

WHY DO HILLS MAKE YOU STRONGER?

You've probably read countless times in running magazines that hills make you stronger. Many times in these writings, personally, I haven't seen very many good explanations as to why hills make you stronger. It is a fact that they do, but I believe in telling people why. In my experience, telling people WHY they should do something a certain way makes them more likely to do it.

Here is the answer: Yes, hills make you stronger, and training on hills will make you run hilly races better. That part is probably easy to understand, but here is another twist. Doing leg extensions correctly (i.e. strength training for the lower body) will also make you run hilly races better for the same reason. This is the part that runners need to understand. Hills make you stronger for the same reason that doing leg work does. That reason is the fast twitch muscle fibers get stimulated because the intensity is HIGH enough, and the fast twitch muscle fibers respond by getting bigger (stronger). Period. It's that simple. Does this mean that running track makes you stronger if you run your repeats at a high enough intensity (greater than 90%)? YES. That also works the fast twitch muscle fibers, thus making you stronger.

Just for a refresher, let me back up. You have two types of muscle fibers, and one of them is further broken up. You have slow twitch muscle fibers (type I), which propel you when you are in your aerobic metabolism. And you have fast twitch muscle fibers (type IIA and IIB), which propel you when you break into anaerobic metabolism. The type IIB fibers are purely anaerobic and fatigue very rapidly (usually within 90 seconds), and the type IIA fibers take on some slow twitch tendencies (with training) and can sustain a longer effort. The type IIA fibers are the ones that really come into play as you start getting close to your anaerobic threshold. Did I confuse you enough? The important part of this article is this: It is the type IIB fibers that are responsible for strength. They're the ones that help you climb those hills and lift those weights. What determines which and when certain muscle fibers get called in? Very simple -- When the intensity rises, you begin to recruit more muscle fibers. So, as it gets harder, the fast twitch get called in as reinforcements. So the bottom line is this: Any time you do anything to train the fast twitch muscle fibers (type IIB), whether it be proper leg strength training, hills, or speed work, you're making your legs stronger.

So, should you just do strength training to be a better hill runner? Yes and no. Yes, strength training will make you a better hill climber. Those who know me know my quads are very big (through both genetics and years of strength training), and even if I haven't done any hill training specifically, I can still get up a hill faster than most. But also, the answer is NO, because you have to consider specificity as well, which means you should specifically train in conditions you'll be racing. And the biggest reason why hill training is important is because there is a way to run hills. In other words, you can improve your technique of running hills to run hills better, and the weight room won't teach you that. For example, on the way up the hill, you should shift your weight forward and land on your toes. You should also take short, choppy steps while climbing, and put your emphasis on stride rate versus stride length. Going down, it's the opposite. You should lean your weight back and land on your heels. Going down, take advantage of your body weight and stride out. Really lengthen your stride. Practicing this will

really help you become a better climber. Plus, running hills builds your body up for the pounding. Going down a hill puts a great load on your skeleton, so you want to prepare your bones and soft tissue for this pounding. You do this like you do everything else... Through graduated overload, which means do a little more hill work each workout and build it up slowly.

Here is a plan for becoming a better HILL runner:

- Run hills either once per week or every other week. I think rotating them every other week with tempo runs is a great mix.
- Treat them as a hard day, so either do an easy day, X-train day, or off day the day before and day after.
- You can play with the grade and length of the hill, but a simple rule of thumb is if you're going to be racing on short, steep hills, then practice on short, steep hills, and if you're racing on long, gradual hills, then practice on long, gradual hills.
- Ease into hill training. Start with one or two and build each week. You must, of course, consider the length of the hill, but on the average, work up to doing 6-10 repeats.
- Push your body into your anaerobic zone on the way up the hill (it shouldn't take much).
- Go easy on the way down. There is no point in running hard down the hill. Save that for the race. Recover on the way down.
- Continue or start to strength train. Take a direct route to stronger legs by working them in the gym. The best mix is leg press, leg extension, and leg curl.