

When and How to Do Hill Workouts

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Frank Shorter once said that hills are speed work in disguise. Dennis Barker, head coach of Team USA Minnesota, agrees, which is why he's an advocate of using different types of hill workouts throughout the training cycle. Barker says, "I really don't know any real good runners out there today that don't do some form of hill training."

Let's take a look at three types of hill workouts and why you would choose one over another, along with when you should hit which type of hill during a training cycle. Long or short, steady climb or a steep rise, there's an incline out there for everyone.

1) HILL SPRINTS

Short and steep is the name of the game here. The main mission of a short, steep sprint session is to improve overall power, increase efficiency and develop speed safely. Barker likes to use this workout with all his athletes as a means of maintaining speed during the fall base-building period.

"We don't want to get too far away from any speed," says Barker. "So once a week we do short hill sprints of about 100 meters, just to give our fast-twitch muscle fibers some stimulus."

This is accomplished with 12 to 24 repeats of an abbreviated all-out effort on the steepest hill you can find, about a 10 percent grade according to Barker. Only 15-20 seconds in duration, these short sprints can be used once or twice a week throughout the training cycle as a workout by themselves, or they can be combined with a longer threshold workout, such as a 10 to 15K tempo run followed by 10 100m uphill sprints.

"These work your core, your hip flexors, abductors, adductors, lower back, hamstrings -- all that," says Barker. "If you're just doing mileage, your fast-twitch muscle fibers don't get a workout."

While it's imperative that you hit the hills hard on the way up, be sure to take your time on the way back down. Jog quite slowly or even walk down the hill so that you're recovered enough to sprint the next repeat.

"They're pretty short and the hill is steep enough that after four to five it starts to feel more like leg presses," Barker explains. "I'm not too concerned about recovery. We keep [the sprints] short, because anything over 100 meters and you start to lose form."

2) HILL REPEATS

Anaerobic in nature, repeats of 1 to 2 minutes in duration on a moderate grade not only constitute a solid workout during the early phases of training, but also strengthen all of your systems and prepare your body for more race-specific work later on in the training cycle.

"With these we're getting into VO2 max work," Barker says. "It's a good transition between a base phase and a racing phase."

The intensity here is on the high side, at 3K to 5K effort. (And remember that word "effort"; your pace, of course, will be slower because of the hill.) Take a full recovery in the form of an easy jog back down the hill. If your heart rate is still humming at the start of your next repeat, keep jogging on the flat until you're feeling recovered.

Of course, you can always run longer and get stronger by hitting a hill for 2 to 4 minutes with a little less effort, say 10K to half marathon intensity. Jog back down the hill for recovery and repeat

the process six to 10 times to achieve maximum benefit. Implemented after the introductory phase of the training cycle, this longer type of repeat workout will lead to an immediate spike in stamina and can be used in place of flat medium-range intervals such as 600-1200m repeats on the track.

"Hill repeats start getting that system working a little bit more," says Barker. "And you get the added strength of doing the hill, so once you get on the track it doesn't feel so bad."

Given the nature of the workout, the recovery between reps will be lengthy, but necessary. Start with two repeats in the first week of using such a workout, and safely work your way up to 10 by adding one or two reps each week.

3) ROLLER COASTER RUNS

Too tired to finish strong at the end of your races? Then it might be worth your while to try taking on a series of undulating hills during some of your longer training runs. Most appropriately used by marathoners early in the training cycle, a longer run that takes you up and down a series of steady hills strengthens your aerobic system and improves your ability to avoid falling apart at the end of a long race.

"We have a 2 1/2 mile route that involves a lot of climbing, and sometimes we'll do a straight run of up to 15 miles on it," Barker says. "Jason Lehmkuhle did that run quite a bit when he was prepping for the Olympic trials because the race was in Central Park and it was a rolling course. He felt pretty good the entire race and was able to finish well [fifth, PR of 2:12], and I think a lot of that goes back to those long, hilly runs."

For the marathoners he coaches, Barker favors these longer, hilly runs over a session of hill repeats because of the constant terrain changes that more closely simulate race-day conditions.

"In addition to the uphill, there's also the downhill," explains Barker. "So you get the eccentric and concentric work on your legs. What a lot of people face in the late stages of a marathon is that their legs just give out, so when you do that kind of work in training it gives you a lot of confidence going into the race."

FORM CHECK

When hitting the hills, whether you're running repeats or attacking an incline during a race, a little focus on form goes a long way.

"The focus is on using a full-out sprint, running tall and getting your foot plant under your center of mass," coach Dennis Barker says.

When sprinting up short hills or running repeats, it's inevitable that fatigue will set in and your form will start to fade toward the end of a workout. According to Barker, this is the perfect opportunity to practice mimicking the mechanics you'll use at the end of a race.

"It should simulate the effort you're going to put out in the last 100 meters of a race because you're working all the muscles you would use for that in a similar way," he says.

In addition to specific hill workouts to improve speed, power and efficiency, Barker has his athletes do some basic bounding drills on an incline to fine-tune their form.

"The primary focus is your form, where you're trying to take quick powerful strides off your forefoot and really drive your knees and arms strongly," Barker explains. "It's the kind of thing where it develops speed and power but it doesn't have that anaerobic quality of hard running up the hill."