

FROM BASE TO RACE

When it comes to pre-race intensity work, less can be more



If you've been following any type of periodized training plan for the last several months, you're likely just wrapping up your "base" period of training. Now, you're looking to fine-tune your engine and hit some races. You can get yourself into race shape by building from that solid base of aerobic training with workouts that target higher-end intensity.

First, let's look at the basic differences between base training and high-intensity training. While base training is comprised of predominantly aerobic, sub-threshold and threshold rides, high-intensity training involves a significantly lower volume of work and, surprise, a markedly higher intensity.

After building up to a certain number of weekly hours or miles per week during base, some riders make the mistake of adding on high-intensity work. If you increase intensity significantly, you must decrease volume by a commensurate amount. To do otherwise will rapidly lead to overtraining, and eventually to physical and mental burnout.

FINE TUNE FOR YOUR TARGETS

The purpose of a period of high-intensity training is to provide the finishing touches on the previously built aerobic fitness and endurance. The specific type of training will depend on the events you're targeting. All professional athletes employ specificity training, which means defining the specific physical demands of an event, then training accordingly. For example, a track pursuiter may focus on starts and four- to five-minute intervals, while a criterium rider may concentrate on maximal power sprint efforts and intervals of 30 seconds to one minute with limited recovery. A road racer could focus on hard climbing intervals and increasing endurance. In all these examples, the riders are patterning their training after the specific demands of their targeted events.

In deciding which intervals are right for you, think about your strengths and weaknesses, as well the demands of your targeted events. All my clients perform various types of intervals throughout the year, if for no other reason than to ensure we're not neglecting any particular system.

With that in mind, here are three basic types of intervals to get your motor humming.

THRESHOLD INTERVALS

Power output at lactate threshold is the single most important determinant of success as a racer. Combine that with the relatively low "cost" of threshold intervals in terms of physical and mental stress, and it's clear that if you choose to do only one type of intervals, then lactate threshold intervals are the way to go.

There are several ways of defining "threshold," but let's define it here as maximal intensity (based on perceived exertion, power output and/or heart rate) that you can sustain for 45 to 60 minutes. Improving power output at this intensity is the Holy Grail for most racers. Intervals of 15 to 30 minutes, at an intensity right around lactate threshold, are the best way to improve your output at that intensity as well as the length of time you can sustain it.

A progressive program is a tried-and-true approach for getting faster. For example, begin with one 15-minute interval on week one, building up to two 20-minute intervals.

Your base training should have included some of this type of work. Remember, it didn't need to be structured interval training in a sterile laboratory. Maybe you're lucky enough to live in an area with climbs of that duration, or you have to go that hard to stay with your local kings and queens of spring, who already have their top race fitness weeks before the first training race.

VO₂ MAX INTERVALS

Once you have a few threshold intervals in your system, heat up your training schedule with some super-threshold intervals. These are shorter, more intense efforts that train different systems than threshold intervals. Intervals of three to five minutes at 10 to 20 percent above lactate threshold improve your VO₂ Max (the maximal amount of oxygen your body can use) as well as your ability to withstand high concentrations of lactate acid.

As intervals get shorter and more intense, be careful not to overdo them. While you can spend weeks doing longer lactate threshold intervals, super-threshold intervals have an exponentially higher "cost" in terms of recovery time. Don't plan on more than one or two of these sessions per week, for a maximum of three weeks.

Likewise, the amount of total work you will do in a single session will be lower than what you would do at lower intensities. If you built up to doing 60 total minutes of lactate-threshold intervals, you don't want to do more than 30 total minutes' worth of super-threshold efforts in a single session.

Some typical workouts in this category are six five-minute efforts with three- to four-minute recovery periods in between, or eight three-minute efforts with three-minute recovery periods. If you prefer the "controlled" environment, you can do these workouts on a trainer. But you can easily do them well outdoors, using a climb of the appropriate duration.

There are a few advantages to doing them on a climb: It's please turn to **page 90**

INTERVAL WORKOUTS

Threshold intervals

NUMBER: 2 to 3
DURATION: 15 to 20 minutes
INTENSITY: 91 to 105% of threshold, or HR zone 4
RECOVERY : 2 to 10 minutes

VO₂ Max intervals

NUMBER: 4 to 5
DURATION: 5 minutes
INTENSITY: 106 to 120% of threshold, or zone 5
RECOVERY: 4 minutes

VO₂ Max intervals, option 2

NUMBER: 6 to 8
DURATION: 3 minutes
INTENSITY: 110 to 120% of threshold, or zone 5
RECOVERY: 3 minutes

Anaerobic capacity intervals

NUMBER: 3
DURATION: 1 minute
INTENSITY: all out
RECOVERY: 1 minute

MILK: IT DOES A (CYCLIST'S) BODY GOOD



Study finds chocolate milk to be the ultimate recovery drink

At *VeloNews*, we often like to cap off a hard lunch ride with a chocolate milkshake. So we were quite pleased when a recent scientific study found chocolate milk to be a very effective recovery drink — more effective, in fact, than a certain sports nutrition product.

Exercise kinesiology professor Joel Stager has long known from experience why chocolate milk works well after

a hard workout: it's got a lot of easily digestible carbohydrates and protein, with some healthy fat, vitamin D and calcium thrown in for good measure. But the Indiana University professor recently put this common wisdom to the white-lab-coat test and published the results of the study — which was partly funded by the Dairy and Nutrition Council — in the current issue of the *Journal of Sports Nutrition and Exercise Metabolism*.

"Everybody has looked at recovery and sport nutrition from a designer or engineered-product perspective," Stager said. "But wait a minute, chocolate milk will work just as well."

Stager and his associates tested the recovery effects of Gatorade, Endurox and chocolate milk on cyclists, who rode long and hard to exhaust their intramuscular carbohydrate sources, then drank one of the fluids immediately after the effort and two hours later, then rode long and hard again. Stager measured the workloads of that second effort to determine the best recovery drink.

"Basically we found out that chocolate milk really did work, probably twice as well as the Endurox," Stager said. "I don't know if we have a complete explanation as to why, but it could be that even though caloric content was the

same, one could have a difficult time being absorbed through the gut. Whereas the other is absorbed but circulated and taken up by the muscle and stored."

Gatorade, surprisingly, did as well as the chocolate milk, despite not having any protein content.

Bob Murray, director of the Gatorade Sports Science Institute, called the inclusion of his company's product an "apples-to-avocados comparison."

"Milk and Endurox have three times the energy content and vastly different ingredients compared to Gatorade," Murray said. "Gatorade is formulated to deliver its benefits during exercise, while the other two drinks are formulated for post-exercise applications. But Gatorade did as well as chocolate milk, with both outpacing Endurox."

Stager agreed with the apples-to-avocados statement. "Gatorade is a fluid-replacement product," he said. "They are two different things. The comparison we were more interested in was Endurox."

Stager came up with his milk-versus-engineered-product idea years ago when coaching a high school swim team. During two-a-day practices, his kids often lagged in the second practice. "Then virtually by accident one of the kids

GETTY IMAGES

IMPOSSIBLE IS NOTHING

Thor Hushovd

adiStar Ultra

adidas.com/cycling

brought in a tub of a protein-something they had purchased," Stager said. "It looked to me like powdered milk with vitamins added to it. I walked the aisles in the grocery store, and came to the chocolate milk. It was pretty much the same thing."

So Stager tested the chocolate milk on his swimmers, requiring them to drink a large glass immediately after climbing out of the pool in the morning practice. "Everything changed," he said. "Kids that had struggled did well."

As for low-fat chocolate milk, Stager says forget about it — you need the calories after a hard effort. "At high intensity, almost all of the fuel comes from intramuscular sources," Stager said. "The key is, you've got about 45 minutes [after riding] while everything is ripe for recovery for the muscle. After that, it's hard to catch up."

But what about those chocolate milkshakes?

"Milkshakes work great," Stager said. "They are high in calories, carbohydrates and protein. When I was training for swimming, that is exactly what I did. It's easily digested and easily absorbed."

And oh so tasty.

— BEN DELANEY

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specific to the demands of repeated medium-length climbs in races, you coast or soft-pedal the descent for easily controlled recovery time, and if you're not using any kind of power meter or cyclometer, you can gauge the consistency of your efforts by how far you make it up each time.

Having a gauge for your efforts — whether a digital device or a physical landmark — is important so that you know when the workout ought to be over. Power-meter users can see when they're no longer able to maintain target power, heart-rate monitor users can see when their heart rate will no longer buoy up, and riders using landmarks can tell when their pace is slackening by physical progress.

Whatever method you use, the idea is to stop the workout when you can't continue at your target intensity. This ensures that you get as much quality training in each session as possible, without doing any extra work at lower, less beneficial intensities that only adds fatigue.

ANAEROBIC CAPACITY INTERVALS

The final type of interval you should consider is the nasty one. Anaerobic Capacity intervals last only 30 seconds to two minutes — but are performed at the highest intensity you can sustain. These intervals increase your ability to buffer lactic acid and ultimately use it as an energy source. Mentally, they help you become familiar with riding through the pain of high lactate levels. The effort is similar to

bridging a short gap to a breakaway, or attacking over the top of a climb. The same caveats apply regarding volume of work per session, and number of sessions at this intensity (*see chart*).

REST WELL TO RACE WELL

While it seems like I've included a warning not to overdo it in almost every paragraph here, the good news is that it doesn't take more than a few of these higher intensity sessions to get the kind of results you're looking for.

The biggest, most common mistake a rider can make when doing high intensity intervals is to do one workout, or even one interval, too many. This is known as "leaving your legs in training." Remember the goal is to have your best performances when you want them, whether that's for the Sunday club ride, the state championship road race, or the hill climb you've been targeting.

Most competitive cyclists don't have a problem doing hard work in training; they err on the side of training too hard, or pushing through too many hard interval workouts. One of the biggest services a coach can provide is telling athletes when they've trained enough and need to rest. Remember, you only benefit from training you recover from. **W**

JOHN VERHEUL (www.jbvcoaching.com) coaches cyclists of all ages and abilities, from Cat. 5 racers to national champions.



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