



Sonni, My LT Wattage Results : Average Wattage 225; Average HR 139; Average Cadence 75.

QUESTION:

Sonni regarding Cadence I am usually in the big ring between 70 & 80rpm's. Do I need to up the cadence?

Gary L., Burlington VT

ANSWER:

Absolutely.....no question about this.

An example:

Imagine that I held a 60-lb dumbbell in my right hand and attempted to "curl" it w/ my arm/bicep. (*I have skinny arms, so this is particularly hard to do. J*)

"*Sixty-lbs arm-curl*" is the work to be done.

Now imagine that I dropped the 60 and picked up a 10-lbs dumbbell instead. I can now achieve the same workload.....ie: "*Sixty-lbs arm-curl*"by lifting the 10-lb dumbbell a total of 6 times.

Point is: in cycling.....the workload (ie: the wattage produced) is a function of gear-size (resistance) x gear-frequency (rpms/cadence).

By virtue of the fact that you only got your HR up to 139bpm tells me that muscular *leg-fatigue* set in before you were able to fully get your hr higher.

In other words, if I had you **RUN** a 25min time-trial, instead, I guarantee you that your average-hr would exceed 139bpm.

So, then, why not manage a hr above 139 on the 25-min **bike** time-trial?

[The answer: muscular fatigue.....that occurred BEFORE maximizing cardiac fatigue.]

And how do you maximize your cardiac INPUT before your muscular output has been reached? You break up the work-load into smaller "chunks".

And in cycling, that means raising your cadence & rpm's.

When I evaluate a power-profile from an athlete's performance on the bike.....I inevitably find a consistent theme in the minutes before an athlete's power drops.



What **PRECEDES** a drop in power are ultra-high “moments of torque”.....where:

- 1)--- *the power-per-pedal stroke went WAY high.....*
- 2)--- *dumped blood-lactate into the legs.....and*
- 3)---*the body had to reduce the higher mean-average power output in order to recover back to sustainable blood-lactate levels*

Gary, I see this over and over and over and over.

And its proof that it's not just the work (wattage/power) being done that mattersbut, just as importantly, **HOW that work is done.**

So the next question is: Is there a cadence that is too high?

Sure....this occurs when your hr climbs to a point where ventilation exceeds the muscular limits. For some athletes this is 90rpm's.....for some 95.....for some 100. *(My ideal TT-cadence is 94rpm's. In other words, I maximize my hr-cost to power-production return on investment at 94rpms.)*

But know this, in 7 Tour de France wins, Lance Armstrong's average time-trial cadence was 110rpm's in every time-trial that he won, aside from 1, the uphill TT at Alp de Huez and even THAT day, he was above 95.

So.....how do you TRAIN to utilize a higher cadence??

You simply attempt (in training) to ride at the specified power-zone at 90+ rpm's using a smaller gear.....and all the while, you are training your pedal-stroke economy & mechanics by applying torque evenly to MORE points around the pedal stroke.

This allows more muscle-groups to contribute to wattage-production.....meaning that at a given power.....any SINGLE muscle-group is not solely responsible for producing the power alone.

And for triathletes, the real beauty is that this, also, not only has an effect on the bike-split.....but the run-legs (& split) off that bike, too!

Make sense?

Sd