**How To Run At Your Ideal Paces**

Running fast too slowly and running slowly too fast - it's easy for runners to misjudge their training pace. But with the right guidance, everyone can train more effectively

For too many years runners have been told to train as they feel. The problem is that no one tells you how you’re supposed to feel when you’re training right. Lacking this insight, many runners unconsciously fall into the no-pain, no-gain trap. They train too hard. You know what comes next; burnout, fatigue, injury.

Some runners make the opposite mistake. They don’t train hard enough. Their speciality is junk mileage – running so slowly that they receive little or no training effect.

Unfortunately, neither the too-fast nor the too-slow runners realise that their training is off the mark. Both are running as they feel, just the way they have always been told. Without any other guidelines they’ll no doubt continue training the same way.

This may or may not end up hurting them, but it certainly does not amount to efficient, scientific training. Yet such training is within your grasp, even if your spouse isn’t an exercise physiologist and your cellar doesn’t contain a human performance laboratory.

Ask yourself the following question: at what pace or paces should I train to maximise my fitness and my running performance? If you can answer this question, you have the key to a successful training programme.

Over the past 25 years, a number of researchers have begun to apply the results of certain studies to the training of runners and other endurance athletes. Most of this work has been done piecemeal in far-flung locations around the globe. Yet the scientists and coaches involved in the programmes, and their early successes, are so impressive that their remarkably similar systems seem certain to catch on.

While the researchers have read the same journals and have reached nearly identical conclusions, each interprets and applies the information in a slightly different manner. In the sections that follow, the material on the various training systems has been mixed together in such a way that it will prove useful to the greatest number of runners.

Exercise physiologists and coaches generally agree that there are three ways to improve running performance: you can increase your maximum oxygen uptake, or VO2max, which measures the greatest volume of oxygen that can be dispatched to your muscles during exercise; you can extend the point at which your muscle efficiency falls off significantly (your lactate threshold, or LT); and you can improve your endurance, or running economy (RE).

It follows that the most effective training takes direct aim at one or more of these three factors. Training that isn’t specific will still produce results, but it won’t produce the best, most efficient results. In other words, you can go out and run around town for 30-40 minutes a day, and your condition will definitely improve. There’s no denying that haphazard training works, and a lot of runners aren’t willing to tamper with a method that’s already producing results.

At some point, however, you’re bound to start wondering if there isn’t a better way. It’s not a matter of seeking shortcuts, it’s simply a desire to train smarter.

And that desire leads straight to these three different training paces.

**Quicker On The Uptake**

Your maximum oxygen uptake is the greatest amount of oxygen that your muscles can use while you’re exercising as hard as you can. Note that VO2max is not just the amount of oxygen that your heart and lungs can provide. As you train, your leg muscles become more efficient at burning the available oxygen. This is the specificity of training, which helps explain why a fit swimmer might not run very fast, and a fit runner might not swim very well. Both have great cardiovascular systems, but an athlete has to train the muscles specific to their particular event. Many famous runners have their VO2max measured in laboratories. You may have seen the results listed in magazines and books, but the figures probably didn’t mean much to you, because the usual unit of measurement is millilitres per kilogram of body weight per minute. Anyway, legendary 10,000m runner David Bedford had a VO2 max of 85.0, and one of his rivals, Steve Prefontaine, was reputed to be around 84.4. This is all very exciting, but it doesn’t tell you how to train come Monday morning.

What’s needed is the right pace for training your VO2max. Using the table opposite, you can locate your own VO2max pace. Research indicates that regular training at this pace will increase your VO2max, until you reach a genetically predetermined maximum. That is, it will make you fitter and faster.

Let’s note a few more things about this VO2max pace. First, it’s not the same as your all-out sprint speed. It’s a pace that you could hold for an 11-minute race. If you chose to sprint for just 30 seconds, say, you could run at a much faster pace. Faster isn’t better, however. The best pace for improving your VO2max is your VO2max pace.

Running a daily 11-minute race time trial isn’t the answer, either. It would quickly lead to chronic fatigue. Except when racing, don’t try to run continually for more than five minutes at VO2max pace. Nor should you use the table to pick out some illusory or goal pace. You must train at the pace calculated from your current racing performance. Only after your race performances improve should you drop down to faster training paces.

While training for an upcoming competition, run at VO2max pace about once a week (During off-season or maintenance periods, you don’t need to do VO2max intervals). Try to run this session on a track, where you can closely monitor distance and pace. A good work-out would be 3-6 x 800m, or 8-12 x 400m at your VO2max pace. Take a two- to three-minute jog recovery between each repetition.

The idea behind this kind of interval training is that you can safely go up to or beyond your maximum capacity of 11 minutes of VO2max-pace running, because the jogging recoveries give you regular rests. Adaptation without exhaustion is the foundation of all training programmes. Once you’ve become accustomed to the effort of VO2max training, you can take it off the track to the roads or another location of your choice.

We can’t overemphasise the importance of running at your VO2max pace. Far too many runners think interval training means speedwork. No doubt you can and have run 400m intervals faster than your VO2max pace. Well, stop it! If you stand by your former habits, then you’re still following the old hit-or-miss school of training, and you just might miss. Running too fast leads to fatigue and breakdown. Running at your VO2max pace – it’s not slow running, but rather controlled speed – raises your maximum oxygen uptake, which improves performance potential.

**Extending Your Threshold**

Lactate threshold is one of the more confusing and hotly debated topics in exercise physiology and training. It’s also one of the most important. Scientists always knew that runners with a high VO2max tended to produce the fastest running times. More recent research has elevated lactate threshold to a position of equal importance.

Frank Shorter, the 1972 Olympic marathon champion, and Derek Clayton, the first man to break 2:09 in the marathon, provide two of the best examples of the importance of lactate threshold. Each had a relatively low VO2max for elite athletes. However their lactate thresholds were so high that they could run marathons at 85 per cent of their VO2max, while other athletes could only maintain levels of 75-80 per cent.

Lactate threshold is not just important to marathoners. No matter what your distance, the higher your lactate threshold, the faster you can go before your muscles give up.

The way to improve your lactate threshold is to train at your LT pace (see column three of the [table](http://www.runnersworld.co.uk/beginners/how-to-run-at-your-ideal-paces/160.html#pace), below). These LT paces are calculated at 85 per cent of your VO2max, or just a little bit faster than your marathon pace.

Your weekly schedule should include one LT session in which you cover three to six miles at your LT pace. There are any number of ways to do this. For instance, you could go to the track and run repetitions of one and a half to two miles at LT pace. Do two or three of these with a short jogging recovery between efforts.

It’s also easy to do LT training as part of your regular on-road training if you have a measured course. A short road run might consist of a one-mile warm-up, three to four miles at LT pace, and a one-mile cool-down. If you’re training for a marathon, you could do three to four miles of LT running in the middle of a long run.

**Real Recovery**

Running Economy training is in some ways the most perplexing of the three training paces. RE training doesn’t improve any single factor the way that VO2max pace and LT training do. Rather, it works on all aspects of your running endurance – the cardiovascular, the biomechanical, the biochemical, and the psychological – in a generalised way.

The other two training paces are much more efficient and effective. But you can’t do them every day. In fact, you shouldn’t do either more than once a week. That leaves you guessing about the rest of the week.

You could always decide to do nothing on the other five days, but then your condition wouldn’t improve. It might even deteriorate. You could run hundreds of miles during the other five days, but that isn’t very prudent for most people.

So what you probably end up doing, like almost everyone else, is going out for a lot of easy runs. That’s fine, except for one thing: too many runners, when they head out the door for ‘just an easy run’, run too fast. As a result, they don’t get the recovery they need after their harder training days.

The secret to easy running is to find the slowest pace that will still provide all the generalised aerobic benefits you want. Here, slower is better – up to a point. If you run too slowly you get almost no training effect, and your work-out time is essentially wasted. So, the big question becomes, how slowly can you run and still be training?

Research indicates that the dividing line is at about 65 per cent of your VO2max (see column four of the [table](http://www.runnersworld.co.uk/beginners/how-to-run-at-your-ideal-paces/160.html#pace), below). If this pace seems ridiculously slow, don’t worry about it. So long as your everyday training pace is truly comfortable and recuperative, you can run at 70-80 per cent of your VO2max without excessive strain. On the other hand, if you often feel tired before training and force yourself to run at an arbitrary (and perhaps too stressful) pace, you might enjoy knowing that you could run a lot slower and still make deposits into you training account. RE pace is also the right pace for your long runs, the purpose of which is to accustom your body, in a generalised way, to spending several hours on the road.

One important effect of RE training that shouldn’t be overlooked or underestimated is calorie burning. On days when it’s RE or nothing, RE training will help keep your weight in check. Otherwise, you’re likely to start gaining weight, which will have a negative impact on your running, not to mention your overall health.

**Fine-Tuning Your Training**

Simplicity is one of the great virtues of this system. But if you want to go beyond the basics, here are few more points to ponder.

**Pace training** Many athletes and coaches believe in training at hoped-for racing pace. Particularly if you’re preparing for a race that will take less than 11 minutes, you should add race-pace intervals to your training diet.

**Racing** Any race of 5K or more counts as a VO2max run. In most situations you shouldn’t train at VO2max pace during a week in which you race.

**Heart rate** If you’re not using a measured course, you can use your heart rate to determine when you’re running at the correct pace. First, calculate your [maximum heart rate](http://www.runnersworld.co.uk/news/article.asp?UAN=148). When you’re training at VO2max pace, you should peak at your maximum heart rate. When you’re running at LT pace, you should peak at 90 per cent of your max. And for RE training, you should raise your heart rate to 75 per cent.

If you don’t have a heart-rate monitor and want to check your heart rate on the run, take your pulse at the end of an interval, for 10 seconds, and multiply by six.

**Cross-training** If you’re looking to substitute some cycling or other aerobic exercise for certain runs, the best substitution days are your RE training days. Because of the law of specificity of training, you can’t expect a hard bike ride to have the same beneficial effects as a VO2max pace session.

**Overtraining** Any time you experience extreme difficulty completing one of your sessions, plan a rest period. Sometimes a day or two of easy running will suffice; sometimes you will need several weeks. Don’t return to VO2max pace sessions or LT training until your RE runs are feeling comfortable again.

**Pace Yourself**

Find your 10K time in the left-hand column and then trace across to the right to locate your VO2max, lactate threshold, and running economy training paces. If your 10K time is between the whole numbers, you can easily adjust your training paces by adding or subtracting several seconds.

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| --- | --- | --- | --- |
| **Your 10K Time** | **Your VO2max pace** | **Your Lactate Threshold pace** | **Your Running Economy pace** |
| **(mins)** | **(min/mile)** | **(min/mile)** | **(min/mile)** |
| **27** | 4:08 | 4:41 | 5:50 |
| **28** | 4:16 | 4:51 | 6:03 |
| **29** | 4:25 | 5:02 | 6:15 |
| **30** | 4:33 | 5:12 | 6:27 |
| **31** | 4:42 | 5:22 | 6:40 |
| **32** | 4:50 | 5:31 | 6:52 |
| **33** | 4:58 | 5:41 | 7:04 |
| **34** | 5:07 | 5:51 | 7:17 |
| **35** | 5:16 | 6:01 | 7:29 |
| **36** | 5:25 | 6:11 | 7:41 |
| **37** | 5:33 | 6:21 | 7:53 |
| **38** | 5:41 | 6:31 | 8:05 |
| **39** | 5:50 | 6:40 | 8:17 |
| **40** | 5:59 | 6:50 | 8:29 |
| **41** | 6:08 | 7:00 | 8:41 |
| **42** | 6:16 | 7:10 | 8:53 |
| **43** | 6:25 | 7:19 | 9:04 |
| **44** | 6:33 | 7:29 | 9:16 |
| **45** | 6:42 | 7:38 | 9:28 |
| **46** | 6:50 | 7:48 | 9:39 |
| **47** | 6:58 | 7:58 | 9:51 |
| **48** | 7:07 | 8:07 | 10:02 |
| **49** | 7:15 | 8:16 | 10:14 |
| **50** | 7:24 | 8:26 | 10:25 |
| **51** | 7:32 | 8:35 | 10:36 |
| **52** | 7:41 | 8:45 | 10:48 |
| **53** | 7:49 | 8:54 | 10:59 |
| **54** | 7:57 | 9:04 | 11:10 |
| **55** | 8:06 | 9:13 | 11:21 |
| **56** | 8:14 | 9:22 | 11:32 |
| **57** | 8:22 | 9:32 | 11:43 |
| **58** | 8:31 | 9:41 | 11:54 |
| **59** | 8:39 | 9:50 | 12:05 |
| **60** | 8:47 | 10:00 | 12:06 |