TrainingPeaks Metrics [Jargon]

Abraham Lincoln once wrote: "If you understand what you are doing you are not learning anything." I get that, don't get stuck in a rut, take on new things, expand your horizons. But, "not" understanding why you are doing something is to my mind equally unproductive and it is for that reason it is important that you are familiar with some of the key metrics that you will encounter regularly in TrainingPeaks.

Functional Threshold (FTP)

Since many metrics in TrainingPeaks are based on a Functional Threshold (Power, Pace, or Heart Rate) it is important that you have a good understanding of what this is. In theory it represents the maximal effort you can maintain for an hour and it is used to provide useful benchmarks by which to measure your training.

To get the most accurate number you would need to perform a 1 hour test and take the average power, pace or heart rate from that test as your threshold. However, working flat out for an hour is super tough, requires focus and motivation and the induced fatigue can be very disruptive to your overall training. For this reason, shorter tests for swimming, cycling and running have been devised which if executed properly will still provide a decent estimate of your functional threshold.

Normalized Power (NP) or Normalized Graded Pace (NGP)

In your cycling analysis you will find the term Normalized Power. It is a metric used to account for the variability in effort during a ride. Unlike average power, NP reflects the physiological demands more accurately by applying a greater weight to the harder efforts. It helps you to understand the true intensity of a workout, especially when there are frequent changes in pace or terrain. Think of it like a car on the motorway travelling at a steady speed versus the stop/start nature of driving in a city. On the motorway your average speed will be higher and your fuel efficiency will be greater, while in the city your average speed will be much lower but you will burn through much more fuel.

In running, Normalized Graded Pace is a running metric that adjusts your pace to account for changes in elevation and estimates what your pace would have been if you were running on a flat course. Like NP above, it offers a more accurate reflection of the effort required when running on hilly courses. This helps runners better understand and compare their performance across varied terrains

Intensity Factor (IF)

Knowing how hard you can push for an hour (FTP) and how metabolically taxing any workout is (NP/NGP) we are then able to compare how intense a given workout is relative to your threshold. This is the metric that you will see in the Workout Summary marked as Intensity Factor (IF).

Intensity Factor is best understood as a percentage of your threshold with 1.0 (100%) being your threshold. As such, if the (IF) for your workout was 0.8 then then you have effectively performed at 80% of your threshold.

General Zone 2 endurance sessions will typically fall within a range of 60-70%, while a Zone 3 tempo workout would be closer to 80-90%. For shorter races and Time Trials it is possible to see an IF of up to 115%. The ability to target specific intensities helps coaches to manage their athletes' training loads and allows them to tailor training towards known race durations.

It is calculated by dividing your NP or NGP by your functional threshold. Let's take an example to make it clearer:

Your last workout had a Normalized Power of 200 watts
Your FTP is 250 watts
Intensity Factor = [200/250] which is equal to 80% of your threshold.

In addition to providing information on the relative intensity of your workout you can also use this number to get an idea of the relative intensity of different race durations.

Common Race Intensities	
Race	Common IF
Ironman Age Group	0.6 – 0.7
Ironman Elite + Half Ironman Age Group	0.7 – 0.79
Half Ironman Elite + Long Road Race	0.8 – 0.89
Olympic + Sprint Triathlon + Long Time Trial	0.9 – 1.04
Short Time Trial	1.05 – 1.15

Modified table from The Power Meter Handbook by Joe Friel

Training Stress Score (TSS)

Your TSS is simply a score given to a workout to indicate how hard it was. Although IF tells you the intensity of a workout relative to your threshold, that isn't always helpful since a 2-hour workout at 90% of your threshold is clearly more stressful than holding 90% of your threshold for 45 minutes.

Training Stress Score takes both intensity and duration into account and provides you with a more complete view of how taxing that workout was in the wider context of your training.

In a further development of this concept, TrainingPeaks uses your daily TSS to model your Fitness, Form and Fatigue. If you have a Premium TrainingPeaks account you will no doubt have seen these terms on the **Performance Management Chart** located on your Dashboard. The ability to visualize your training responses in this way is a powerful tool allowing you and your coach to plan the perfect peak for your next event.

The following information is taken directly from the TrainingPeaks Education Centre with only slight modifications to keep things simple.

What is the Performance Management Chart (PMC)?

- The Performance management chart helps you plan and measure your training as your season progresses.
- It works by charting your daily Training Stress Score (TSS), which is based on the duration and intensity of each workout.
- Your daily TSS can give you valuable insights into your cumulative training, including your Fatigue (7-day average), your Fitness (42-day average) and your Form (yesterday's fatigue subtracted from yesterday's fitness).
- The PMC maps these metrics concurrently so you can see how your daily training affects your fitness goals.

Training Stress Score

As mentioned above, your TSS is used as the basis for calculating Fitness, Form and Fatigue. On your Performance Management Chart TSS is shown as a red dot representing each day's workouts for the selected period. Red dots at the bottom of the screen indicate that there was no workout that day.

Fatigue (Acute Training Load, or ATL)
For continuity and easy recognition, Fatigue (ATL) is shown on the PMC and throughout TrainingPeaks in a pink/purple font

By taking an exponentially weighted average of your daily Training Stress (TSS) from the past seven days, it is possible to calculate your Fatigue or an estimate of your fatigue accounting for the workouts you have done in the past two weeks.

You will note that on days where the workout has a high training stress score, the Fatigue climbs sharply in response. You do a hard workout today, and you will feel it in the coming days.

Fitness (Chronic Training Load, or CTL)
For continuity and easy recognition, Fitness (CTL) is shown on the PMC and throughout TrainingPeaks in a blue font

TSS is again used to calculate a daily Fitness score. Fitness is an exponentially weighted average of the last 42 days of training and reflects the training you have done over the last three months. However, the workouts you did 15 days ago will impact your fitness more than the workouts you did six weeks ago.

You may notice that as Fitness goes up, so does Fatigue, only at a greater rate. Consistent training is marked by a steady rise in Fatigue and Fitness, whereas a sharp drop might indicate time off due to sickness or injury.

Form (Training Stress Balance, or TSB)
For continuity and easy recognition, Form (TSB) is shown on the PMC and throughout TrainingPeaks in a yellow font

Yesterday's Fitness minus yesterday's Fatigue equals Form. Being fit does not mean that you are ready to race at your best. A negative Form would indicate that you are carrying a lot of fatigue and are not on form. By tapering, you can reduce fatigue at a greater rate than you lose fitness and come into form on the day that matters most… race day!

There is no single Form that works for every athlete, but typically you would want your Form score to be between -5 and +25. If your Form becomes too high, it may indicate that you tapered too much and have lost fitness.

Looking at Form can also give you clues into how much stress you can handle before getting sick or injured. Going forward, you would also know to take some recovery days prior to reaching that negative number.