



# Power Training. Powerful Results! **PEAKS COACHING GROUP**

**Name of Article:** Intervals: Why Do We Use Them?

**Author:** Stephen McGregor, PhD

When I was a wee lad, I played soccer in high school. My coach at the time was a conditioning freak and used to make us run intervals...a lot. We would do Indian runs, or suicides, or half-mile intervals etc. We would run as hard as we could until we thought we were going to puke, then, between drills, my teammates and I would curse the coach, and ask ourselves, "Why are we doing these?" We never really got a satisfactory answer, so, we just kept on doing what we were told. Later, I became interested in cycling, and when I learned about the training for this sport, to my horror, I found that many coaches recommended intervals in cycling as well. Again, I asked myself, "Why are we doing these?"

Most coaches prescribe intervals, and similarly, many athletes perform intervals, but often times, it is not clear why. In particular, the athlete may not be aware of what the intended objective of the interval training, and may just be "doing what I'm told". Is the goal of performing intervals simply to make the athlete "tougher" and more resilient? Are they simply being done to mimic the high intensity repeated efforts of racing, or are there specific physiological adaptations sought after by using intervals in training? Is there more to performing intervals than just being able to go "as hard as you can" for 2, 5 or 10 min? Are some intervals better than others, i.e., is there a reason to perform 2 minute intervals over 10 minute intervals? This may seem like a lot of questions, but they should be addressed before a coach, or the athlete, embarks on a period of interval training. By addressing the ultimate objective of the interval training approach, the athlete may be more likely to give everything required of the efforts. Further, consideration of the intervals being used, and how they relate to racing objectives, may help eliminate potentially irrelevant training approaches.

Exercise Physiology tells us there are three primary principles of training: specificity, overload and reversibility. Intervals can be used to address the first principle, by mimicking the demands of a particular event. This may be the most common reason most athletes perform intervals. For example, if the athlete is training for the pursuit on the track, and it is anticipated that the event will require a 5 minute all out effort; in preparation, the athlete may perform 5 min intervals. In this case though, the training is being used for a very tangible purpose. The athlete can clearly see, "I will need to go as hard as I can for 5 min, so, I will train as hard as I can for 5 min."

The second principle, overload, can also be addressed through the use of intervals. If an athlete needs to perform sustainable efforts of 10 min within the context of their event, they can perform efforts in a progressive overload fashion that build from 5, 6, 7 up to 10 min, or more in duration. Using intervals, progressive overload of duration (or even power if using a power meter) can be applied in a very specific manner. Finally, the third principle can be addressed by not performing intervals. To paraphrase one of my graduate professors, "Use it or lose it baby!"

Another, less tangible way to use intervals is not necessarily to address specific effort durations of an upcoming event, but within the larger context of the overall training program, to target specific physiological adaptations that will result in improved performance at a later date. In this, I mean that certain intervals can be used to specifically target adaptations resulting in improved VO2max, whereas others may be more likely to elicit adaptations to the lactate threshold. Moreover, certain intervals are effective at raising one's anaerobic capacity or neuromuscular fitness. As we all should be aware, the long term goals of most competitive cyclists should be to raise their VO2max, LT power, and for some disciplines, anaerobic capacity and neuromuscular fitness. Once these objectives have been attained, the specific needs of a given event may be targeted.

It is not simply the duration of a given interval that results in such adaptations, but the manner in which the interval is performed at a given intensity. In other words, an interval may not need to be performed "as hard as you can" to target the desired adaptations. It may be better to perform an interval at a given percentage of VO2max, for a given duration (neither of which may be maximal), which induces an overload, but is not unduly stressful. Also, depending on how an interval is performed for a given duration, say, 3 min, the adaptation may be more anaerobic or aerobic, and vice versa; all 3 min intervals are not created equal. Therefore, knowledge of the physiological responses of various interval approaches will provide the coach and/or athlete with information to most effectively use intervals to not only target specific needs of a given event, but the physiological adaptations that will ultimately result in improvement as a cyclist. So, in the end, the athlete should not be asking themselves, "Why am I doing these?", but should be able to emphatically state, "I am using these intervals to improve my \_\_\_\_\_."

*[Stephen McGregor](#) has a PhD. in Exercise Physiology and is the Director of the Applied Physiology Laboratory at Eastern Michigan University. Stephen had a successful career as a category I cyclist and is an expert on coaching cyclists using power. Stephen will be a featured presenter at the upcoming East Coast Training Conference hosted by The Peaks Coaching Group in Bedford, Virginia. To find out more about Stephen and the services he offers, please visit his bio at [www.peakscoachinggroup.com](http://www.peakscoachinggroup.com).*

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