a treadmill, bike or elliptical machine, and it can apply to almost any sport (swimming, cycling, running).

In interval training, high heart rates during work periods and low heart rates during recovery follow each other. This not only results in increased cardiovascular strengthening, but also increases the energy expended per minute, increasing thermogenesis and thus resulting in increased fat loss. Just remember, the concept of interval training is to go fast and then go slow.

If you are dealing with an unfit client, I don't recommend they run to get fit. They need to start a walking routine first. Once they are fit, they can run. Typically when a person decides to start an exercise program, they usually think of walking as the major form of exercise. Walking is an ideal place to start. How do you apply interval training? If you're in good shape, you might incorporate short bursts of jogging into your regular brisk walks.

In my home gym, I have an elliptical machine for my interval training. For example, I warm up at a speed of 5.5 for five minutes and then perform short, fast (speed of 8-10) bursts for 30-60 seconds. I slow down for a minute or two and then repeat the fast burst again. This is performed for 15-20 minutes. If you're less fit, you might alternate leisurely walking with periods of faster walking. For example, if you're walking outdoors, you could walk faster between certain landmarks.

Have you ever noticed when people continue to do the same walk, day in and day out, and do not add periods of short bursts to increase metabolic activity to improve their fitness level, they simply stay at the same weight, BMI and body composition? If clients are just beginning an exercise routine, I also suggest they include bicycling in their routine. Since bicycling allows for maximum metabolic disturbance with minimal muscular disruption, metabolic rate and exercise activity efficiency easily can be increased. To apply interval training to cycling, you could pedal all out for 60 seconds and then ride at a slower pace while you catch your breath for the next two to four minutes. Try to keep the bursts of speed at around 90 percent to 100 percent of maximum effort.

An example of an interval routine for runners is to sprint for 20 seconds, rest 10 seconds, repeat four to eight times; or sprint 15 seconds, rest 5 seconds, repeat four to six times.

The Benefits of Interval Training

Major increase in fat loss. In a study done by Tremblay, et al., two groups were assigned different training regimens.¹ Group A performed regular moderate intensity cardio (like jogging or

bicycling) for 20 weeks and Group B performed interval training routines for 15 weeks. The results of each group were recorded. Group B lost nine times more fat than Group A in five weeks less time.¹

Increased lactic acid threshold. Lactic acid threshold indicates how fast your body can remove the lactic acid in your muscles. When your body can remove lactic acid more efficiently, you can work the muscles at a higher intensity for a longer period of time before they become fatigued.

Shorter workouts. If you crank up your exercise intensity using interval training, you can work out in less time and accomplish more compared to performing steady-state cardio. It appears interval training burns more fat than regular moderate-intensity cardio. The rationale is that recovery of metabolic rate back to pre-exercise levels can require several minutes for light exercise and several hours for hard intervals. This phenomenon is called excess post-exercise oxygen consumption (EPOC). Intense exercise of a significant duration may cause EPOC or afterburn. This means extra calories are burned after an intense exercise bout. This indirect expenditure of energy has been shown to last from 30 minutes to many hours post-exercise.

Don't forget that the training effect increases faster with increased intensity than with increased duration. A long-duration, low-intensity workout will not necessarily result in a high training effect, while a short, high-intensity workout may produce a high value. You need to develop an aerobic base in your fitness clients, but you must progress to intervals if you want real results in both fitness and fat loss. The bottom line is: The higher the intensity, the more calories will be expended. The more energy expended per minute, the more efficient your exercise time will be for fat loss. By the way, Sheldon's team went on to win the men's basketball championship.

Reference

1. Tremblay A, Simoneau JA, Bouchard C. Impact of exercise intensity on body fatness and skeletal muscle metabolism. *Metabolism*, July 1994;43(7):814-8.

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