

I BOUGHT A POWER METER: NOW WHAT?

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When an athlete begins using a power meter, I usually try to sit down with him or her, go over those first few power files in TrainingPeaks, and explain exactly what it is we'll be looking at when we analyze power data. As I walk through the file, explaining metrics like average power, Normalized power, and VI (all good things for triathletes to be looking at, by the way), I often see the athlete glaze over, and realize that I've gone too far too soon in my explanation of power meter use. For many athletes new to their power meter, there are even more fundamental questions that need to be asked. Just because you ask those questions doesn't mean you're a dunce (it probably just means you actually have a life outside of triathlon, while I do not). This article is for you, and it represents the questions I often hear from athletes like you. Hope it helps!

Remind me again: why did I buy this thing?

We can get access to many pieces of data on the bike. Of these, power is the only metric that unequivocally tells us whether or not we're getting stronger on the bike. All other things being equal, if you put out more power, you will get down the road faster.

Why not use riding speed to tell you that? At the speeds we reach on a bike, we are significantly affected by many (seemingly small) changes in aerodynamic drag and rolling resistance. That is to say you may have the ride of your life on a particular course and average 18 mph, while a mediocre effort on that same course might get you 20 mph on another day. That difference in speed could be the result of a shift in the wind on one ride, a difference in air temperature/humidity, or changes in traffic, bike position, tire pressure, or a number of other variables. Thus, it's hard to use speed as an arbiter of whether or not a particular ride was "good."

What about heart rate? Why is power better than heart rate?

Athletes have used heart rate for years as a way of measuring effort on the bike and run, and it certainly has its use in some contexts. Indeed, during our indoor workouts, when we're doing sustained efforts in a closed, consistent environment, heart rate can be a helpful metric to track if power data are not available. That said, once we get into a more open (outdoor) environment, with changes in terrain and temperature, heart rate starts to lose its utility.

Furthermore, heart rate does not allow us to track improvement. Changes in heart rate at a given workload do not necessarily equate to improvement (or lack thereof) in your training.

Finally, heart rate is often slow to respond to changes in effort; you may be riding too hard up a climb, and it may be a full minute before your heart rate tells you as much. With a power meter, you have that information after just a couple of pedal strokes.

So, in short, the numbers I get from my power meter can tell me whether or not I'm getting stronger on the bike, and can also give me instantaneous feedback on whether or not I'm doing a good job pacing a ride or race?

Bingo.

I have power displaying on my head unit, and the little number jumps around so much. Why?

Most power meter/head unit combos are capable of spitting a power reading back at you every one second. Power output will often vary depending on where you are in the pedal stroke, so that number will jump around a lot. One thing that will help here is viewing 3-second power (a three-second rolling average of power output). If you're using a Garmin head unit, make sure you're displaying "Power 3s" instead of "Power." That'll make the number you see a little less jumpy; as you become proficient at producing power evenly, that number may only jump by 5-10W each reading.

I have no idea what these numbers mean. What should I pay attention to during my first couple rides with this thing?

I usually tell athletes to "just ride" during their first couple rides with a power meter. Simply monitoring changes in power output throughout a ride often tells you a lot about your habits as a rider. Among the "discoveries" riders often make during their first few rides with power are:

-Realizing that they're riding too hard early on climbs. Riders often produce a spike in power as the road turns uphill, then see power dwindle over the course of a climb.

-A power meter shows riders when they're being "lazy" on downhill sections or after climbs. Often, riders will crest a hill, begin the downhill, and take a break. The fact that speed is high and heart rate may still be recovering doesn't necessarily make this obvious, but the "0" staring back at you from your power meter does. Stay honest on the downhills!

-Riders often start rides way too fast, then see average power output fade over the course of a ride. The feedback from a power meter can be a good pacing tool early in a ride, and can be a good reminder to stay focused late in the ride.

Great. I still have no idea what the *number itself* means. What should I do?

The most important piece of information for a rider using power is the rider's Functional Threshold Power, or FTP. FTP represents the power you can sustain for a 1-hour time trial effort. Coincidentally, it also correlates with a rider's lactate threshold (or, to use the proper term, Maximal

Lactate Steady State), which, by some definitions, represents the tipping point between sustainable and unsustainable exercise. If we increase FTP, we can sustain a higher output for longer. FTP is also the most important determinant of how much power we can expect to produce during triathlon bike legs of ANY distance, so it is THE number to focus on when judging improvement on the bike.

We test FTP using this protocol, popularized by the authors of *Training and Racing with a Power Meter*.

1. 20 minutes easy
2. 5-minute build segment
3. 5 minutes easy
4. 5 minutes at hardest sustainable effort
5. 10 minutes easy
6. 20-minute time trial effort (pace this carefully, but make sure it represents your best effort)
7. Cool down

FTP is usually determined by subtracting 5% from your average power for the 20:00 segment. This is a good starting point for setting your FTP.

My FTP is (X). Is that any good?

As the use of power data grew, Watts per kilogram of body weight (W/kg) became the standard by which riders were judged. This is because for most Grand Tour riders, one's climbing ability is often the key to winning, and W/kg is often the best indicator of climbing ability.

One could argue that in triathlon, W/kg is less important since triathlon courses tend to be less mountainous, and most athletes race in a non-drafting format. In that situation, a more aerodynamic rider might go faster than a rider with a higher W/kg, all other things being equal. Even so, W/kg is still a great way to benchmark riders. You can use [this chart](#) to see where you stack up (take your measured FTP, divide it by your weight in kilograms, and find your number under the "FT" section for your gender). Even if W/kg isn't perfect for predicting success in triathlon, it's still a great benchmark to follow.

How do I use these data to get faster?

That's where I stop short of giving away the farm. Hire a coach!