Holmes Fitness Coaching, LLC

Performance Cycling

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The 6 Key Cycling Abilities

When you think about it, training for high level cycling performance is not that complicated. It comes down to improving six physiological abilities: *aerobic endurance*, *muscular endurance*, *lactate threshold*, *anaerobic capacity*, *aerobic capacity* and *neuromuscular power*. The effective development of these abilities is what allows top cyclists to ride incredibly far and fast.

1. Aerobic endurance is the foundation for all cycling training. It consists of the body's ability to use oxygen to produce energy for the muscles over an extended period of time. Practically speaking, aerobic endurance is Zone 2 ability. It allows cyclists to literally spend hours riding a bike. To successfully complete long rides, cyclists must train their bodies to store large amounts of glycogen and to efficiently burn fat as a primary energy source. This is most effectively accomplished through long rides at a comfortable pace.

2. Muscular endurance refers to the ability to pedal relatively big gears, at a moderate cadence (e.g., 80-90 rpm), for an extended period of time. This ability allows cyclists to generate significant power on the bike. While aerobic endurance is directly connected to the cardiovascular system, muscular endurance is about developing the musculoskeletal system. This can include both on-bike training and off-bike workouts, however, the most effective way to improve muscular endurance is also the simplest. Ride up a lot of hills!

3. Lactate threshold is the primary area of developmental focus for competitive cyclists. It is the best predictor of racing performance for many cycling events. Unlike aerobic capacity (VO_{2max}), lactate threshold is also highly trainable, which is one of the reasons the training zones described in a previous issue of Performance Cycling (Heart Rate Training for Cyclists) are based on threshold. In the simplest terms, lactate threshold is the highest intensity a fit cyclist can maintain for 60 minutes. Any increase in intensity beyond this threshold level will require a reduction in effort because the body starts to produce lactic acid more quickly than it can remove it. The higher a cyclist's lactate threshold, as a percentage of aerobic capacity, the faster she will be able to ride a bike. Lactate threshold is best developed through interval training performed at or slightly below threshold level (i.e., Zone 4).

4. Anaerobic capacity is the ability to ride at a very high intensity for a relatively short period of

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Cycle-Max Coaching

It is with great pleasure that I introduce my Cycle-Max Coaching program. Cycle-Max Coaching is a one-on-one, virtual coaching process that will maximize your cycling performance. It is based on the idea that there are three primary elements to effective performance: *training*, *nutrition* and *recovery*. The primary goal of Cycle-Max Coaching is to facilitate the integration of these elements in a way that allows you to achieve your cycling goals. In other words, through the Cycle-Max Coaching process, we work together to develop a systematic training program that incorporates effective nutritional practices and allows for sufficient recovery. To learn more about Cycle-Max Coaching, visit my website at www.holmesfitness.com and request a FREE CONSULTATION to begin the process that will maximize your cycling performance.

The 6 Key Cycling Abilities (continued)

About the Author

Dr. Tyrone A. Holmes, LPC, CPT is a speaker, trainer, consultant, fitness & cycling coach, author and competitive cyclist.

time. While not quite a 100% effort, it is most closely connected to long sprints of 60 to 90 seconds, and very hard efforts up short hills. Anaerobic capacity is important in cycling events that require repeated explosive moves such as those in track cycling as well as road and mountain bike races where attacks and bridging between groups is common.

5. Aerobic capacity is the maximum amount of oxygen the body can consume during high intensity exercise. While it is not a great predictor of cycling performance (e.g., you can have a really high VO_{2max}, but a relatively low lactate threshold which will lead to weak performance), it is a very good predictor of endurance sports potential. Unfortunately, aerobic capacity is not as trainable as lactate threshold. While some improvement is possible, the VO_{2max} for a consistently trained, experienced athlete will not change very much. Nevertheless, training for aerobic capacity should be a key component of your training regimen and typically consists of very hard, Zone 5 intervals lasting 3 to 5 minutes.

6. Neuromuscular power is the ability to pedal a very big gear, at a very high cadence, for short periods of time (10 to 30 seconds). It's all about the recruitment of fast twitch muscle fibers to generate force very quickly. In other words, sprinting. Cyclists that want to ride very fast over short distances must develop neuromuscular power. This is best done with short, maximum-effort sprints, 15 to 30 seconds in length with the opportunity for full recovery between hard efforts (3-4 minutes).