



2007 Paris to Ancaster 10-week Training Plan

Week 2

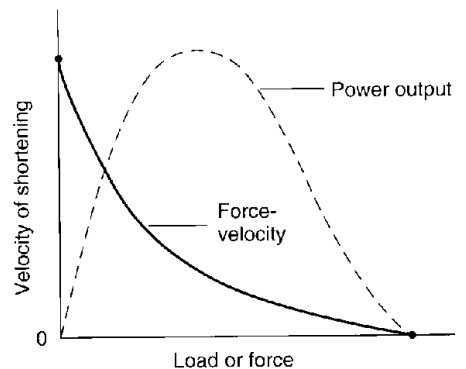
Prepared by Graydon Raymer PhD (Candidate), MSc., BPHE., BSc.

Welcome to Week 2! This week is the second week in our Strength Phase, and therefore the overall template (below) is similar to last week. However, that does not mean you should do exactly the same workouts you did before. The goal with this, and any training program, should be to push yourself a little more, a little harder, each workout. For example, if you did several repetitions of 30s single leg pieces last Wednesday, this week you should try to do more of them, or the same number but 45s or 60s efforts. In the circuit workout, you could aim to increase the number of sets you do of the circuit, the number of reps you do for each exercise within the circuit, or both.

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Week 2 Strength Phase	19. Off	20. Circuit Strength Workout	21. Single Leg Drills	22. Circuit Strength Workout	23. Off	24. High-Cadence Drills	25. Steady Endurance Ride

On that note, a topic that is always of interest to cyclists is the role of strength training (i.e. weight lifting). There are differing opinions among coaches, athletes, and scientists, and with respect to the latter, the data is equivocal on supporting the use of resistance training for endurance athletes. Part of the reason for the divergent attitudes and conflicting research studies is the extremely varied methods and approaches to strength training. It is far beyond the level of this 10-week program to go into this in detail, but I will try to explain one very important concept that should be considered in ANY strength training routine. This is the concept of the muscle force-velocity curve, as shown below:

In the graph at right, the solid line shows the force produced by a muscle at a given velocity (or vice-versa). We can think of velocity in simple terms as the speed our muscles move, which for cyclists, really means cadence or rpm. Furthermore, the dotted line, which represents muscle power output, can be calculated as the product of force * velocity. Thus, at zero velocity, no power is produced, and at the highest velocity, no force is produced and therefore no power is produced. What is important here is the functional shape of this curve. No two individuals have the same curve, and furthermore, this curve can be shifted to the right or left, and narrowed, heightened, or broadened with training. Two important things follow from this statement. First, each person has an optimal velocity (i.e. rpm) of muscle movement that generates the most power. This is why we have multiple gears on our bicycles, so we can continually adjust the mechanical advantage provided by gear ratios to allow us to pedal at optimum muscle speed independent of the conditions (i.e. hills or wind).



The second point is that in your training, especially in the gym or weight room, the movement patterns and velocities of your exercises should be specifically related to how they should improve your force-velocity curve. For example, think about the physical demands (i.e. the force and velocity of movement) of the sport/event you are training for, and then think about whether the exercises you are doing are helping to move your power output curve in a direction that will aid in improving your physiological ability to meet those demands. In this way, you can answer questions like: how many sets and reps of an exercise should I do? Should I lift heavy weights slowly, or light weights fast? What do high-cadence drills achieve? Lots of questions here, but the idea, if I've achieved what I've hoped to, is to get you thinking smarter about your training, and not just accepting the "status-quo" of training simply on it's face value.

After this week, we have one more week of our Strength Phase before we switch to the 3-week Power Phase. If you managed to follow any of the above, you will know that bring with it increased force, velocity, or both. Ultimately, however, it's one thing to generate a lot of power, so at some point we will still have to address the issue of sustainability (which is the final phase of the program). But before then, next week we will discuss efficiency and why that is an important consideration for any training program. In the meantime, if you have questions, or would like more information on what one of our coaches can do for you in 2006, visit us at: www.coachchris.ca.

About the Author: Graydon Raymer is an associate coach with CoachChris.ca, currently living in London, Ontario. While not coaching his own road and MTB cyclists, or himself racing Sr. 1/2 road and pro-elite MTB, Graydon is working hard to complete his PhD by the end of the March in Medical Biophysics – Exercise Physiology at the University of Western Ontario. Graydon can be reached by email at: ghraymer@uwo.ca.