



Power Training. Powerful Results!

PEAKS COACHING GROUP

Name of Article: Cycling and Endurance Sport Training Information - Training Zone Definitions

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Training plans should always be tailored to the individual goals, strengths, and weaknesses of each rider. The following provides an overview of the terminology used by many coaches and articles. It's designed to give you a "feel" for each of these zones, not the Power (Watts) or Heart Rate (HR) or Perceived Exertion (RPE or PE) for these different methods of prescribing training. There are numerous additional terms that are used to describe these basic concepts and I won't even begin to attempt to write them all down. Suffice it to say, most everyone is conversant with the following terms even if they know or use a few more.

Active Recovery (Z1) - easy, easy, easy. This is the region where you want to put in some quality conversational time with that significant other(s). This level provides little (but not no) training affect. Most coaches won't usually prescribe any specific amount of time to spend in this zone. They may schedule it after or before races to recover physically or prepare mentally. You can do all you want but don't do it instead of a prescribed Z2/3/4/5 schedule.

Endurance (Z2) - This is the basic endurance building zone and should be at a conversational pace and still feel pretty easy. This is what's usually described as LSD (Long Slow Distance). A significant amount of your training schedule (>50%) will be in this zone, even during racing and provides the physiological foundation for more intense training. You should normally do at least an hour of Z2 training and don't do 1/2 hour in the morning and the other 1/2 hour in the evening. This does not provide the stress and adaptation we're looking for. It is an excellent way to improve basic fitness but will not help you get stronger or perform better on the bike. The benefits from Z2 don't really kick-in until 45 minutes and increase exponentially through 1 hour and 15 minutes, before starting to level off. Drink plenty of fluids, on and off the bike, thirsty or not. With the foundation that you build here, the more intense efforts will provide significant benefits. Without it the Z4/5 stuff will break you down swiftly. Typically athletes will sacrifice Z2 workouts/time before Z4/5 whenever time runs short. If you do; you're guaranteed to burn-out or overtrain. Don't worry; even the pros spend most of their time here. Of course, they go 25MPH in Z2 where the rest of us do closer to 16-20 at the same HR; function of genetics and training. The direct benefits of Z2 training include, fat burning as the primary energy source, increased endurance and stamina. Most people could do these types of rides everyday of the week.

Tempo (Z3) - This is where the work starts; usually referred to as Tempo rides. You can still carry on a conversation but the sentences get shorter and the level of conversation of a group decreases noticeably. It's totally aerobic and it should be a pace that you can handle for several hours. Use the entire zone, depending on the terrain. If you're scheduled for Z3 time, you'll probably have to work hard going downhill and not so hard going up those hills. This is the zone that you'll typically be at during races. Get comfortable with recognizing this zone. Don't become

a slave to your HRM anymore than your powermeter. You'll spend about 25-30% of your training time in this zone. A typical Z3 ride will last around 1 to 1 ½ hour in duration. Fast group rides or fast moving pacelines usually fall into Zone 3, but many times they exceed Z3 yet don't provide sufficient workload to stress your Lactate Threshold (LT); "no-man's land." The primary energy source remains fats but those limited glycogen stores are now being tapped to provide adequate energy. Many coaches prescribe back-to-back days of Z3 training depending on the cyclist's ability to recover for this type of workout intensity.

Threshold (Z4) – Commonly referred to a Lactate Threshold (LT) or Anaerobic Threshold (AT). Although there's a range, when you do Z4 workouts you want to be very close to your actual threshold. As you get stronger, faster, fitter, you'll raise your threshold. This zone is hard, conversation is in one or two word sentences. You'll be breathing hard and be on the edge of suffering. This is still an aerobic activity but, as the name implies, you're on the edge. Expect to do 20-25% of your training in this zone. Typically you'll do these efforts individually. You can go out with other guys but these are normally precisely prescribed efforts, i.e. 15 min x 3 reps, 2 sets, 3 min rest between reps, 6 min rest between sets. Even if the others do the same efforts, you'll all cover different distances. Don't expect to see any of these during base building periods. Doesn't mean you can't do them, but the structured Z4 training isn't usually prescribed during base building.

Typically you'll see either flat or hill intervals prescribed. Flat intervals should be on generally flat to slightly rising terrain or into a slight headwind. Hill intervals can also be called Hill Repeats. Find a hill that has 3-4% grade that you can climb for 8-10 minutes. You should be able to start and finish the interval prior to the top of the climb while producing the same power or perceived power throughout. A typical session would be 10-20 minute interval followed by 2-5 min rest. Do two of these and then take a 5-10 min rest followed by another set of two intervals. Recovery from each interval is only partial, not complete. Rest periods for intervals vary widely and are usually dependent on the type of racing and goals you've established. If you aren't feeling well, don't do any Z4/Z5 work and drop to Z2 or Z1 or checkout the latest video and get a good night sleep. Remember that Z4 intervals are an aerobic event. If you can't complete the interval, you either started out too fast and put yourself in Lactate Acid Debt or your assumed LT/AT is too high or you're dehydrated or you didn't get enough sleep or any number of factors. You'll have to make an educated guess and make appropriate adjustments. If you have a ten minute interval scheduled, then it should take about 1 – 1 ½ minutes to get into the zone, hold it for the remaining time and it's done. Recovery starts immediately when you complete the intensity. Usually you can just shift from the 53 to the 39 and spin. By increasing your power at threshold, you'll be able to stay aerobic in situations where previously you would have been forced into a full sprint.

Note 1: There is a "No-Man's Land" between Z3 and Z4. Training in this area has been found to not be beneficial for either the aerobic requirements of Z3 or the LT/AT training in Z4. You'll probably also find this to be the area you train in most. Avoid this area like the plague.

Max Efforts (Z5) - These are sprint or max effort type workouts. Suffice it to know that these will hurt; a lot. The good news is that you will only be doing about 1-2% of your training here. Z5 workouts are typically divided into two areas, sprints and VO2 Max efforts. Some coaches have divided Z5 into additional areas but I'm not going to address those.

Sprints: Short duration (15-30 seconds), all out efforts. Generally on slightly downhill terrain or with a tailwind. There will probably be some of these on uphill terrain since many road races end with an uphill sprint. Rest period after a sprint is around five minutes. You'll probably feel ready for the next sprint in less than 5 minutes but physiologically you need the recovery time. Only do as many sprints in a workout as you can maintain form or as prescribed. Sprint Technique: Be at or near Z4 when starting the sprint. A measured distance course is best so you don't have to look at your watch.

VO2Max: Longer duration (2-5 minutes), all out efforts. After 4 or 5 of these, even with 5-10 minutes rest, you may not be ready for the next one, take some extra time to recover. You want your entire energy system recharged so you can give a 100% effort on every attack. These efforts increase your anaerobic power and develop the athlete's VO2 max, the maximal amount of oxygen that can be used during exercise for the development of sustained power.

Rest - The most important component of any training program. You only get stronger on rest days. Remember this. The best riders go hard when they have to and easy as much as possible. It is not a sin to take a day off. If you have a complete off-the bike day don't do anything more strenuous than walking at a leisurely pace. Rest, Recovery, and Recuperation are three of the most important and usually most overlooked parts of a training program.

*Don Russell is a USA Cycling Elite Level coach and a Peaks Coaching Group associate. Don will be heading our Phoenix camp in February in 2004 and is currently accepting athletes at all levels.

Cycling and Endurance Sport Training Information - Training on the Indoor Trainer

This is the time of year that many of us spend more time indoors than we prefer. With snow and ice covering many of our streets and byways, we either resort to the couch, cross training, or riding on the indoor trainer.

Many clubs attempt to provide motivation to starting base training this time of year. For those of you who wish to be flying in those May races, December is the time to be getting in that base training. I'm not going to attempt to cover all the available trainer options but instead, I'll cover some of the preparation you should do to be safe and easier on your equipment.

A good trainer is imperative. It should be reasonable quiet, unless you are in a secluded location that won't disturb too many people. Fluid trainers are quieter than wind trainers but select the best you can afford that meets your personal circumstances. Rollers are typically very quiet until you attach resistance units to them; then they get noisy also. There are other obvious concerns with rollers such as, where will you fall if you lose control/concentration?

When it's freezing outside, you'll need some form of heat in the location you select. If you're using a form of propane or kerosene heater, provide adequate ventilation. Breathing in large volumes of carbon monoxide won't be very productive. Many of these heaters are hot to the touch so make sure you won't fall into it if you have a mishap.

If the temperature is over about 60F (16C) degrees, you'll probably need a fan. I use one or two box fans to provide adequate ventilation. The more intense the effort, the more fans. Personally, I don't see a need for any speed but HI.

The bike and the surrounding area should be prepared for the ride. Ensure you have adequate nutrition and hydration products and then use them. Get a towel and have it in a handy location. If you use a drip towel to prevent frame rust and corrosion, put it on. If you think someone may call you, put the phone receiver/cell phone close enough to get it without interrupting the ride, if you just can't let it ring and answer it later. If you were on the road you wouldn't be answering it. Guess you just need to consider your priorities. Many riders have a beater bike to avoid additional stress to their race steed. Make sure it's setup the same as your race bike, road, CX, MTB, or track.

The rear wheel and tire take a lot of abuse. I suggest you get an inexpensive wheel and mount a cheap tire. This is a good place to put last year's rear cogset. The tire should be a hard rubber to allow it to take the abuse that it'll be receiving. Those soft rubber tires, that hold so well in corners, won't last long on a trainer. Tires on trainers will develop a flat surface after just a few hours. Using that tire on the road will be dangerous in corners so don't use it outside. Higher tire pressure will preserve the tire tread, I use 120 PSI. Remember this when you're warming up on the trainer for a race. I use my training wheel, not my race wheel. Rollers are less abusive but will cause the same situation after sufficient time. If you're going to be off the trainer for a couple of days, release the roller tension from the back wheel. It'll develop a flat spot and won't ride comfortably the next time you get on the trainer.

Have a plan before you get on the bike. What are you planning on doing? Deciding once you start the ride is no more acceptable on a trainer than on the road. If you don't have a plan, either work one out yourself or, even better, hire a coach who can provide you appropriate workouts.

Prior planning and preparation will make for a productive session, if not a bit boring. Remember that what you do now will provide significant benefits in the spring. Procrastinate now and pay for it later.

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