**Running Speed**

Running Speed = Stride rate x stride length

This is a simple formula. To get faster one or both of these must increase.

**Cadence =Stride Rate**

Dr. Daniels noted in his book that olympians who raced 800 meter races and longer ran at least 180 steps a minute in the race. It has also been noted that many pros run 180 for early segments of distance races and then increase to 195-210 steps per minute in the last portions of the race.

Is 180 magic number? Probably not, but being close to 180 on your runs has benefits. 176-185 would be a good range to be in.

* Less chance for injury as you take lighter steps (less shock to legs and body)
* The foot will land closer to your hips or under your hips with the knee slightly bent. This will allow your stride to lengthen in the back and allow easier and “**bent knee”** will give extra energy to push as it extends straight
* An “**Easy run**” cadence at 180 mimics the race cadence better. Most people run around 180 at some point in the race but can’t keep it up because they are not used to the high cadence (Fatigue) in their daily runs. .

**Improving Cadence**:

**Form**: Run tall with hips under your abs, drop your foot soon after it comes past your hips moving forward. Land with bent knee. It's a light step on the easy run.

**Metronome Running**: Use metronome on short easy runs. You have to be deliberate and pay attention closely to do it correctly.

Metronome Stride

**100 Up** : Run in place for 100 steps with Metronome set to 180. You will notice the knees can’t come up really high to keep the cadence.

**Down hill sprints**: make sure its a slight down hill too steep will leave you sore.

**Treadmill running:** This helps because you take light steps on the treadmill as you do not push your body due to the belt moving under you. . I have noticed people's cadence usually goes up on treadmills. This is good cross training for running.

**Cycling**: Use the smaller chainrings when riding the bike to work on faster turnover. Going 100-120 on the per revolution amounts to over 180 a minute for running.

**Running Drills**: High Knees, A Skip, Fast Feet, butt kick are few running drills that can help you

**Stride length**: The distance covered in 2 steps while walking or running

It is easy to see that the longer stride is helpful in running speed. The catch is for the common runner lengthening the stride comes at the expense of the stride rate (cadence).

Remember that “**reaching forward**” is “**not**” the way to increase stride length because it causes you to produce a larger “braking action” to your speed

**Pelvic Tilt:** Anterior (forward) pelvic tilt can have an effect on stride length as the stride length is shortened and inhibits the gluteal muscle group.

Nice article on what pelvic tilt is and how to fix it. <https://builtwithscience.com/anterior-pelvic-tilt/>

Better **hip flexibility** will allow for more hip extension which helps the stride lengthen.

**Hip drills we already do**:

HIp Flexor stretch

Knee to Chest bridge

Marching bridge

**Strides:** Running strides consistently helps increase stride length**.**

**Weight room**: Exercise we do in the weight room helps strengthen the legs so that stride length gets longer as we run or race. Weight room also helps us avoid injuries which stunt progress by keeping us from being consistent in training.