

## Infinite Intervals

Intervals are a fantastic training method for cyclists. But they are a lot more than what people tend to think of them as. When you mention intervals, gut-busting all out efforts come to mind. Sure, some intervals are gut-busting, but there are many other ways to do intervals that are less demanding and work many different energy systems you need for cycling. But before we get into that, let's review why we should do intervals in the first place. Interval training is a series of harder efforts separated by periods of easier efforts. The reason for doing this is to force yourself to ride at a faster pace than you normally ride. Because your body is not used to going at this faster pace, it will lead to physiological improvements which will allow your body to become more fit and more able to ride faster in the future. But, also because your body isn't used to pushing this hard, you won't be able to ride at this faster pace for long. Hence, intervals come into play. Let's use a simple example. If you can cruise along fairly comfortably at 18 MPH, it will probably be difficult to maintain 20 MPH for long. So to get faster and ultimately be able to ride at 20 MPH, first start out doing short periods at 20 MPH, say 1 minute at a time, then slow down to 17 MPH to recover. If you alternate back and forth between 20 and 17 MPH for 10 intervals, you will be able to do 10 total minutes at the 20 MPH pace, whereas you probably couldn't have done a solid 10 minutes at 20 MPH. So intervals help you to get faster, little bits at a time.

There are SO many different ways to do intervals. You've probably done them without even realizing it. Because several variables come into play, there is essentially an infinite number of possibilities for putting together an interval workout. Here are the variables:

- Duration of the interval
- Intensity of the interval
- Duration of the recovery period
- Intensity of the recovery period
- Number of intervals
- Number of sets of intervals

To give an example, you can do a workout containing two sets of the following intervals: Hard for 1 minute, moderately hard for 1 minute. Repeat 10 times. Then you would take a 5 minute easy spin to completely recover and repeat a second set of these. By manipulating these six variables, you can come up with a huge variety of intervals. And not all the intervals have to be the same in a workout. You can mix in short, medium and long intervals into a workout if you choose.

There are several different energy systems your body uses when cycling. There's the aerobic energy pathway, there's the anaerobic pathway and then there's the Creatine Phosphate pathway. To train the aerobic system, you can do intervals that are harder efforts than your normal cruising speed, but not so hard that you become out of breath. I prescribe two types of aerobic intervals: Tempo and Threshold. Tempo intervals are done at a pace that is harder than

your regular endurance riding pace. Think of the speed you would ride on a 2-3 hour ride. Then bump that up a couple of miles per hour and you are at Tempo pace. It's harder and faster but not terribly difficult to maintain. Tempo intervals are typically on the longer side, such as 5 minutes and longer. Threshold intervals are done at or just below your anaerobic threshold. This is the pace that you can just barely maintain for a half up to a full hour. This is a hard pace and requires full concentration to maintain this pace. But like tempo intervals, you do not get out of breath. You will be breathing hard but you will be able to maintain that effort for long periods. Threshold intervals can be done from 1 minute on up to 30 minutes in duration. These typically have shorter recovery periods because you are not going into oxygen debt and don't have to 'catch your breath'.

Then come the anaerobic intervals. These are the intervals that most people associate with the word 'interval'. For these, you push yourself into oxygen debt - in other words, you work harder than your heart, blood and lungs can deliver oxygen to your working muscles. Within three minutes at this pace, your muscles will begin to burn and before long you must slow down. Because these are so intense and you get into oxygen debt, you will need to keep these short. Anaerobic intervals typically last from 30 seconds up to 5-6 minutes max. Depending on what you wish to work on, these will either have long or shorter recovery periods. If you want to develop your maximum speed and capacity, you want to have longer recovery periods so that you can recover quite well so that each interval can be done as well as possible. If you are trying to develop your ability to tolerate repeated attacks, you will keep your recovery periods shorter so that you do not fully recover between intervals and eventually build up fatigue that you try to overcome. Anaerobic intervals can also be done on hills to not only stress your energy system, but to help develop leg strength and climbing speed as well.

Finally, there are the creatine phosphate intervals. For very short, hard efforts, your body uses CP to generate very fast, short term energy. These are short, very hard intervals last from 10-30 seconds. What you are training here is actually your body's ability to manufacture energy quickly through the CP system. These intervals can be done as sprints or short, steep hill climbs. With these intervals, you want them to be very short but you want the recovery periods to be quite long, up to 5 minutes, as you are training your ability to recover and replenish energy.

So there you have it. You can design your own intervals to meet your needs. Remember, not all intervals have to be gut-busting killers, just some of them!

All the best in training!  
Coach David Ertl

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