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Running Basics: Hills and Elevation

by Julia Malacoff
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Once you've got running form, terrain and distance down and a race is in your future, you should start to play with elevation. Whether you run on the road or trail, it's likely you'll naturally encounter hills during your training.

Even if you live somewhere very flat, you may want to include hills in your treadmill workouts. The benefits of running hills are too great to be ignored, according to Molly Armesto, a running coach and founder of All About Marathon Training. "Running hills can decrease your risk of injury, strengthen your leg muscles, increase your speed and improve your stamina."

That said, hills can also be stressful on your body. "Slight elevation gains over the duration of the entire run will likely go unnoticed and have little effect on your overall run" explains Alexandra Weissner and Cortney Logan, RRCA-certified running coaches and founders of bRUNch Running. "However, if you are running a hilly route that has a quick increase in elevation over a short distance, you will most definitely notice." The biggest issue? "If you're not careful or familiar with running hills, your form can be compromised and you can hurt yourself."

Ahead, running coaches share their top tips for conquering hilly runs.

Particularly if you're new to running hills, it's best not to go all out right from the beginning, experts say. Here's what you need to know to get started:

1

START SMALL

"Running hills too often can promote overuse injuries such as shin splints," Armesto explains. That's why beginning runners should include them in their running routine only about once per week. "As your body adapts to running hills, you can gradually increase to 2–3 times per week."

2

PRIORITIZE RECOVERY

"Give your body a bit more recovery after a hilly run, whether that means taking a day off or running slower than normal on the following day," Armesto advises.

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UP YOUR MENTAL GAME

"When running a hilly route, take it one hill at a time," Armesto recommends. "Hills can really take it out of you and cause discouragement if there are a lot of them. Stay mentally focused and talk yourself through each one. Tell yourself what you want and need to hear. Your mind is a powerful ally when tackling hills if you use it to your benefit."

4

PRACTICE MAKES PERFECT

"The best way to learn how to run on uphill/downhill routes is to simply practice," says Steve Carmichael, founder of RunBuzz and a USATF and RRCA-certified running coach. "If you are normally a flat-land runner, find some hills and try doing some hill repeats. Not only will you be able to practice your form, but your legs will also get stronger, and this can carry over greater endurance when running hilly routes."

There's no getting around it: Running uphill is hard. "Getting up a hill can be a challenge for any runner," Weissner says. "Walk if you need to."

If you choose to run, keep your posture in mind. "Be careful not to slump or lean too far forward on the way up," Armesto says. "You will experience a greater push off the ground if you keep your posture erect and aligned. This will keep you from having to fight gravity the whole way up."

You can also recruit your upper body to help you power your way up. "Swing your arms in an exaggerated movement when heading uphill," Logan suggests. "By doing so, your legs will naturally move faster and the swinging motion will help to propel you up the hill."

Experts also recommend shortening your stride and increasing the frequency of your steps. "Taking long strides will drain you of energy that could be conserved, while more frequent steps means you will be able to go faster with less impact being transferred to your body," Armesto explains. It's also important to aim to keep the heels of your feet under your knees. "Don't allow your foot to extend out beyond your knee. You are already placing a good amount of stress on your knee joint by just running up an elevation, so don't accentuate the stress by striking your heel out in front of your knee."

As you ascend, be sure to check in with yourself. Armesto recommends asking yourself some simple questions to assess how things are going: How is my breathing? Where is my foot landing? How do I feel? If anything is amiss, adjust accordingly.

It might seem like a good idea to speed up when running downhill, but this is a recipe for disaster, Armesto says. "Never increase your pace when running down a hill," she advises. "You will be overworking your muscles to act as brakes, which increases your risk of injury. This is especially true for beginner runners."

To help keep your speed under control when running downhill, use smaller steps and keep your feet close to the ground, which helps prevent your joints from taking a beating, Armesto explains. It's also a good idea to listen to your steps. Are they loud and heavy? Or soft and light? "Try to minimize the sound you make," Armesto adds.

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Downhill running is also a chance to recover from running up the hill, which is another reason to keep your pace on the slower side.

Lastly, don't increase your stride length. "Many runners extend their landing foot too far out in front of their body when they are coming down a hill," Armesto says. But this can compromise your form. "Keep your foot right under your center of mass and take short, quick steps."

If you live near the mountains or travel for races, you may encounter high elevation. If you're running at anything higher than 4,000 feet above sea level, you're going to feel a difference in stamina compared to lower elevations. That's because there's less oxygen available at higher elevations, meaning less oxygen is being delivered to your muscles as you expend effort. Simply put, this makes running feel harder.

If you usually train at a higher altitude, you'll notice going to a lower altitude is no problem. On the flip side, if you normally run closer to sea level and want to run at a higher elevation, you should be mentally and physically prepared for your run to feel significantly more difficult than usual.

First, know that you have options. "When possible, the best way to prepare for running at higher elevations is to acclimatize and train at elevation," Carmichael says. "Training at high elevations is a great way to optimize the cardiovascular system. In fact, many professional runners train at high altitudes and then race at lower altitudes to get a competitive advantage with their training." The acclimation process takes 4–6 weeks, though, so if you don't have time, here are some other ways to reduce the effects of altitude:

1

STAY WELL-HYDRATED

"You will feel the effects of high-altitude running through increased rate of breathing," Carmichael explains. "This means you will lose more fluid through breathing and you can easily become dehydrated if not careful." For this reason, you should also avoid alcohol leading up to a high-altitude run.

2

RUN SLOWER

"If you are not used to running at elevation, you will likely need to slow your pace or even walk at times," Carmichael says.

3

RELAX AND HAVE FUN

"Just because you are not used to running higher elevations does not mean you can't," Carmichael points out. "You just have to change your expectations. The beauty of most high elevations will make up for any decrease in performance. Embrace the beauty around you and stay positive."

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