

Cycling: How Do I Become Better?

Part 2: Increasing Strength and Force Ability

By *Coach Al Lyman, CSCS*

Welcome to part-two of this series on how to become a better cyclist. Today we're going to talk about how to *increase our strength and ability to apply force to the pedals*. Having greater cycling strength could be defined as the ability to overcome resistance, as in climbing short steep hills or turning a bigger gear, or riding into a head wind.

In my opinion, besides having the necessary base level of "pure" endurance to finish your longest rides of choice, possessing a higher level of general and core strength is among the most necessary and important abilities every cyclist needs who wants to enhance their enjoyment of riding, regardless of whether that means a charity ride, group ride, or longer solo rides. Clearly, any cyclist who rides in the state of Connecticut or anywhere else where rolling hills and wind are a fact of life knows that having enough strength to *push a bigger gear on the flats, crest a short steep hill more easily or faster, and overcome the effects of a headwind*, is a very valuable ability to have. With that in mind, let's get started!

Up the Frequency First!

If you are new to cycling and are only riding one to three times per week, perhaps the best thing you can do to increase strength is simply to ride more often. That may sound obvious to some, but very often simply increasing the number of rides you do over varying terrain is overlooked as a key to improvement! Sure, at some point continually increasing frequency and overall volume will have diminishing returns, but it IS generally the first step toward increasing your endurance as well as your strength. The bottom line is, if you consider yourself a novice to intermediate level rider and are only riding 1-3 times per week, I would suggest you start on your path toward increasing your strength by upping your riding frequency before graduating up to higher intensity workouts on and off the bike.

Off-The-Bike Conditioning

One of the most important things that any cyclist can do to increase their ability to climb steep hills or ride into a headwind more easily is to first, incorporate some OFF-the-bike strength and flexibility training into their weekly training routine. Think about this: If you can increase the strength, stability, and flexibility of your core musculature (low back, pelvis, hips, abs), as well as all of the muscles in your torso and lower body, then you will instantly have a more solid and stable “platform” and foundation of strength upon which to progress toward building ON-the-bike strength. In other words, I can say confidently that before you attempt to truly make your cycling musculature stronger with higher intensity ‘on the bike’ training, you should FIRST make your entire body stronger and more flexible with off-the-bike conditioning.

Put another way, I recommend that you think of strength development as a progressive, step by step process: *Very often cyclists will jump right into high intensity cycling workouts without first addressing core strength and resiliency, and what often happens is that strength plateaus quickly, or injury rears its ugly head, because what they discover is that our body, just like a chain, is only as strong as its weakest link. Also, very often the first thing that many will do is to simply push “harder” throughout most of their rides. This can often lead to more fatigue than strength building, and if continued, may lead into over-reaching status.* The correct way to go about getting stronger ON the bike, is to first develop overall strength in the core and muscles of the legs and torso, and then embark on a series of on-the-bike workouts that are designed to increase your force production ability....

When thinking of off the bike conditioning, it is very important to remember that you don’t need fancy equipment or an expensive membership to the local gym to increase your whole-body strength! In fact, I would argue that the BEST exercises you can do are those where you use *minimal equipment* and where you use *your own body weight* for resistance. Body-weight single and double leg squats and lunges and push-up type exercises, as well as exercises that use a stability ball or medicine ball to challenge your strength, balance, and coordination, and even some basic jumping (plyometric) exercises, are all examples of some basic movements that are practical, easy to do anywhere, and are the most effective for

increasing functional strength off the bike. The bottom line is, any kind of body weight conditioning and functional strength training that you can do OFF the bike that results in an increase in the strength, agility, mobility, balance, and flexibility of your entire body, will lead to a higher ceiling of strength development ON the bike!

After you have developed some off-the-bike strength throughout your core and lower and upper body, and have also developed enough endurance to be able to complete your rides without feeling washed out or beat up, you are ready to embark upon some on-the-bike workouts to increase your strength and force.

In this article, I will recommend two specific sessions which are highly effective for increasing strength ON the bike! The first is a series of HILL REPEATS done on a relatively short but steep hill, and the other is a type of drill called POWER ACCELERATIONS, which should be done on a flat road or on your indoor trainer. Here's how you do these very effective on-the-bike strength enhancing workouts:

Hill Repeats:

The most effective Hill Repeat session for most serious recreational cyclists is a session that involves 3 to 5 seated repetitions of repeats on a moderately steep hill that are 2 to 3 minutes in duration. Remember to choose a hill that is very low traffic and that is moderately steep, depending on your own individual ability. You CAN use your gearing to adjust for the steepness of the hill, in effect, "creating" the ideal grade that you need for this session.

- Don't use such a big gear that your cadence falls below sixty (60) rpms! Use caution and train smart as these efforts are very stressful to your knee joints!
- You will generally use a hill that is about a 6 -10% grade that will take approximately 2 to 3 minutes to climb.
- Adjust gearing depending on the steepness of the hill to get the desired effect.
- Recover by spinning down very easily before going again.

Here are some additional TIPS for effective HILL Repeats:

- When you are seated during a climb, keep the natural curvature in your back. No hunching over! Slightly bent arms and a straight back with your head held high will allow you to tap into the great level of core strength you have from using Cyclo-Core and Zen!
- When you stand, think of pulling your bike UP and underneath you rather than just simply standing. This helps maintain forward momentum.
- Similarly, when you sit down after standing, give the bike a slight *push forward* as you settle back into the saddle. This keeps the bike moving forward during that split second when it wants to come to a stop as you transition to a seated position.
- Minimize any back and forth rocking of your body, perhaps no more than 3-5 inches on either side.
- Look to achieve that feeling of “balance” as though you are dancing. This allows your skeleton to help support your body weight and minimizes the effort it takes to get up the hill!
- The best climbers establish a “rhythm” and are able to maintain that rhythm. Experiment with tempos, breathing patterns, and other tools that may enhance your rhythm, leading to a more sustainable pace.
- You may find that you climb more effectively if you slide back on the saddle a bit while seated. Drop the heel and be sure to push *forward* over the top of the pedal stroke to generate maximum force!
- When standing, keep your toes *pointed slightly down* and stay balanced over the bottom bracket with a proud head and chest, and eyes looking up and straight ahead.

Important Notes: Hill Repeats done correctly are MAXIMUM INTENSITY! These WILL likely hurt – there’s just no way around it! Use caution and stop if you feel any pain within your joints! Progress slowly over time so that you don’t injure yourself or your desire to ride! ☺

Seated *POWER Accelerations:*

Sometimes known as “power stomps,” these ***maximum intensity*** accelerations are usually about 20 to 30 seconds in duration, and are done on a flat road with little or NO traffic, for safety purposes. During these intervals, you go from a very low cadence and speed to a very high cadence and speed! When you recover, you will have improved force, strength and explosive power on the bike!

Here’s how you do them: When you are ready to begin, slow to a near stand still with your legs barely moving (3 - 5 mph), remain SEATED and explode and accelerate by pedaling as hard as possible (z5+), for maximum intensity and a maximum increase in speed. At the end of 20-30 seconds, shift to a very easy gear and spin easily to recover.

Some additional notes:

- You will always use a very BIG gear for these (i.e. novice riders may want to use 53/15-14, where as experienced riders will want to use 53/12).
 - Remember that in order for these repeats to be effective, you need to put maximum force into the pedals! In order to do this, you need to be healthy and ready!
 - Do not perform these accelerations if you are not 100% and if you are experiencing any pain in your joints.
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That’s it! Start with increasing how often you ride over varying terrain, then consider adding some “off the bike” conditioning to your fitness program, and when you have done that and progressed to a moderate level of strength, you may be

ready to add some "on the bike" strength workouts to increase your ability to apply force to the pedal!

Here are a few more important tips that hopefully will help you maximize your fitness and enjoyment from cycling:

- Remember to be patient and progress slowly and steadily by adding only ONE new strength training related "component" or element to your cycling program in any one week of riding.
- Once you decide to add that new element (which may include simply adding 1 or 2 rides to your schedule each week), allow at least 1-2 weeks before considering adding any additional training stress. The message is: be sure to allow time for adaptation which will take at least 2-3 weeks for most athletes.
- Listen to your body!
- Stick with it and don't give up!

Good luck!

-Coach Al