



---

# Optimizing Efficiency Is Paramount For Runners

by [Ashley Lauretta](#)

Being an efficient runner doesn't happen overnight and is something runners need to work on every time they run — even the pros need to focus on it throughout their entire careers. But what exactly makes a runner efficient and why does it matter? We talked to the experts to find out everything you need to know about testing — and improving — your running efficiency.

## PHYSIOLOGICAL EFFICIENCY

Running efficiency is usually assessed from a physiological standpoint. In that case, it all comes down to oxygen. The less oxygen your body requires to go longer distances, the more efficient you are. According to Scott Saifer, MS, head coach at [Wenzel Coaching](#), it matters because your body's ability to absorb oxygen to deliver to the muscles can be a limiting factor for performance.

“The runner who can cover the most distance for the same amount of oxygen is the most efficient,” he explains. “Another way to look at it is if several runners use oxygen at the same rate, the one who can go the fastest is the most efficient — or if several runners go the same speed, the one who uses the least oxygen is the most efficient.”

## BIOMECHANICAL EFFICIENCY

Efficiency can be looked at from a [biomechanical standpoint](#) — and it turns out improvements in this area can positively affect you physiologically. This involves having better technique — which Ryan Bolton, owner and founder of [Bolton Endurance Sports Training](#), explains involves your posture, [arm swing](#) and [foot strike](#), among other things — to train your body to handle the workload of running.

“Studies have shown that runners innately make micro-adjustments over time that do make them more efficient,” Bolton notes. “These biomechanical micro-adjustments lead to increased physiological efficiency. This takes years, but with work, a runner can become more and more efficient as they get more and more experience and miles under their belt.”

So how can you find out how efficient you are — and what should you do with that information to make improvements?

## THE TESTS

The most accurate way to test your efficiency is to do so from a physiological perspective and most experts will point you to testing performed in a controlled environment like a lab or fitness center. Saifer shares the VO2 max test involves running in a lab while wearing a mask that measures oxygen consumption — and this type of metabolic test provides you with some key metrics to see how your body performs in various conditions.



**La Salle**  
COLLEGE PREPARATORY

## Track and Field

Coach C. Ring '01

3880 E Sierra Madre Blvd  
Pasadena, CA 91107  
626.351.8951

---

“A few parameters that these tests identify are VO<sub>2</sub>, respiratory exchange ratio (RER) and heart rate measures at certain workloads,” elaborates Bolton. “VO<sub>2</sub> is a measurement of how efficient an athlete is at utilizing oxygen in the muscle — measured in milliliters of oxygen per minute per kilogram of body weight — while RER measures how much sugar and fat an athlete uses at different workloads.”

If you don't have immediate access to a facility that offers this testing, Bolton shares that the next best thing is testing from a biomechanical standpoint with a power meter. This involves more work on your part to track your power throughout different training runs, but ultimately, the lower the power registered at the fastest possible speed, the more efficient you are.

### WAYS TO BECOME A MORE EFFICIENT RUNNER

Once you've found a way to test your current running efficiency and have your benchmark, what should you do next? Well, you can make biomechanical improvements in your everyday routine which, as Bolton noted above, leads to physiological improvements you should see in future testing.

According to Saifer, the most important thing to do is avoid overstriding. “[Make sure] the ball of the foot is never in the ground forward of the belly button,” he notes. This specifically helps prevent [overuse injuries](#). In addition to this, both Saifer and Bolton encourage runners to build a solid base in their training and be consistent. Bolton says this alone leads to big physiological jumps. “VO<sub>2</sub> max will rise, heart rates will be lower at heavier workloads and an athlete will cover more ground over shorter periods of time,” Bolton adds. “That's efficiency!”