

The Best Running Workout You've Never Done

Matt Fitzgerald | For Active.com

The best runners have two key characteristics: a high VO₂max (i.e. a high capacity to consume oxygen during running) and great energy economy (i.e. the ability to minimize energy use during running).



One of the best predictors of running performance is a variable that puts VO₂max and economy together: namely, velocity at VO₂max -- or vVO₂max -- which is the slowest sustained running pace at which a runner reaches maximum oxygen consumption (or 100% VO₂max) in a standard "graded exercise test" performed on a treadmill. For example, suppose that during testing it is discovered that your VO₂max is 55 liters per minute per kg of bodyweight. If this rate of oxygen consumption is first achieved at a running velocity of 10 mph and shows no increase at higher running speeds, then your vVO₂max is 10 mph.

An improvement in either your VO₂max or your running economy will increase your vVO₂max (as well as the duration you can sustain this pace), and this, in turn, will improve your running performance in races more than any other factor. So what's the best way to increase your vVO₂max? Actually, the best way is simply to run a lot. But supposing you're already doing this, there is one specific type of workout that boosts vVO₂max better than any other, and chances are you're not doing it and you've never even heard of it.

The name of the workout is Billat's 30-30, after its creator, Veronique Billat, an exercise physiologist at the University of Ille in France. Several years ago Billat set a goal of trying to create workout formats that would allow runners to spend the greatest total amount of time at VO₂max and would therefore presumably produce the most powerful boosting effect on VO₂max and economy.

Billat deduced that runners seeking to maximize workout time spent at VO₂max should run at vVO₂max and no faster because they would fatigue more quickly at faster speeds. (Remember, vVO₂max represents the slowest running pace at which VO₂max is reached.) Her next move was a stroke of genius. Billat knew that a runner's rate of oxygen consumption remains at or near 100% VO₂max for as long as 15-20 seconds after he or she stops running at vVO₂max, or slows down from this pace. Billat realized that a well-designed workout could exploit this lag phenomenon to allow runners to further increase time spent at VO₂max.

The best way to do this would be to alternate short intervals run at vVO₂max with short "floats" (jogging recoveries) at perhaps half of vVO₂max. Keeping the hard intervals short would delay fatigue by preventing acid buildup in the muscles from getting out of hand. Keeping the floats short would prevent oxygen consumption from falling very far before hard work resumed.

The workout format she settled on was highly unorthodox, consisting of 30-second bursts at vVO₂max separated by 30-second floats and repeated to failure (that is, until vVO₂max can no longer be sustained for 30 seconds). In testing this format Billat found that some runners were able to amass more than 18 total minutes at VO₂max, almost one third of it occurring during their jogging recoveries! A group of moderately fit runners increased their VO₂max by 10% (that's huge) in just 8-10 weeks when they added twice weekly 30-30 sessions to their training.

The only question is, how do you determine your vVO₂max? The only sure way is to perform a graded exercise test in a laboratory environment. But you can get a close approximation simply by running a six-minute time trial on a track. Divide the total distance you run in six minutes by 12 to get the distance covered per 30 seconds. Suppose you run 1,720 meters in your six-minute time trial. 1/12 of this distance is 143 meters. This is roughly how far you should run your hard 30-second intervals in your 30-30 workouts.

Here are some other guidelines:

- Warm up with 10 minutes of easy jogging
- Set the countdown timer on your watch for 30 seconds and reset it immediately at the beginning and end of each interval
- Run 30 seconds at your $vVO_2\max$ (control your pace by trying to cover exactly 1/12 of the distance you covered in your six-minute time trial)
- Jog 30 seconds at roughly half $vVO_2\max$
- Repeat this process until you can no longer cover the designated distance at $vVO_2\max$ (16-24 intervals are the norm)
- Cool down with 10 minutes of easy jogging
- Do this workout once a week for four to six weeks beginning right after you've completed your winter/spring base building. (Expect to see the number of intervals you're able to complete gradually increase from session to session; expect to see your pace increase gradually as well)
- After four to six weeks, switch to a 60-60 format for four to six weeks
- After another four to six weeks, switch to a format of five, three-minute intervals at $vVO_2\max$ with three-minute jogging recoveries for four to six weeks

Matt Fitzgerald is the author of several books on triathlon and running, including [Runner's World Performance Nutrition for Runners](#) (Rodale, 2005).