

Running Efficiently

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So you want to run a bit faster, or maybe you want to run a lot faster. First it may help to understand that two factors determine your speed; stride rate (the frequency of your stride, or how often you take a stride) and your stride length (the length of each stride across the ground. As you'll see later this isn't the same as how far your legs move in relation to your body). You could take the combined approach of trying to increase both your stride rate and stride length at the same time. However, you may find the combined effort of this approach too severe (at least initially). You'll likely run quicker, but not for very long as you'll tire too quickly to get any training affect. You need to allow your body to adapt to the stresses of running faster and do it in a way that incorporates good technique.

Stride Rate

I like to work on stride rate first with my athletes as this establishes both proper running mechanics and aerobic efficiency. Aerobic efficiency is critically important as that allows you to hold on to your new speed for longer periods of time. How does stride rate affect running mechanics? Running with a higher turnover (stride rate) allows you to do the following:

- establish a slightly forward leaning body position,
- produce a footstrike position closer to the centre of your foot and under your body,
- use less energy per stride,
- rebound quicker off your ground-contact leg,
- decrease vertical oscillation,
- increase forward propulsion

I'll break each of these down in the following paragraphs but focusing on stride rate forces you to abandon premature thoughts of speed and instead establishes a good foundation for future running speed gains. You will run slower initially until you adapt to the new running stride. Increasing stride rate first allows your cardio-respiratory system to become accustomed to the increased aerobic demands of turning your legs over quickly. This mimics the base-building phase of your entire training program. Get your system accustomed to working out at a higher frequency (despite how small your stride length may be initially) and then increasing your stride length is a simple matter of increasing strength and then range of motion.

A Higher Cadence

As I indicated above, turning your legs over faster will lead to many positive changes in your running form. To begin with taking more steps in the course of a minute (without a corresponding increase in ground speed) will require you to shorten your stride length, which is exactly what we want to happen when establishing this new running pattern. Initially, I find people do very well running on a treadmill to establish the feel for an increased stride rate. Once you set the speed of the treadmill you don't need to worry

about increasing your stride length along with your increased stride rate. If you did you would run off the front of the treadmill. The constant speed in effect ensures that an increasing stride rate will result in a shorter stride length. As mentioned this shorter stride length will bring your foot strike more beneath your body. This will allow you to run over top of your feet rather than onto them.

Work on getting your running cadence (number of times one foot hits the ground in 1 minute) as close to the low 90s (or higher) as possible. If your stride rate is higher than this then you're doing well already. As an aside, all top runners have stride rates in the 90s. It doesn't matter how tall you are, if you want to run fast you have to get your stride rate up. The winners of all the top running races in distances from 1 mile to the marathon are (including triathlons) between 92 and 104 strides per minute.

Now counting your strides for a whole minute is tough. I have a hard time counting and keeping track of numbers when running/racing. To make it easier to count your strides, time yourself for 20 seconds and try to get to 30 or 31 strides for one leg. Don't worry if getting your stride rate up takes a few weeks to feel comfortable with. It's a fundamental part of running fast so keep at it. At the start of this process you will need to shorten your stride because you shouldn't be running faster right now. Starting your high cadence work on the treadmill is ideal as it maintains a constant speed and ensures that you don't take a longer stride along with your higher stride rate. If you did, you would run off the front of the treadmill. I only want you to work on one speed variable at a time right now, so stick with the stride rate. Let the hill work you'll do later in the training cycle boost your ability to increase stride length.

Land Under Your Body

Running onto your feet creates minute braking actions at every footstrike, not what you want when trying to go forward. Try to land with your foot underneath your body. Imagine your body as a ball. The centre of mass of a ball is directly over where it contacts the ground. If your foot lands out in front of your body then it will slow you down. Instead of running heel to toe try to land on the front part of your heel or the mid foot; not as far forward as the ball of your foot though.

This forward position also allows you to get off your feet quicker and thereby shorten the time your foot is in contact with the ground, but as you'll see below you need to lengthen your stride by getting your legs farther behind you at the back end of the stride. By decreasing the ground contact time you'll be able to generate more power to be used later in increasing your stride length. In fact, once you start this you'll probably find that your shorter stride (from the front) and the resulting power generation will have you feeling like you want to just open it up. Go easy though, maintaining that higher stride rate is quite aerobically challenging. You need to focus on your new higher stride rate on ALL your runs in order to ingrain it into your new running form. Your aerobic system will also have to adjust to the increased load due to the higher turnover. Once that is

established though you'll be able to increase the strength component of the stride and eventually the length of your stride.

Actively Pull Back

As your feet make contact with the ground make sure they are moving backwards, almost like a bull pawing the ground. Remember every action has an equal and opposite reaction so ensure your foot is moving backwards just as it hits the ground. The action will encourage your body to get pulled forward over your foot.

Drive back far enough

Most people don't drive their rear leg far enough behind them. Since I'm asking you to shorten your stride at the front you'll want to extend a little bit farther behind you. Try to ensure that your hamstring extends behind your glutes a bit. This will allow you to come off your foot with it farther behind you, ensuring you drive yourself forward and not up. Tight hip flexors will make it difficult to extend properly so ensure you stretch your hips regularly.

Shorten That Leg

Your feet should have the sensation of moving up and down as you run and not really forward and back. By bending your knee as you drive your leg forward you will reduce the effort required to return your leg forward (don't shuffle with feet low to the ground). Try this exercise. Stand upright with nothing around you. Stand on your left leg and with a straight right leg swing your right leg forward and back, increasing the speed of the swing till you're swinging your leg as fast as you can. Take note of all the force that's being put through your body. Feel the torque and the resulting requirement for your arms and other body parts to have to shift around constantly to counteract this swaying force (not something you want to be doing while actually running). Now, without decreasing the effort level of your swing, bend your right swinging leg at the knee. Feel 1) how much more quickly you can now move your leg, and 2) how much easier it is to move your leg back and forth (less torque through your body). So if you're out on a run and shuffling along, you're likely putting a whole lot of unnecessary energy into moving your legs forward. Bend them a bit more and you'll be able to get them forward quicker (which will help your stride rate) and with less required energy.

This principal also applies to your arms as they swing. Establish a bent elbow angle and try to maintain that angle, without opening and closing the elbow angle as you move your arms forward and back.

Shorter Impact Duration

This is a great one. Studies out of the UK have shown that reducing the time your foot is in contact with the ground by only 100ths of a second can shave minutes off your race times. Of course the time saved depends on how efficient you are to begin with. The

bottom line though is if you do nothing else but get off your foot faster while running you'll be able to generate more power in your stride and ultimately increase your stride length. So the quicker you can get on and off your feet the more force you will be able to direct into the ground which will in turn allow you to move forward faster. So think quick light steps.

Stay Smooth

Run smoother and you'll direct more energy towards moving you forwards rather than up and down. My Dad was a pro cyclist back in England and into form and efficient movement. I remember him telling me years and years ago about a Russian running coach who would have his athletes run through a tunnel that was just barely taller than his athletes (only an inch or so over their heads). As they learned to run through the tunnel without bouncing up and down too much he would gradually lower the height of the tunnel for each athlete, till the tunnel was just barely above their heads. They would have to run smoothly or they would take the top of their heads off. Running smoothly basically allows you to conserve energy, as you aren't directing energy to move up and arrest your resulting plunge back to earth. The saved energy is therefore available to allow you to run longer, faster, or both. To run smoother focus on driving forward as you push off with your rear foot rather than pushing up. Because you'll be taking shorter strides, at least initially, you won't need to jump as high into the air to allow for your leg to get forward to catch you for your next stride. Think SMOOTH=SPEED.

Use Your Hands

You can use your hands to control the speed of your legs. If you move your hands in a relatively large range of motion then it will take a correspondingly long time for your hands to travel that distance. Shortening your hand movement pattern will allow you to speed up your hands as you will be able to move through their range faster. Once you do this then your legs will also increase their turnover in order to maintain synchronization with your hands. So faster hands means faster feet.

One other Thought

Keep your upper body as smooth and quiet as possible. This starts from the hips and works it's way up. Stay relaxed and smooth and try to move your arms more forward and back rather than across your torso. Along with that, try as much as possible to keep your hips and core area firm. Don't let your hips sway from side to side or dip down as the associated hip strikes the ground.

Happy running.

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