

[IMAGE]

Find Your Fat-Burning, Muscle-Building Zone

Make Sure Your Workouts Include Aerobic *and* Anaerobic Exercise

By Chelsea Cooper, MPA, CPT

There has always been and probably always will be some debate on which type of metabolic training is best: aerobic or anaerobic. Before we go any further, let's define these three terms, which are so important to burning fat, building lean muscle and getting in great shape. Simply put, *aerobic* means "with oxygen" and refers to how the body utilizes oxygen during activity; *anaerobic* means "without oxygen." *Metabolic training* involves conditioning exercises designed to increase the efficiency and capacity of the body's energy pathways to store and deliver energy for activity, and can involve both aerobic and anaerobic activity.

Girl running - Copyright © Stock Photo / Register Mark There are three energy pathways used to provide energy for activity; one is aerobic and two are anaerobic. Which of these energy pathways to train has been the source of some controversy and debate. The problem when you apply the terms *aerobic* and *anaerobic* to exercise is that we never actually switch from total aerobic to total anaerobic metabolic conditions. The more we increase our exercise intensity over a shorter period of time, the greater the need for anaerobic energy production. Lower intensity exercise, performed over a longer period of time, maintains aerobic metabolic conditions. So, it really is best to think of aerobic and anaerobic as transitions in metabolism, whereby the stage of exercise intensity we are in determines our metabolic reaction.

Aerobic or Anaerobic: Two Components of Successful Fitness

The big question is, how to do these concepts relate to you and your fitness goals? Most people aren't competitive athletes; they just want to exercise to gain the health benefits, feel good and to lose weight. Aerobic exercise allows you to exercise at a fairly low intensity for long period of times; it's usually less stressful to the muscles, joints and your heart, which may be appropriate for individuals with high blood pressure, arthritis, or heart disease. Examples of aerobic exercise include walking, jogging, outdoor cycling, walking or jogging on a treadmill, rowing, swimming, and using the elliptical machine or stair climber. However, to improve more rapidly your exercise capability, results, tolerance, and performance, some

anaerobic exercise also is necessary.

When starting a training program, I (like most trainers) start clients with lower intensity exercise (aerobic exercise), although anaerobic exercise is unavoidable for some kinds of exercises or activities. Lifting weights is anaerobic, for example, which is why muscles fatigue occurs so rapidly during weight training. Other activities such as walking up stairs can be anaerobic if you're unfit. A combination of anaerobic and aerobic exercise is needed to achieve lasting, full-body results.

Target Heart Rate and Training

For aerobic exercise, the recommended heart rate is 60-85 percent of your maximum heart rate. This is known as your *target heart rate*. You should maintain this heart rate for about 30-40 minutes at least three times a week, working your way up to 5-6 days a week if possible. You also need to incorporate anaerobic training into your workouts; anything above 85 percent maximum heart rate constitutes anaerobic exercise. Anaerobic exercises usually involve short bursts of activity; weight training or sprints are good examples.

A Balanced Exercise Program

Here are some unconventional exercises that blur the line between aerobic and anaerobic. They involve short bursts of activity (anaerobic) but also sustained activity over a longer period of time (aerobic) compared to single-set, single-movement exercises, meaning you'll get a well-rounded workout to burn fat, build strength, tone your entire body and increase cardiovascular health, all at the same time.

Target Heart Rate for Aerobic Exercise	
Age	Beats/Minute
20-24	120-150
25-29	117-146
30-34	114-142
35-39	111-139
40-44	108-135
45-49	105-131
50-54	102-127
55-59	99-123
60-64	96-120
65-69	93-116
Above age 69	90-113

Timed Sets: Instead of performing a certain number of sets and reps, you complete as many repetitions of a particular activity as possible during a set time. For example: Jumping jacks for 1 minute; pushups for 45 seconds and squats for 1:30 minutes. Record your totals. Challenge yourself to increase the amount of reps and shorten or lengthen the time as you improve.

Density Training: Perform as many sets of 2-3 exercises as possible within a time frame. For example: 10 pushups, 10 squats, 10 biceps curls, performed continuously for three minutes. You can adjust the length of time according to your fitness level, and choose any number/variety of continuous exercises for any number of reps.

Complexes: These are essentially a form of circuit training or super-setting using only one piece of equipment, one space and one load. For example: 15 stability ball squats, 15 stability ball crunches, 15 stability ball hamstring curls, 20 rubber-band biceps curls, 20 rubber-band shoulder presses, 20 rubber-band rows, done consecutively. (See Jeffrey Tucker's "Winning Without Weights" in the May issue for tips on how to perform these and other exercises using bands and balls.)

No matter which exercises you choose, the key is to add high-intensity, short-duration metabolic training to your workout, vary the intensities by changing methods of training, and every so often switch from high

intensity, short duration to medium intensity, medium duration and low intensity, long duration. It's a great way to burn fat and build muscle, and it makes the journey we call *fitness* that much more challenging and rewarding.

How Is Target Heart Rate Determined?

Your target heart rate for cardiovascular benefit (60-85 percent of maximum heart rate) is actually determined via a precise mathematical formula that involves several steps. This example is based on a 24-year-old with an average resting heart rate of 78 beats per minute.

Step 1: The first step is to determine your *resting heart rate*, which can be done by taking your pulse as soon as you wake up in the morning, before getting out of bed. Take one-minute readings over the course of three days and divide by three to get your average resting rate. (For example, 76 plus 80 plus 78 divided by three = an average resting heart rate of 78 beats per minute.)

Step 2: Subtract your age from 220 to determine your *maximum heart rate*. For example, the maximum heart rate for a 24-year-old is $220 - 24 = 196$.

Step 3: Subtract your resting heart rate from your maximum heart rate. Using our examples above, $196 - 78 = 118$, which represents your *heart rate reserve*.

Heart Rate Monitor - Copyright © Stock Photo / Register Mark **Step 4:** Calculate the lower limit (60%) of your target heart rate. In this case, multiply 118 by 0.6, which yields 70.8, and add that number to your resting heart rate ($70.8 + 78 = 148.8$). So, your lower limit is approximately 149 beats per minute.

Step 5: Calculate the upper limit (85%) of your target heart rate by multiplying 118 by 0.8, which yields 94.4; add that number to your resting heart rate ($94.4 + 78 = 172.4$). That means your upper limit is approximately 172 beats per minute.

Step 6: Divide your totals from steps 4 and 5 (in our example, 149 and 172) by the number 6; this will give you your lower and upper target heart rate limits (beats per 10 seconds). $148.8 / 6 = 24.8$ and $172.4 / 6 = 28.7$. That means if you take your pulse for 10 seconds while exercising and you're between 25 and 29 beats during those 10 seconds, you're achieving your target heart rate.

Source: WikiHow.com

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