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Indoor Trainer "Skill Drills" For Improved Pedaling

Source: Coach Al Lyman, CSCS

At least one time each week during your indoor "trainer" rides, it is important to devote some time to improving pedaling efficiency and skills. Among your goals for this skill work are: 1. to refine your pedal stroke and promote pedaling efficiency/coordination/strength, and 2. to develop easily referenced drills that you can employ in training and racing situations.

Though it is common to think of these skill drills as "winter only" or offseason training, I believe there can be great benefit to performing these drills through out the entire training year.

Some additional goals for these drills are:

1. To improve your ability to sustain a higher overall cadence during rides at A-Race "goal speed/pace."

2. Learn to be able to feel and reference all aspects of the pedal stroke (to more effectively vary muscle recruitment and spread the workload out)

3. Learn new skill drills that help you to keep your indoor training fresh and interesting

4. Improve neuromuscular coordination and strength which eventually will turn into greater power production and efficiency at your "goal speed"

5. Learn to "float" a leg, e.g. shutting one leg off while pedaling so that it can have a rest. This is a valuable skill that can be employed in racing situations.

The following conventional (well known) and non-conventional (not so well known) drills will help you to achieve all of the above.

Please note: ALWAYS include a thorough warm up period prior to beginning these challenging drills. A proper warm up ensures that you will reduce the likelihood of injury while also increasing the potential benefits.

Conventional Skill Drills

1. ONE LEG ONLY Drills (OLDs): These drills are the hallmark of a serious cyclists off season training program. They are the most efficient and cost effective way to develop your pedaling efficiency and technique. Remember when you pedal with both legs, the leg that pulls the foot through the bottom of the stroke, up the back and over the top, gets lazy. That's because the other leg is pushing the pedal down, a much more powerful and natural action than pulling the pedal up! Now, think about it: if your leg doesn't help bring the pedal up and over the top, it's just dead weight. It

increases the resistance your muscles must overcome to move your bike down the road. Learning to complete a 360-degree circle with each leg makes you a better more efficient rider, which automatically makes you a better more efficient runner too! The key "feeling" you want is to have constant pressure on the pedal at all times during the entire cycle. Here's a tip: think of your pedal stroke as a box: push earlier over the top, push down and then pull straight back at the bottom.

Most importantly, vary gearing and also build volume slowly. It's best to start with an easy gear (for neuromuscular development) and then progress to a very BIG gear for force development. Start with short repetitions of 30sec and build up to 2-5 minutes. Cadence should also vary. As a general rule, keep cadence below that point when your stroke begins to "break up." Avoid constantly hitting dead spots – slow to a lower cadence and then increase over time as you improve.

2. "SPIN UPS" – Leg Speed: These "speed" drills are excellent for developing your pedal stroke. There are two ways to approach these. Here's both ways:

1. In a low gear, spin at 70 rpms for 60 seconds. Each minute increase cadence by 5 rpms. You'll know when the cadence gets too fast to sustain for 1 minute because your butt will begin to bounce on the saddle. Focus on "planting" your butt on the saddle and don't bounce! Stay smooth and relaxed at all times. Maintain "pressure" on the pedal at all times, but keep the pressure "light".

2. Again, in a very easy/low gear, begin spinning at 80 rpms and quickly increase your cadence to a speed that is as fast as you can possibly pedal (over 130 rpms!). Do this for 20-30 seconds, and then "soft pedal" to recover for 30 seconds to 1 minute before repeating. Start with 3-5 reps and build to 10 or more.

3. "SUPER SPINS" – Leg Speed: You know the drill here: in an easy gearing (these are neuromuscular drills so high tension is not wanted or needed) spin your legs AS FAST as possible and don't bounce! Like spin-ups, keep the pedal pressure light and focus on staying relaxed. Reps should be 15-30 seconds long. Increase number of reps over time.

4. "SUSTAINED HIGH CADENCE SPINNING: Sustaining a "high" cadence (any cadence that is slightly higher than what you are comfortable with can qualify as a "high" cadence) for increasing lengths of time is great neuromuscular training and also great aerobic training. Here's how:

Using an EASY gearing, build your cadence up to 100-120 rpms and sustain that cadence. You can begin with short reps of 3-6 X 5 minutes (w/ short rest intervals), gradually building up over a period of time up to 1 hour duration. The goal is to learn to relax and become comfortable sustaining a higher overall cadence. Relax and spin your legs!

5. "JUMPS" – Stand and Sprint: These explosive efforts are purposeful drills designed to increase your ability to quickly accelerate. Here's how:

1. In a moderate gear, jump up quickly (time your "jump" so you stand as the pedal comes over the top, to maintain speed and momentum) and sprint at about 120 or more rpms for 15 seconds. Then sit and spin the same gear easily for about 45 seconds. Repeat this sequence.

2. Next, in a large gear (perhaps 53x15), stand and sprint hard for about 10 seconds. Sit down, shift an easy/low gear and recover for about 50 seconds. This means each rep would be approximately 1 minute. Harder efforts will require more recovery.

6. POWER ACCELERATIONS: These are also designed to help you develop force and power like JUMPS. The primary differences are that you are seated for Power Accels and the focus is on BIG gear strength. Here's how:

When you are ready to begin, soft pedal while shifting to a BIG gear such as 53/12-14. (If you are a beginner/intermediate level cyclist, choose a slightly easier gear until you get the necessary strength). Your cadence will be very slow, i.e. 30-50 rpms. At the beginning of each repetition you want to EXPLODE by pulling up hard and pushing down as hard as you can with maximum pressure, accelerating for up to 20-30 seconds. Shift to an easy gear and recover with "soft pedaling" for 30 sec to 1 min, depending on the length of the repetition. Repeat at the end of the rest interval. Stay seated at all times!

Non-Conventional Skill Drills

The below drills are those I consider to be non-conventional. They offer a great opportunity to get outside of your comfort zone and take your skills to a higher level.

1. "RUNNERS": I call this drill "runners" for lack of a better term. This is a great drill for increasing strength, balance and coordination. Here's how:

Shift to a moderately big gear (53/15-17). While you are pedaling, stand up to an upright position WITHOUT holding onto the handle bars. That's right, leg go entirely! Continue to pedal for 15-30 sec, then return to your seat and soft pedal before trying again. This is a challenging drill and takes time to master. It will help if you: 1. stand up straight, not hunching over the handlebars. 2. keep your hands up and use them to help balance. 3. keep pedaling without any dead spots...keeping pressure on the pedals helps you stay in control.

Over time, experiment with using an 'easier' gearing. This increases the difficulty.

2. RISERS (muscle tension intervals): Again, I call these "risers" for lack of a better term. These are excellent for strength enhancement. Here's how to perform them:

They're called risers because the focus of this drill is raising your butt up SLIGHTLY off of the saddle so that muscle tension and pedal pressure are increased. Rise up 1-2 inches - just enough to increase the pressure on the pedals and on your hands/forearms. You should feel increased tension in the leg muscles. Start with reps of 10 seconds and build up to 1-2 minutes in length. Vary gearing and keep cadence up around 90-105 rpms. These are excellent for inserting into 'high cadence' spinning drills and spin ups.

3. FLOAT DRILLS: Float drills integrate many skills and can be great for enhancing coordination and pedaling efficiency.

Keep a couple of things in mind-

1. Although most of these drills contain some "one-leg" pedaling focus, they are not OLDs, e.g. both feet will remain in the pedals when performing these drills. The idea is to focus & concentrate on one leg only while the other foot "floats." Goal cadence (work up to) should be 100+ on all drills....

2. In terms of a general approach to the following drills, I'd recommend that at the conclusion of each

one-leg interval, spin both legs out for 15-20 sec at a very fast cadence, i.e. SUPER SPIN spin at a very high cadence!

3. Use an easy enough gearing so that resistance is virtually non existent. These are neuromuscular training drills so a lot of resistance isn't appropriate.

4. Make sure to warm up well with some easy level 1 spinning, and then build into your aerobic zone before beginning these.

Drill #1: SINGLE LEG FOCUS
90 sec one leg, 15" both legs together
Note: remember to use both legs together for 15" after each single-leg drill; observe how muscles get very tired and suggest the need to be able to vary muscle recruitment within the pedal stroke.

Drill #2: LEFT/RIGHT - LEFT/RIGHT
45" right leg, 15" left, both legs together 15", vice versa
Note: shorter 15" interval should see a higher overall cadence.

Drill #3: SINGLE LEG BUILD
30" moderate, during the next 30" increase cadence each 5" to maximum, 15" both legs
Note: cadence should never slow down.

Drill #4: BOX DRILL
This two legged drill focuses on the concept that you should think of your pedal stroke as a 4 sided rectangle. Spend 15" focusing on each part of the box, e.g. top, front side, bottom, back side. In other words, for the first zone, concentrate on pushing both feet across the "top of the box," e.g. from back to front. Think of driving the knee forward over the handlebars. For the 2nd zone, drive the feet down, e.g. from 12 o'clock to 6 o'clock. For the 3rd zone, think of scraping mud off the bottom of your shoe by pulling across the bottom, and for the last zone, pull up hard, driving your knees up to the ceiling.

Drill #5: LEFT/RIGHT DESCEND
20" right leg, 20" left leg, for 2 minutes
15" right leg, 15" left leg, for 1 minute, 10" right 10" left for 40", 5" right 5" left for 20"
3-4 x 1 minute a maximum sustainable cadence, Rest Interval 1 minute.
3-4 x 15 seconds progress to spin out, rest interval 45"

Drill #6 SPINOUTS
3-4 x 15" spinouts, using both legs, build cadence to spinout, make note of the highest cadence you can achieve.

Drill #7 MAX SUSTAIN
2-3 x 1 min at maximum sustainable cadence using both legs, without bouncing!

Remember that by practicing these drills, you'll learn where the gaps are in your pedal stroke and thus have the impetus to improve your skills and efficiency. Also, variations of these can also be used during your outdoor rides. For example, practice "floating" one leg for several revolutions, then the other leg, and then use both together and see how your speed magically improves with no change in effort!

After all, though practice may not actually make you perfect, it will make you a lot more efficient!