



One of the hardest things to teach yourself on the bike is the art of a fluid spin. This is being able to hold a high cadence, say 90+ rpm, for a lengthy period of time. It is an “art” because it is a learned form. For some it comes natural, for others, it takes a lot of practice. Sometimes it can almost feel unnatural. Even for the experienced rider it is quality that must be kept in their routine. There is also a flip side, and that is being able to push a big gear. Whether you are a club cyclist, MTB’r, CX’r or road racer, it is necessary to have both qualities at your disposal. There are specific drills you can do to work on each discipline individually and together.

## Fluidity

You can always tell an experienced rider by their pedaling style. I can spot one at a good distance. There is a nice fluid motion, no slamming the pedals down or pulling up so hard that it makes the bike weave. Their cadence is at a good 90+ rpm and pedaling in a full circle not wasting a bit of energy. The knees are tucked in and there is a slight drop in the ankle on the downstroke and pulling up the ankle during the upstroke. Having a fluid spin allows you to conserve energy on the flats and on long climbs. Pushing the pedals with excessive force burns muscle (anaerobic work) while keeping a smooth circle allows your body to work more efficiently and save energy (aerobic work).

To get there you have to practice it. It is not a switch that is flicked, and boom, you have an awesome cadence! It will take time to teach yourself to not only push down, but to transition from push to pull at the bottom of the stroke, then to pull up on the up-stroke and to transition the motion again over the top of the pedal stroke. The joints and muscles in your legs will need time to adapt as well. A fluid pedal stroke is a fundamental of cycling. Just like a baseball player spends hours in the batting cage working on their hitting or a basketball player shooting from the free-throw line, it is something that takes a lot of practice. Here are a few different methods to work on attaining a higher, smoother cadence.

## Display It

With everything going on during a bike ride, cars, people, noises, scenery, etc, it is easy to forget to maintain a high cadence. Display your cadence on the main screen of your cycling computer. With it being in front of you, it will be a constant reminder.

## High Cadence Drills

By allocating chunks of time to work on your cadence will allow you to practice high spin without the stresses of dedicating a whole ride to it. Do 3 X 5-8 min at 90-95 rpm with 5 min at “normal” cadence between.

## Fixed Gear or Single Speed

Bike Riding a single speed bike, or even better a true fixed gear bike, is a great way to increase your leg speed. Caution should be taken when riding a fixed gear. The bike needs to be set up by a professional. Your first rides should be short in a controlled environment.

## Indoor Training

Taking a spin class and using a bike with a weighted front wheel can replicate a fixed gear bike to some extent. Riding rollers will also help to smoothen your pedal stroke. Any unevenness in your stroke will lead to bouncing.

## Strength Building

Being able to lay down the big power at 50 to 60 rpm is a nice tool to have at your disposal. Having the ability to turn over a huge gear can pay off when it is needed. This is sometimes needed to muscle over a short steep climb or to get on top of your gear when accelerating. There are two different types of drills that you can do to build this low cadence strength and attain a more efficient pedal stroke.

## Hill Stomps

There are two phases to this workout. First is the hill effort and second is the leg recovery/leg speed over the top. Do the hill stomp on a 4 to 8 percent grade. The hill should take 2 to 5 minutes to climb under normal circumstances. Ideally you are looking for a hill that has a long flat section after the top or a road that you can turn off of onto a flat section.

You are targeting a very low cadence of 30-40 rpm, so choose the appropriate gear. You are at the point of almost falling over. The workout is not about watts or heart rate, it is all about the mechanics of your pedal stroke. Teaching your legs what it is like to pedal a full circle. Push and pull! Hands on the tops of the bars, elbows are loose. All the work is done from your hips down. The push down is natural to a cyclist. On a hill stomp, you are applying the majority of your force here. Focus on the transition points at the top and bottom of the stroke. At such a low rpm, you can get a good feel for the power necessary to move through these points. During the upstroke, if you don't concentrate on pulling up you will most likely fall over. Pull up through the bottom of the pedal stroke. When your foot is at a 45 degree angle, lock your ankle and pull up against the upper part of your shoes. Letting your foot go to an almost vertical position on the upstroke is a waste of valuable pedaling time.

Now for the second part of the hill stomp. Stay in the same gear you climbed the hill in. Over the top start accelerating to a cadence of 100 to 110. Once there, don't change gears and hold steady for 200 to 300 meters. All those muscles you just worked so hard to get over the top of the hill now need to recover and spin at a very high rate of speed. Recover for 5-10 minutes between and aim for 3 or 4 of these in one session.

## Low Cadence Drills

Not everyone has the appropriate hill to do a stomp at their disposal. If that is the case, you can do a low cadence drill.

Choose a long flat section of road and if possible, riding into a headwind is a benefit and in some cases almost replicate a Hill Stomp. As with the Hill Stomp, the goal with the Low Cadence Drill is to work on the mechanics of your stroke at a very low rpm. In your biggest gear possible, target a 40-50 cadence. Hands are in the drops, keeping your torso aero, knees in, and, again, doing all the work from your hips down. Roll the gear focusing on the push down, top and bottom transitions and the pull up. This is a 10 minute drill. Do the low cadence effort for 9 minutes. Then for 1 minute, get into a gear that would allow you to spin at 100-110 rpm. Keep in your aero position and hold your current speed. Hold for 1 minute. The end result is the same as above; strength work with leg speed immediately after. Do 3 or 4 10 min low cadence drills with 5 minute recovery between.

It takes time, but working on your power and pedal stroke fluidity pays off with greater efficiency and power. By focusing on each component separately you can build a powerful and fluid pedal stroke.