

## BASE TRAINING - MAF Test

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Aerobic “base training” is one of the simplest, yet most important, methods for enhancing cardiovascular efficiency – ideal for fat utilization during weight loss and improving overall athletic performance. However, base training is VERY underutilized because this is often the period of training where discipline, dedication, and hard work dictate the degree of success. Most people, especially athletes, think these three mental attributes are related to toughing it out, grunting, and training through pain. But base training can be even tougher than all of that - for many athletes, is the most difficult part of any training program because it requires the ability to go slower, despite what others around you are doing and saying.

Initially, training at this “BASE” heart rate induces emotional stress in many athletes. “I just can't train that slow!” is a common comment. But after a short time, not only will you feel better, your pace will quicken at that same training heart rate. Dr. Maffetone points out that “one significant benefit of applying BASE conditioning to your training is the chemical response by the body: production of free radicals is minimal compared to running at heart rates even a little higher. These chemicals can contribute to migraines, degenerative problems, inflammation, heart disease, and cancer - not to mention speeding the aging process. By applying the BASE training philosophy, you can run more miles without risking chemical stress. It is also ideal for runners who have lost their competitive edge, have chronic problems (injury, sickness), or cannot lose that extra fat, a longer base - up to six months - can work wonders.”

According to Dr. Philip Maffetone, respected author and endurance training expert, building a good aerobic base takes about three months and requires consistent use of a heart rate monitor to accurately monitor and properly interpret your unique physiological response to exercise.

Dr. Maffetone believes “building a good aerobic base means training **only** aerobically. During the base period, **no** anaerobic workouts (including racing and heavy weight lifting) should be incorporated. Anaerobic activity will jeopardize the efficient development of your aerobic base - so **every** workout must be aerobic and that includes your long run on Sunday, your hilly runs in the park, and any other workouts where you are heavily influenced by other athletes or the terrain.”

Dr. Maffetone covers several reasons why anaerobic workouts can inhibit aerobic base building:

- Anaerobic training can decrease the number of aerobic muscle fibers, sometimes significantly. This can happen in just a few short weeks of higher heart rate training.
- The lactic acid produced during anaerobic training may inhibit the aerobic muscle enzymes necessary for building an aerobic base.
- Anaerobic training raises your respiratory quotient. This means the percentage of energy derived from sugar increases and fat burning decreases. In time, this may force more anaerobic metabolism and less aerobic function.

So, the question still remains: *what heart rate do you use for aerobic training?*

Perhaps the most important feature of training with a heart monitor is knowing which heart rate to use! You might be familiar with “The 220 Formula”: *220 minus your age, multiplied by 65-85%*. But, according to Dr. Maffetone, “this method has no basis. Your maximum heart rate is supposed to be represented by 220 minus your age. However, if you've ever pushed yourself on the track or in a race to find your *highest heart rate*, you may have found, as more than half of the population does, that it is **not** the same as the “220 formula” estimations. And then there's the exertion percentage: which do **you** use - 65%, 75%, 80%?”

Rather than guess - BeFitLifestyle utilizes state-of-the-art **New Leaf Metabolic Testing** technology, in combination with **Polar** heart rate monitors, to objectively measure body function to help clients of all ages and fitness levels reach specific weight loss and fitness improvement goals - it is simple, accurate, and effective!

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## **MAF TEST - Self-Assessment**

A significant benefit of aerobic base building is the ability to run faster at the same effort, that is, at the same aerobic heart rate. And an advantage of using a heart monitor is the ability to objectively measure these improvements using the maximum aerobic function (MAF) test.

The MAF test objectively measures the improvements in aerobic speed during base building. Aerobic speed means you can run faster at the same aerobic heart rate. Traditionally, only anaerobic work is supposed to give you speed. But aerobic improvements will too, and without the wear and tear, which often accompanies hard training.

You can perform the MAF test on a track or treadmill using your heart rate monitor. Select an exact heart rate (i.e. 125BPM) that falls within your BASE ZONE and record the time it takes you to complete each mile of the test while attempting to stay exactly at your selected heart rate (i.e. 125BPM). Completing three to five miles provides good data, although a one-mile test still has value. The test is done following an easy 5min warm-up.

Below is an actual example of a runner performing the MAF test at a heart rate of 150:

Mile 1 8:21, Mile 2 8:27, Mile 3 8:38, Mile 4 8:44

During any one MAF test, it's normal for your times to get slower; the first mile should always be the fastest, and the last the slowest. If that's not the case, it usually means you have not warmed up enough.

In addition, the test should show faster times as the weeks pass.

For example, over four months, we can see the endurance progress in this actual case:

	April	May	June	July
Mile 1	8:21	8:11	7:57	7:44
Mile 2	8:27	8:18	8:05	7:52
Mile 3	8:38	8:26	8:10	7:59
Mile 4	8:44	8:33	8:17	8:09
Mile 5	8:49	8:39	8:24	8:15

This improvement is usually only realized during aerobic base training. If you add anaerobic work and/or racing to your training schedule, your progress will not be as good, or there will be none. BeFit recommends performing your MAF test regularly throughout the year - chart your results below:

Month 1                      Month 2                      Month 3                      Month 4

MAF HR:

Mile 1:

Mile 2:

*(Optional)*

Mile 3:

Mile 4:

The greatest benefit of repeating the MAF test is its ability to objectively inform you of an “obstacle,” or set back, long before you feel it or see it in the form of an injury or declining performance. If something is interfering with your progress, such as, improper training, poor diet or excess stress - you don't want to wait until it's too late. The MAF test tells you, by way of slower times, months before that happens.

### **Racing according to Maffetone:**

Another important aspect of the heart monitor and MAF test is that the test is predictive of performance. A direct relationship exists between your aerobic pace and your race effort. In other words, as your MAF test improves, so will your racing ability!

Data gathered on hundreds of runners over several years made it evident that the pace a runner could perform at aerobic maximum pace was positively correlated with race pace. The chart below, based on actual data, illustrates the relationship between MAF and 5K-race performance.

MAF min/mile	5K race pace	5K time
10:00	7:30	23:18
9:00	7:00	21:45
8:30	6:45	20:58
8:00	6:30	20:12
7:30	6:00	18:38

**The use of a heart rate monitor to guide you through aerobic base periods will not only help you lose weight, get healthy and stay healthy, it will also help you perform your best for many years.**

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*Dr. Philip Maffetone has trained and treated many world-class and age-group athletes in most sports for almost 20 years. His most recent book is *In Fitness and in Health*, and his new book, *Training for Endurance*, out in December (Barmore Productions, 607-652-7610).*

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