3880 E Sierra Madre Blvd
Pasadena, CA 91107
626.351.8951

What Is Cadence and Why It Matters to Runners

by Kevin Gray

most sports, running is rife with buzzwords. From VO2 max and vertical oscillation to pronation and supination, it's a lot to track. While you don't actually need to learn any of those words to lace up some shoes and pound the pavement, there's one term in particular that impacts every run, whether you know it or not, and that's cadence.

WHAT IS CADENCE?

"Cadence is the human version of rotations per minute," says Jeff Knight, Under Armour senior exercise scientist. "It's the number of times that your foot hits the ground in a set period of time — traditionally one minute."

HOW DO YOU MEASURE IT?

To find your cadence, just run at your normal pace and count how many times your feet hit the ground over the course of 60 seconds. To make it easier, you can count how many times one foot hits the ground and multiply that number by two. It's important to run at your standard pace, as running faster or slower causes your cadence to increase or decrease, respectively, and won't give you an accurate read of your typical cadence.

If running and counting simultaneously isn't your strong suit plenty of devices measure cadence, including smart watches, phone apps and connected shoes like the Under Armour HOVR running shoes.

WHAT IS THE IDEAL CADENCE?

Many coaches and running experts believe the most efficient cadence is around 180 steps per minute, but the truth is this number varies by individual. A runner who is 6-foot-4 will naturally have a longer stride and different cadence than a runner who's 5-2, for example. But even beyond height and other factors like age, gender and pace, no two strides are exactly alike.

A 2017 study performed by the Department of Exercise Sciences at Brigham Young University found all runners — experienced and novice alike — tend to naturally select a stride length that is optimal for minimizing their oxygen uptake. So, score one for humans. But that doesn't necessarily equate to finding a stride that's the most efficient for your body and bones or one that improves as you become a better runner.

"People are good at finding the right cadence for their normal pace," says Knight. However, he adds that if someone does need to adjust their pace, it's typically because they're on the low end of the spectrum.

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HOW TO INCREASE OR DECREASE YOUR CADENCE

"The best way to play with your cadence is on a treadmill, where you can adjust your cadence without adjusting your pace," says Knight. It's still possible while out on the road, but you have to be vigilant in maintaining a steady pace while increasing or decreasing your cadence, which can be difficult, especially for beginners.

If you're trying to increase your cadence, he suggests pumping your arms faster and trying to make "quiet" steps, which leads you to take shorter, quicker strides. If want to decrease your cadence (a rare situation), do the opposite, focusing on longer, slower strides.

Whichever route you take, Knight advises making gradual adjustments over the course of multiple runs. "Going from 170 to 190 might cause too much stress on your body," he says. "If something doesn't feel right, then maybe it's not for you."

WHY CADENCE MATTERS

Regardless of your skill level or speed, there's a good reason to find the right cadence for your runs. That's because there is a direct relationship between cadence and energy expenditure, says Knight. "If your cadence is too high or low, your run won't be as economical as it could be." And even beyond efficiency, you've got your health to think about.

"If you increase cadence, stride length decreases and vice versa," says Knight. "Studies show that if stride length gets too long, it puts extra stress on your bones." Running at the optimal cadence for your body can help reduce injuries and keep you on the road for years to come.