Gazelle Sports

MULTI-SPEED TRAINING…. WHAT DOES IT MEAN?

Each race distance has its own unique physiological requirements and places a different set of stresses on the body. When training to excel at a goal race, it is important to structure a training program to contain the proper mix of workouts for the chosen distance….hence the principal, "specificity of training."

For example, in the 5k the most important training intensity is VO2 max (5k race pace), followed by lactate threshold, endurance and then speed. This doesn't mean that lactate threshold, endurance and speed should be ignored; they all need to be part of the training program. It just means that for best possible performance in the 5k, there needs to be a mix of all of these variables with an emphasis on VO2 max training. For the 10k, VO2 max and lactate threshold training are equally important. For the half marathon the training emphasis shifts to lactate threshold with endurance being second. For the marathon, endurance and lactate threshold training intensities are both emphasized while VO2 max and speed are of lesser importance.

Pace (P) runs are used to train the body to run at goal race pace for the marathon and sometimes the half marathon. Pace runs are not differentiated for shorter distances as the race pace for distances below the half marathon is usually at or below lactate threshold, and is at VO2 max for the 5k.

Endurance/Easy and Long Easy Runs (E)
Purpose: Building Aerobic Conditioning, Train the Body to Conserve Fuel

Aerobic conditioning can be any distance runs (or run/walk) of 20 mins-3 hours in duration. Depending on your goal time, fitness level, experience and race distance, the distance of you aerobic conditioning runs will vary quite significantly. These runs are done at about 45–1:30 min/mile slower than marathon race pace, 1:00–2:00 slower than half marathon race pace or 1:30–2:30 slower than 5k race pace. This should correlate to 65–80 % of your maximum heart rate.

Regardless of what distance you are training for, aerobic conditioning represents the majority of your training program.

Endurance long & easy runs will:

1. Increase the number of capillaries that can bring oxygen-rich blood to your muscles
2. Increase the amount of oxidative enzymes within the muscle cells that help to use oxygen more efficiently
3. Train the body to conserve valuable muscle glycogen supplies and use fat as fuel
4. Strengthen the tendons and connective tissues
5. Improve pulmonary capacity

Pace Runs (P)
Purpose: Building Aerobic Conditioning and Train the Body to Run at Goal Marathon/Half Marathon Pace

Pace runs are shorter runs at goal marathon or half marathon pace. For the marathon, they are run at @ 20–30 seconds slower than lactate threshold pace or .45-1:30 faster than endurance/easy runs. For the half marathon, they are run @ 1:00–2:00 faster than your endurance/easy runs or just slightly slower than lactate threshold pace.

Pace runs will:
1. Share many of the same benefits of long, easy runs
2. Train your body to run at goal marathon or half marathon pace

Tempo (T) and Lactate Threshold (LT) Runs
Purpose: Build Stamina by Raising your Lactate Threshold

Lactate threshold and tempo runs train the body to tolerate moderate levels of lactic acid in the blood while running at significantly faster pace than aerobic, "easy" conditioning (where there is very little lactic acid production). Lactic acid is the by-product of "oxygen debt" when we try to run fast for any length of time.

Stamina (or speed over distance) has become synonymous with the term lactate threshold training. Your lactate "threshold" is the speed just below the point at which lactic acid is being produced at a faster rate than it can be removed from the bloodstream Threshold pace is at your 10-mile race pace, 25-30 seconds/mile slower than 5k race pace, 10–15 seconds/mile slower than 10k race pace or 20–30 seconds faster than marathon race pace. This correlates with an effort of about 85–90 % of maximum heart rate. It is very important that lactate threshold runs are done exactly at or right below lactate threshold pace. If you train too fast, the desired outcome will not occur and it will be difficult to complete the entire workout at lactate threshold pace.

Lactate threshold running can be performed as either:
1. Continuous "Tempo" runs of 15-45 minutes, or
2. Long "Lactate Threshold" intervals of 3-15 minutes with short jog breaks in between.

Lactate Threshold/Tempo runs will:
1. Enable you to run further at or near your lactate threshold running speed
2. Improve the speed at which your lactate threshold occurs
3. Run more comfortably at the same pace
4. Improve your running efficiency at all race distances of 5k or longer
5. Help prevent overtraining

VO2 Max Runs (VO2)
Purpose: Increase the amount of oxygen-rich blood your heart can pump to your muscles and the amount of oxygen that can be used by your working muscles

Your VO2 max is the maximum amount of oxygen that you can take in, process and use to provide the energy you need to run. The upper limit of your VO2 max (also known as aerobic capacity) is in large part genetically predetermined. However, most runners have not "maxed"

out their functional aerobic capacities. Fortunately, well-designed training can have a significant impact on improving your VO2 max.

VO2 Max workouts are medium length intervals of 600 – 2000 meters at current 5k race pace and eventually, as improvements occur, at realistic 5k goal pace. In between each interval jog 50 – 90 % of the time it takes to run the repeat. These workouts will increase your aerobic capacity to its upper functional limit. Anywhere from 2 ½ to 5 miles worth of intervals should be part of every VO2 max session (for example 5 x 800 meters) At this running speed, your heart rate will generally be at 95 – 100% of maximum.

Like lactate threshold training, it is very important that the intervals are run at the proper intensity and that the recovery time is within the time range. Too long a recovery will cause the heart rate to drop too low to stimulate the best possible improvement in VO2 max. Running the repeats too fast will stimulate the anaerobic system more than the aerobic, and will make it difficult to finish the workout.

VO2 Max Runs will:

1. Increase the amount of oxygen-rich blood your heart can pump to your muscles by increasing stroke volume
2. Increase the amount of oxygen your muscles can extract from the blood

Speed Workouts (S)

Purpose: Increase leg turnover, improve running mechanics and form, buffer lactic acid

Speed workouts are done at significantly faster than threshold pace and there fore the accumulation of lactic acid is expected. Your anaerobic capacity is your body's ability to buffer and tolerate this inevitable build-up of lactic acid in the bloodstream. Anaerobic running occurs when the intensity of your running does not allow you to produce energy through the intake of oxygen alone, therefore forcing the body to derive increasing amounts of energy from the breakdown of muscle glycogen. A high anaerobic capacity represents a high tolerance of lactic acid buildup. Being able to continue to run while lactic acid is building up is critical to racing well.

Speed workouts are repeats of 400 meters or less that are done at about 15-20 seconds faster than 5k pace (it is important to remember these are not all-out sprints). Rest periods are longer and are determined by how long it will take you to be able to perform the next repetition at your target time.

Speed workouts will:

1. Benefit the anaerobic system so your body becomes more efficient at converting fuel to energy in the absence of adequate oxygen.
2. Improve running mechanics and form to become more efficient
3. Buffer lactic acid causing your body to get used to performing with high levels of blood-lactate.
4. Improve leg turnover
5. Improve finishing "kick"