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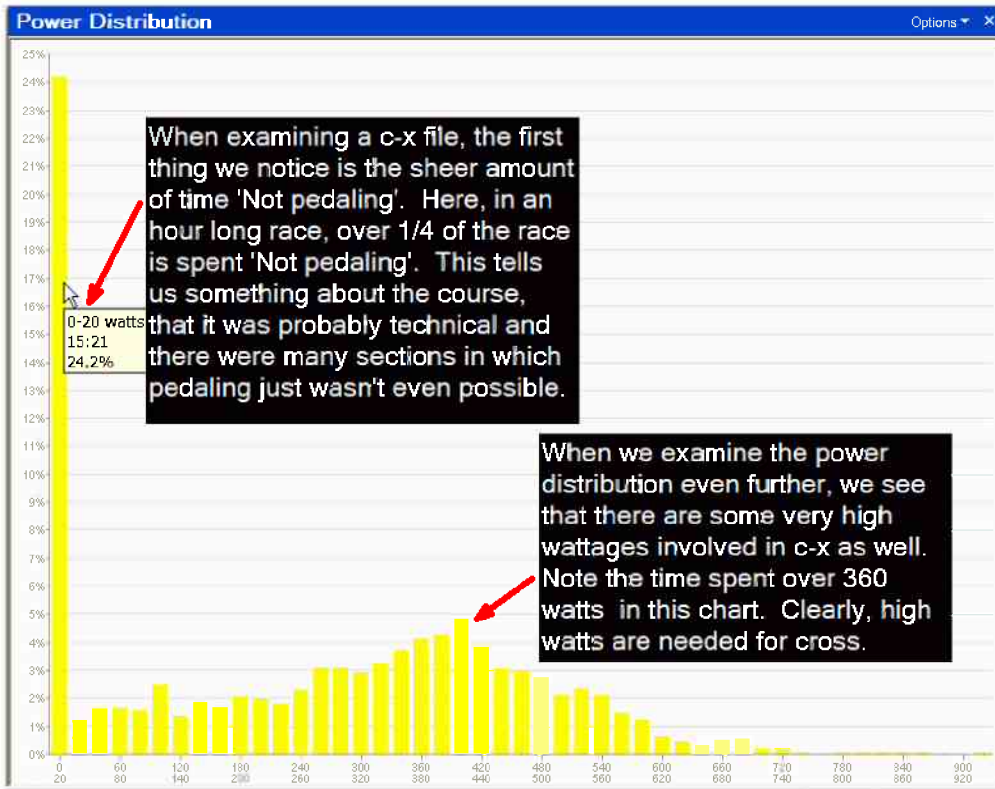
Name of Article: The Power of Cyclo-Cross

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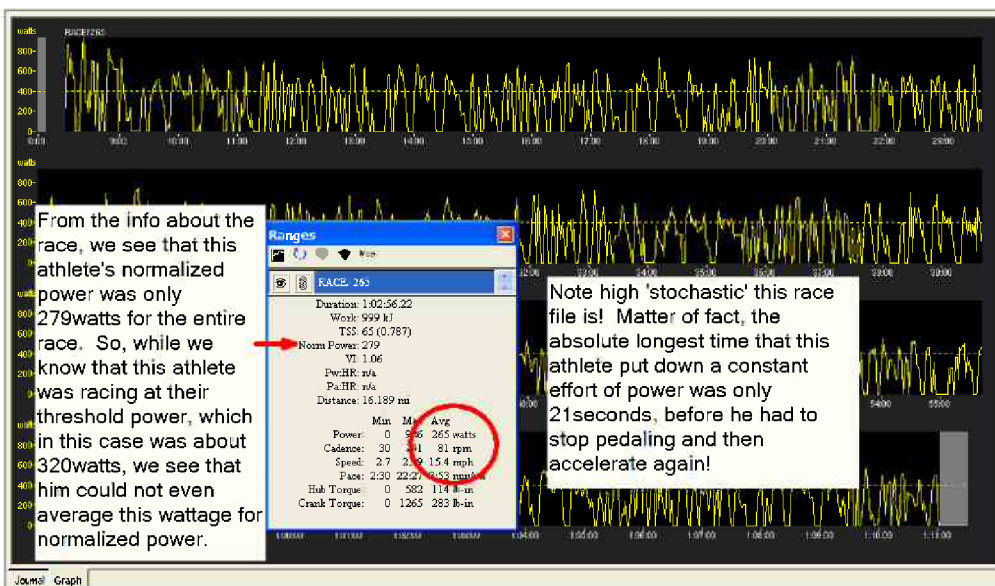
Mud, rain, snow, stairs, barriers and city parks are all a part of America's largest upcoming cycling sport. Cyclo-Cross is one of the fastest growing parts of cycling in the US now and is easily outstripping the registrations at Mountain Bike and Road Races. It's quite the revolution and while I am not sure that all the bike manufacturer's and businesses are aware of this countrywide movement, I do know that many cyclists are starting to ask questions about specific training for cross. Cyclo-Cross is indeed a unique sub-set of cycling and with that uniqueness comes a very different set of training and racing demands. Of course there are similarities to mountain biking and road racing, (more specifically criteriums), but with the aspect of run-ups and dismounts and the fact that it's limited to usually one hour or less makes it a quite unique sport.

Let's take a look at some of the demands of cyclo-cross first. Anytime you embark on a new athletic endeavor, one of the first things you must consider are the specific demands of that event. No sense in continuing to train for hill-climbing if you are trying to prepare for cyclo-cross! Cyclo-Cross is characterized by: Short, very intense bursts of power, followed by a relatively short period of very little leg muscular contractions(downhills, coasting), some running, and finally a flat out period of high power for less than a minute or two. All the while, the event itself lasts from 45-60minutes, which makes it relatively short in comparison to most cycling events. Once you understand what is involved in the sport, then you can start to tailor your training for it. My co-author of "Training and Racing with a Power Meter", Dr. Andrew R. Coggan, has preached to the masses at every seminar we have taught that one of the most important things to consider when training for an event is event specificity. Learn and understand the demands of the event itself, that's the first step towards planning a training regime.

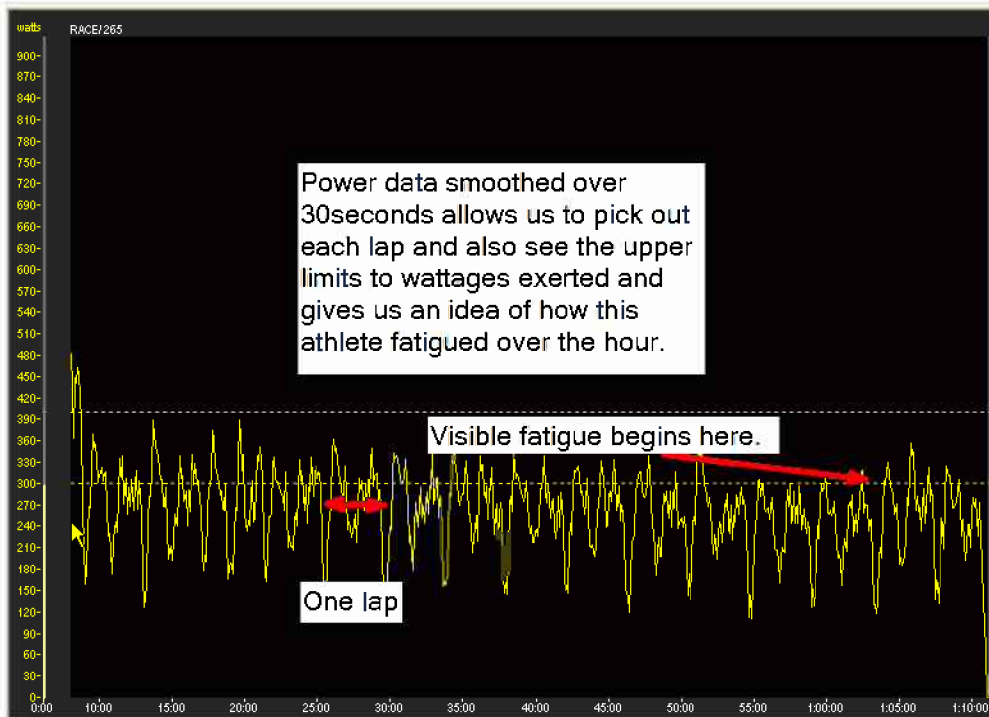
Let's take a look at a cyclo-cross power file and see what we can find in the file that will further help us develop some specific training for success in cyclo-cross.



In examining just this one power distribution chart above in TrainingPeaks WKO+ software, it's easy to see that cyclo-cross has some interesting characteristics. This above distribution chart is very similar to how a criterium road event might look. It appears that this rider's threshold power might be in the 360 watt range, but let's look more closely at the actual graph and the metrics from the graph. Here in the graph below, we see just how incredibly 'stochastic' or highly variable the power in this file is. This race is nothing but a set of 'micro-bursts' all strung together! Tiny effort after tiny effort, with equally short rest periods for an entire hour, makes this race incredibly unique. One thing to note as well is that we do not see much extended time without power, so there must not have been any significant running sections in this race.



As we examine the file even further, let's see what we can learn by 'smoothing' the data over a 30 second time period. Smoothing by 30 seconds is a good time course to use when smoothing a the power file. This time course of 30 seconds relates well to the time it takes for the heart rate to respond to the increase in workload, along with the half-life of lactate in the blood, which impacts your ability to recover quickly. What we see below with the data smoothed, is that we can pick out the individual laps in the race and we can also see that the upper limit of watts which are limited to a range from 280-320watts for much of the time this athlete was pedaling. These two components will help us to design some workouts in the future to meet these demands.



Another important aspect of the above graph is we can nearly pinpoint when the athlete was no longer able to produce the same power that he produced for much of the race. This gives us insight into the athlete's fitness and 'repeatability', or the ability to do multiple hard efforts and recover quickly. In this case, this athlete begins to fade around 45 minutes into the race, so he needs to increase the number of intervals that he is doing in training to make sure he can maintain the needed wattage for the entire race.

Now that we have determined some of the key components for cyclo-cross success, let's design some workouts that will help better prepare our athlete for the next event. The first workout that is very obvious in which the athlete needs to be able to do with their eyes closed is the 'Micro-burst' workout. The micro-burst workout is done by a series of 15 second 'ON' periods with watts at 150% of the athletes functional threshold power(FTP) and with the 'OFF' period only 15 seconds long at 50% of FTP. So, 150%-15 seconds ON, 50%- 15 seconds OFF. Repeat this 'on-off' cycle for 10 minutes, take a break for 5minutes or so, and then go again. If your race is going to be an hour long, then you need to be able to do at least (6) of these interval sets without any major drop in wattage from the first set to the sixth set. This will be great preparation for the stochastic nature of cyclo-cross.

The second workout you should consider is a variation of this workout, that I call the “30 Cubed” workout. It’s also a microburst workout, but now the ‘ON’ period is 30seconds long at 150% of FTP, followed by 30 seconds of 50%, followed by a 30 second period of running. This makes you get off the bike every minute thereby practicing your mounts and dismounts, along with giving you a huge burst of power as well.

The third workout that will help the cyclo-cross rider is an hour of 2 minute efforts. Normally when you do a 2 minute effort, you are trying to hit at least 120% of your FTP for each one, but when you do an hour of them, it’s impossible to do the that high of a percentage of your FTP and finish the workout. So, by reducing the intensity of the effort to 100-110% of your FTP, it will help you in completing the workout, and thereby accomplishing your goal of increasing your ‘repeatability’. Since the ability to consistently repeat a strong effort over and over is paramount in cyclo-cross, you need to address this ‘repeatability’ issue with the only thing that will help..... and that’s hard work! When you do this workout, make sure you are warmed up well, and use your power meter to regulate your effort, as you will tend to overshoot your goal wattage if not careful. On the rest periods, start out by making them double the length of the interval, so 4 minutes, and then as you get better and better, see if you can do this workout with only 2 minutes rest, or a 1:1 work/rest ratio.

As you can tell from this article, cyclo-cross racing has some very specific demands to the sport. Not only do you have to love the cold, rain, mud and to suffer, but you have to be able to put out the effort needed for the event. With the popularity of the event continuing to rise and the demands of the sport being better defined, the use of a power meter becomes more and more important in training for a cyclo-cross event. Make sure you race with your power meter as well, so that you can be certain that you are training specifically for your event. By understanding the demands of the event, training specifically for them and then racing your hardest, you will be assured of a greater chance of success in this fun new popular sport in cycling.

Hunter Allen is a USA Cycling Level 1 coach and former Professional Cyclist. He is the co-author of “Training and Racing with a Power Meter, co-developer of CyclingPeaks Software, and is the CEO and Founder of the Peaks Coaching Group. He has coached over 500 athletes ranging from professionals to fitness enthusiasts, and has helped many athletes achieve dreams and goals that they didn’t think were possible. He specializes in coaching cyclists with wattage meters and is on the forefront coaching with cycling’s newest tool. He has online training programs including Cyclo-Cross plans available at www.TrainingPeaks.com/hunter and you can contact Hunter directly www.PeaksCoachingGroup.com



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