



## POWER IS EVERYTHING

Why power monitoring is becoming an important metric for runners

BY BRIAN METZLER

In the modern age of wearable tech, as it has begun to unfold, a new measurement technology has the ability to revolutionize the sport for runners: the power meter.

Coaches have used power meters since the 1980s to accurately measure how much power a runner is outputting and how that effort correlates with their physiology. Power is the primary metric for cyclists, although, granted, it's a much simpler concept to understand on a bike—essentially a function of how much force is being exerted on the pedals, crank and rear hub to make it move.

Power meters for runners—and the corresponding training protocols based on power output—have only become available in the last few years. So the art and science of using power for run training are still very much in their infancy. But those closest to the new technology—including pioneering coaches and elite athletes who are already incorporating power into their training—believe it to be a very important metric for running.

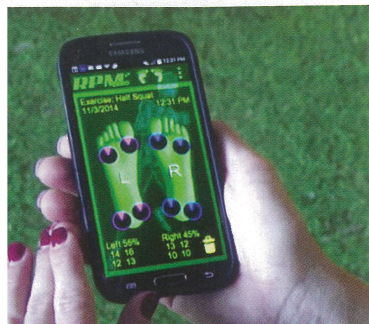
“What we need, clearly, is a better way to measure the stress we are inflicting on our daily training routines. And that’s exactly what the power meter provides, and it is why the power meter has the potential to revolutionize your run training,” says elite-level running and triathlon coach Jim Vance, author of *“Run with Power: The Complete Guide to Power Meters for Running.”*

“With a power meter, you can measure your performance and training stress more precisely than ever before,” Vance says. “No longer will you wonder whether you are meeting the intensity, recovery, pace and volume goals of your training plan. Instead, you will erase any doubts about your training, and you will be able to monitor changes and improvements in every aspect of your running fitness.”

Up until recently, the only way running power has been measured has been via a laboratory setting utilizing ground impact force plates. However, recent advances in 3D motion sensor technology have led to

the development of portable running power meters with a multitude of accelerometers that gauge the forward, vertical and lateral force on a runner in motion. In other words, these new devices measure how much energy it takes a runner to move through space.

Why is power potentially so, well, powerful? First, power can allow runners to precisely manage their training intensity—no matter if it’s during a hard workout such as a 6×800-meter interval session, a long progression run, a hill workout or even a short recovery run. Tracking power output can reveal precisely how hard a workout is as it relates to physiological markers such as lactate threshold. It’s one thing for a runner to run a 6×800 track workout “hard” but it’s quite another to understand exactly how much power is being applied and how much should be applied as prescribed by the workout. That kind of precision can help athletes train better, recover better and ultimately compress training cycles, Vance says, as



s and athletes learn how to get more from every workout.

ndly, power—and only power—can unner monitor efficiency. That’s pos- / showing how both immediate form during a run and long-term changes ning mechanics (based on form ncreased strength, higher cadence 1 better footwear) can allow a runner with less power output. If a runner rn and train to run at the same pace 3ss power output for a given distance ersistent basis—whether it’s a 5K or a on—it means that runner is becoming efficient. The longer the race, the more ant efficiency becomes.

, a runner can use power to optimize and performance by using real-time monitoring to understand the physio- demands of a workout or a race. Unlike ite or running pace (which have limita- nd monitoring lag times), power is a stantaneous measure of the changes in r’s effort and also accounts for changes in—for example, running uphill, down- ver rolling terrain. Based on your own power number and your corresponding zones, you can look at your power meter nderstand precisely how hard of an effort out once a race begins.

advanced technology becomes avail- r runners, the opportunity to get a step competition increases dramatically e early adopters. The runner’s power is the latest example of that,” says Joe ounder of Training Bible Coaching, nder of TrainingPeaks, and author of ‘riathlete’s Training Bible’ and “The Meter Handbook.” “It’s a complex it one with great potential for enhanc- formance.”

## POWER MONITORS: NEXT-LEVEL WEARABLE TECH

Here are four new run-data devices that incorporate power monitoring as part of their comprehensive tracking functions. Each one tracks running biomechanics previously only possible in a high-tech lab. While all are intended to help runners better understand the exact movements of their bodies while running and become more efficient, each one offers slightly different data points and analytical review options.



### Lumo Run

Lumo Run offers two ways to track running data and improve running form and efficiency, through a clip-on sensor pod (\$80, going up to \$100 on Aug. 1) or sensor-integrated apparel—running shorts for men (\$199) and running capris for women (\$199). Lumo’s sensors capture accurate running biomechanics through core body movements. The Lumo system tracks six key running metrics—cadence, bounce, braking, pelvic tilt, rotation and drop—and offers audible real-time performance feedback for each one, as well as post-run summaries and coaching tips.



### RPM2

RPM2 inserts are wireless remote monitoring pressure-sensing footbeds that track a runner’s power, pressure distribution, range of motion and running gait. Paired with a smartphone app, the RPM2 system (\$499) offers insights into bilateral movement patterns and deficiencies so a runner can work to optimize power output and stride efficiency. The system includes two custom-sized footbeds (based on the measurement specs of your feet), a charging system, an armband to secure your smartphone and an instruction manual that details setup, usage and cleaning directions.



### Stryd

Stryd was the first true power meter for running when it launched last year. Its chest strap sensors track a variety of data, delivering heart rate, cadence, impact, movement, form, altitude and power values to its smartphone app and several brands of smartwatches. The Stryd system (\$199) offers power value in real time, with no data lags like most heart-rate monitors. It serves up both audio feedback on the run and post-workout feedback for long-term improvement.

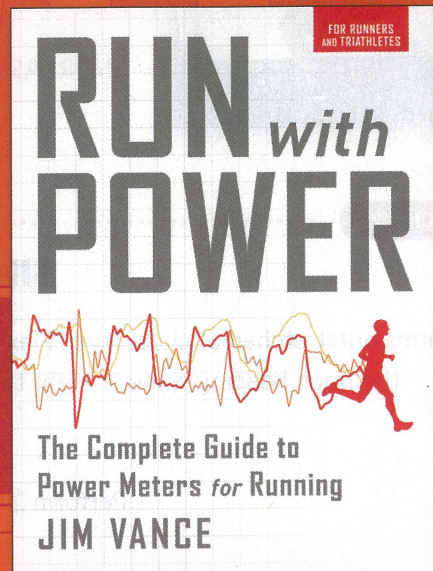


### SHFT

SHFT monitors numerous data points through tracking pods affixed to the chest and one foot. The SHFT system (\$299) tracks power, stride length, footstrike, body angulation and cadence to guide runners to become as efficient as possible. It turns the data into live voice feedback via a smartphone app to provide real-time coaching during a run and displaying a personalized SHFT score. It also offers detailed analysis for long-term comparison and development of functional strength.

# HIT YOUR STRYD

Power is here.  
Don't get left behind.



**RUN WITH POWER** is the groundbreaking guide to power meters that you've been waiting for. TrainingBible coach Jim Vance will show you how to turn your numbers into amazing performances right now, this season. You'll unlock incredibly powerful data: your key numbers, your power zones, your efficiency factor. You'll train and race with power zones alongside pace, time, mileage, or RPE. From 5K to ultramarathon, you'll find new power.

Complete with power-based workouts and guides to periodization, software, and analysis, RUN WITH POWER sets the standard for a whole new way to train.

From VeloPress, publisher of the best-selling guides to power meters for cycling and triathlon.

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