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FROM
DENVER



CREDENTIALS
RRCA- AND UESCA-
CERTIFIED RUNNING COACH



CURRENT RUNNING SHOE
PUMA DEVIATE NITRO

EASY-RUN
MENTALITY
SLOW DOWN.



HARD-RUN
MANTRA
DIG DEEPER!

LOW OR HIGH INTENSITY?

LOW INTENSITY—THAT'S
WHERE THE MAGIC HAPPENS
TO HELP YOU GO FASTER.



HEART-RATE
TRACKER
GARMIN
FENIX 6X



FAVORITE
WORKOUT
LADDER SPEED
WORKOUTS

Polarized Training Is the Fastest Way to Build Endurance Without Burning Out

Most runners run too hard. We log the majority of our miles at moderate- and high-intensity speeds, barely trying to hit the low-intensity paces that are so essential to building an aerobic base. Yes, running slow takes longer. Yes, you may not feel quite as accomplished post-run. But if you go too hard too often, then instead of seeing performance benefits, you're more likely to burn out.

Take the case of two groups of recreational runners who were tested in a 2013 study published in the *International Journal of Sports Physiology and Performance*: One group spent 77 percent of their time doing low-intensity workouts, 3 percent doing moderate-intensity workouts, and 20 percent doing high-intensity workouts, a method called polarized training. The other group spent 46 percent of their time doing low-intensity workouts, 35 percent doing moderate-intensity workouts, and 19 percent doing high-intensity workouts. After 10 weeks, both groups improved their 10K times, but the polarized training group improved by nearly double the

amount of time, shaving about 41 seconds off the total time.

And when endurance athletes followed high-volume training, threshold training, high-intensity interval training, or polarized training protocols, it was the last group who showed the most improvements in VO_2 max, time to exhaustion, and peak velocity and power, a 2014 study in the journal *Frontiers in Physiology* found.

Polarized training is proof that more isn't always better. Instead, balancing high-intensity efforts that will make you faster with low-intensity efforts that allow for recovery and increased cardio will take you further over time. Here's what you need to know about this effective training method to apply it to your own routine.

● **What exactly is polarized training?** Polarized training is all about scaling down (or completely ditching) moderate-intensity running to focus on easy and

hard efforts. "Polarized training can be defined on a macro and micro scale," says Jason Karp, Ph.D., an exercise physiologist, coach, and author of the upcoming book *Periodization for Runners: Training Theories to Run*

Faster. "First, overall training is separated into low-intensity and high-intensity zones, with very little training done in the middle; second, individual easy runs are very easy and hard runs are very hard."

The polarized training model blocks training intensity into one of three zones, explains Greg Grosicki, Ph.D., an assistant professor and director of the exercise physiology laboratory at Georgia Southern University: low (zone 1), moderate (zone 2), and high (zone 3) intensity. There should be a heavy emphasis on zone 1 training (below the lactate threshold—the intensity of exercise at which lactate begins to accumulate in the blood at a faster rate than it can be removed, and the physiological transition point between aerobic

Courtesy Ashley Mateo

and anaerobic exercise); a lesser amount of zone 3 training (above the lactate threshold); and very little zone 2 training (at or very near lactate threshold; like tempo runs), says Karp.

But that minimal emphasis on zone 2, or moderate-intensity training is key because zone 1 easy runs allow you to fully recover in-between without burning out, explains Karp. “The biggest problem with moderate-intensity efforts is that they do not allow us to truly train hard when the time comes,” adds Grosicki—which makes it harder to optimize your training adaptation. “Yet, most recreational athletes spend upwards of 50 percent of their total training time at a moderate intensity,” he says. “Not only does this leave these individuals too fatigued to push hard during workouts, but it also greatly increases their susceptibility to injury.”

That’s why low-intensity training may be the most optimal intensity at which to adapt because it comes with the least amount of stress, says Karp. Sure, you could get equal or even greater adaptation with higher-intensity training, but that comes with fatigue, physiological stress, risk of hormonal disturbances, and reduced activity of the sympathetic nervous system, says Karp. When too much of your training is high-intensity, it can be too demanding and lead to overtraining in as little as two to three weeks.

But if approximately 80 percent of your running is easy, as in the polarized training studies, the other 20 percent of your training has to be hard—like, really hard. Think: high-intensity interval training.

HIIT WORKOUTS FOR HARD DAYS

Remember: Hard means hard on zone 3 days. During high-intensity efforts, Grosicki recommends aiming for intervals that last somewhere between 30 seconds and 10 minutes. Before each workout, be sure to warm up for at least 10 minutes with light jogging and dynamic drills. Cool down and stretch afterward. Try any (or all) of these three options to get started.

CLASSIC POLARIZED PROTOCOL

- 4 x 5 minutes hard; 2:30 minutes easy/rest

TABATA-STYLE INTERVALS

- 13 x 30 seconds hard; 15 seconds rest
- Complete the interval set 3 times

FUN & FAST EFFORTS

- 5 x 1 minute hard; 30 to 60 seconds easy
- 5 x 30 seconds hard; 15 to 30 seconds rest

WHY IS IT SO HARD TO ESCAPE THE MODERATE-INTENSITY RUT?

If a polarized training method works and is practiced by elite runners, why do so many competitive and recreational runners complete about half of their training at moderate intensity or faster? Stephen Seiler, an American exercise scientist and researcher in Norway,

suspects one reason is that the low-intensity zone is much broader for elite runners, hence making it easier to stay below the moderate threshold.

For example, a 2:10 marathoner is likely to be below the first ventilatory threshold when running 5:40 per mile or slower, whereas a 3:30

marathoner may be above this threshold already at 8:05 per mile. A 10-minute-mile runner’s low-intensity zone might end up being a run-walk, but that’s precisely the level of easy work you need to do to build out the lower end of your cardio capacity and still properly recover. —Matt Fitzgerald

The benefit of polarized training’s high-low focus is that it helps you develop your aerobic system to a very high capacity—increasing mitochondrial volume and capillary density and volume—while still allowing for high-intensity work that stimulates training adaptations like improving VO₂ max via the heart’s capacity to pump blood and oxygen and boosting your anaerobic metabolism and speed.

● **How to maximize easy and hard runs**
Committing to polarized training means leaving behind that moderate-intensity zone (a.k.a. the comfort zone for most runners) and dialing in your high- and low-intensity efforts.

You don’t need complex and expensive laboratory equipment to determine your lactate threshold to define these zones, says Grosicki; techniques such as heart-

rate monitoring or even perception of effort can be equally effective.

If monitoring heart rate, Grosicki recommends aiming for well below 80 percent of your maximum heart rate on easy days; generally something around 70 percent of your max is a good rule of thumb. On hard days, maximize high-intensity efforts by running at or very near to your VO₂ max pace—that corresponds to between 90 and 100 percent of your max heart rate, says Grosicki.

If you’re someone who gets too caught up in data and prefers not to wear a heart-rate monitor, you can go by your rate of perceived exertion (RPE), too: On easy days, listen to your body and try to keep your effort at a 4 or below on a scale of 1 to 10. On hard days, aim for an effort of 7 or greater on that 1 to 10 scale: 7 for longer intervals, and 8 to 10 for shorter intervals.

The best way to optimize your hard sessions, though, is by making sure you’re ready, physically and mentally, for the work you’re about to perform, says Grosicki. “Most recreational athletes will train somewhere between four and six times a week. Targeting one to two hard sessions on days when you know you’ll be sufficiently rested and will have the most energy is a good goal.” And by going easy enough on easy days, you should be ready to push yourself to the limit on hard days. 🏃