



Indoor Cycle Instructor PROfile

Explosive Power

Created by **Tom Scotto / Stage5 Cycling, Inc.**
Training Type: **Explosive Power / Sprinting**
Working HR Zones: **Zone 1 to Zone 5c +**
Cycling Specificity: **5**
Total Class Length: **60 minutes**

Profile Description

This profile is called *Developing Explosive Power*. It consists of 1 drill to teach proper form and overcoming the limitations of the indoor bike, and 3 different approaches to experiencing the explosive nature of cycling. Each set consists of a series of explosive efforts followed by 3 to 5 minutes of recovery.

The profile looks as follows:

Warm-up

Spin-Ups

10-second accelerations / 20-second recovery

Set 1: Form Sprints

Understand the limitations of the indoor bike, practice proper form and experiment with the amount of resistance needed for each effort.

Set 2: 15-Second Sprints

3 to 4 all-out sprints lasting 15 seconds each. 45 seconds to 90 seconds of recovery between individual sprints.

Set 3: Criterium Sprints

3 to 4 all-out sprints lasting 30 seconds each. 90 seconds to 2 minutes of recovery between individual sprints.

Set 4: Climbing with Explosive Attacks

A 7-minute climb at a perceived effort of 80-85%. Alternate between seated and standing. Launch a 15-second attack each minute. Attacks can be seated or out of the saddle. Rides must remain on the climb between sprints.

Active Recovery, Cool-down and Stretch

Objective and Intensity

This *Developing Explosive Power* workout is designed to help riders safely obtain top-end power and performance. Technically, perceived effort does not apply to explosive efforts, because efforts of this extreme nature are “all-out”. We joke (sort of) that sprints and explosive efforts should be performed at “110% or go home”. This is a workout of extremes and Recovery is the other extreme. When riders are not sprinting hard, they should be recovering hard. Some of the benefits of this workout are promoting neuromuscular power, tapping into top performance, learning appropriate, real-world resistance and the importance of true recovery.

If you are an indoor cycling instructor that has captured the essence of coaching, this workout is jam packed with training concepts and the body’s physiological response to intensity. This is also an excellent opportunity to dispel much of the incorrect thinking and execution of sprinting indoors.

WARNING: Extreme Efforts Demanded

As in every indoor cycling class, it is important to ensure riders work at their own pace and only perform movements they are comfortable with. It is more important during this workout to emphasize this. Not as a scare tactic, but letting them know that efforts of this intensity can cause riders to pull and tug on the bike (incorrectly) in an attempt to achieve power. Riders with injuries or issues with joints such as knees, hips, spine / neck and shoulders should be cautious.

Equally as important as developing explosive power, is developing the proper form and technique to produce this power safely. If a rider is not yet comfortable with explosive efforts, they should use each effort or sprint to practice their form as they progressively increase their intensity. **FORM COMES BEFORE FITNESS.**

The Explosive Power Ride**The Warm-up****Part One: Introduction and Initial Warm-up
(5 Minutes)**

Have riders maintain a steady 80-90 RPM tempo as they bring their intensity to 60% perceived exertion (PE) or Zone 1.

This is where you cover all of the foundational elements of the indoor cycling experience including demonstrating hand position and explaining how riders should perceive their level of effort.

Take time to explain the focus of the workout, but keep it light-hearted. Depending on the riders in your class, this can appear very intimidating. Ensure them that they can work at their own pace. This is the beauty of indoor cycling. Riders of all fitness and skill levels can ride together without the worry of getting left behind or left out.

Part 2: Spin-Ups

Length: 5 Minutes

Intensity: 70% PE / Zone 3

Cadence: 60 – 120 RPM

Riders will start by adding resistance to slow their legs to 60 RPM (or the speed of the music). They should have enough resistance to stand. The drill is simple: 10-second acceleration / 20-second recovery. Riders should be encouraged to skip a spin-up if they find themselves pushing too hard.

The goal of the spin-up is to quickly bring our legs to top speed UNDER CONTROL. Let's define under control. This means you are NOT bouncing in the saddle and can feel resistance or the presence of road under your legs at all times. You will need to experiment as we go. Remember, just like riding a bike, you can "shift" gears at any time. If it is too easy, add resistance. If you are struggling to maintain your cadence, back off just a bit. These accelerations are also NOT sprints. You are quickly and smoothly increasing your leg speed.

Let's do it. 4....3....2....1 spin up those legs. Bring them to your top speed..... shut it down. Get ready for the next one and continue to experiment with your resistance.

Relax!

As an option, riders can stand for a few seconds between each acceleration to stretch the legs.

Drill #1: Form Sprints

Length: 4-6 Minutes

Intensity: 80-90% PE / Zone 4-5a

Cadence: 80 – 100 RPM

The purpose of this drill is to teach proper form for explosive efforts, i.e. sprints. The emphasis is on "Form" so the intensity should be much less than what one would expect during an actual sprint.

In order to perform a maximum effort we first must overcome 2 of the limitations of the indoor bike:

First, the bike does not move side to side like a real bike. Because of this, it is important that we keep our upper bodies relaxed and allow side-to-side movement. If you try to hold yourself still and not move, unnecessary and possible dangerous pressure will be placed on the joints of your upper body including the spine and shoulders. The movement should be natural and not cause you to flail excessively back and forth.

Second, the bike does not move backwards or forwards. When you stand with a lot of force on the pedals of a real bike (such as when sprinting or climbing), the bike will quickly move backwards between a riders legs 2 to 6 inches. These bikes will not move. Because of this, you can place your lower back (lumbar spine) at risk if you load on resistance and then burst out of the saddle. Instead of the moving backwards, you will be thrust forward.

*Here is our formula for a safe and explosive sprint:
Load – Stand – Sprint – Unload*

Watch me demonstrate this and then we will all do it together. As I begin counting down, we will start loading heavy resistance on the legs 4....3....2...(watch my legs slowing down)....1.... Next we are going to stand with our hands in either position 2 or 3 (wider grip on the handlebars). Now we begin our sprint (not full-out yet). When the sprint is over we will sit back down in the saddle and our legs should be heavy and slow. Unload the resistance to allow your legs to spin back up as you recovery for the next effort.

Now let's try this together. We will do a number of these form sprints with little recovery between efforts. Remember, you are not sprint all-out but rather practicing your form while you figure out how much resistance you can push.

After you demonstrate the first Form Sprint, get off the bike and walk around the room assisting riders that need help. Ensure they are not leaning too far forward over the handle bars or hovering over their saddles. Their body weight should be distributed directly over the pedals when standing. Ideally, a cadence of 80-100 rpm is desired when sprinting. Riders will naturally choose the speed that is comfortable for them. If they are spinning less than 80 rpm, suggest that they back off some resistance to increase their speed. If they are spinning faster than 100 rpm, suggest they add resistance for better muscle engagement and power.

Recovery: 3 Minutes

Not only is recovery absolutely necessary for this workout (you cannot achieve top performance without adequate recovery), it is a time for you to setup the next drill – ALL-OUT SPRINTS! The goal is a 110% effort or don't bother. Let them know we are more interested in "quality" than "quantity". If they are not recovered enough when the next sprint comes around – skip it. We'd rather see them perform 2 powerful sprints than 4 mediocre ones. Nothing good happens in Mediocre-ville.

Drill #2: 15-Second Sprints

Length: 4-6 Minutes (3-4 sprints with 45-90 seconds of recovery between each)

Intensity: ALL OUT / Zone 5c +

Cadence: 80 – 100 RPM

Prepare your riders mentally. This is an adrenaline rush. 15 seconds of absolute fury. They know the proper form and technique and now it is time to sprint for real. After each sprint, riders should receive 45-90 seconds of recovery. Keep in mind, that when cyclists perform sprints in training, they usually recover for 4 to 6 minutes! Let your riders know this. You don't want them discouraged when the next sprint rolls around and they are still trying to recover. Now get the music cranking'.

OK. Playtime is over and it is time to do these sprints for real. I want everything – all you've got on each sprint. Remember, if you are still not comfortable, work on your form and do what you can.

4...start adding resistance...3...feel the load on the legs...2...prepare your mind...1....Stand....HIT IT!!!! Come-on, you've got 15 seconds. Over-power the resistance and wind those legs up. I want to see absolute full intensity. 4...3...2..1... Shut it down. Keep those legs moving - just back off some resistance.

Now don't be alarmed if your heart rate continues to increase even though you've stopped sprinting. This is cardiac lag. That effort was so intense your body didn't have time to respond. Now it is catching up. Basically, you just purchased that sprint on your credit card and now the bill has arrived at your door.

Using a POWER METER:

If your bikes are equipped with power meters, here is a simple way to introduce your riders to using this "powerful" tool. As they complete their first ALL-OUT sprint, have them look at the amount of watts they are producing at top intensity. Then simply have them look at the watts at the end of each sprint to see if they are still able to obtain the same amount of power consistently. They can keep sprinting if they are able to hit or exceed that power number. If their power starts to drop more than 20-50 watts, they are fatiguing and may require more recovery.

Recover and repeat.

Recovery: 3 Minutes

Drill #3: Criterium Sprints

Length: 8-10 Minutes (3-4 sprints with 90-120 seconds of recovery between each)

Intensity: ALL OUT / Zone 5c +

Cadence: 80-100 RPM

Now riders will attempt a 30-second sprint. This takes some skill and timing. We don't want riders to burst out of the barn at full-tilt only to slowly crawl across the finish line. The goal is to quickly but progressively, built to top speed in 30 seconds. To help you riders succeed, give them this formula:

- (1) First 10 Seconds – Overpower the resistance on the flywheel and bring the legs to speed
- (2) Next 10 Seconds - Lock and Load – hold at a perceived effort of 90-95%, waiting to pounce
- (3) Last 10 Seconds – Flip the switch and GO.

You can use an illustration from the movie Fast and the Furious. When the driver of the car wants to launch at full speed, he/she flips the switch labeled “Nitrous Oxide” or “Nitro”). That is what the last 10 seconds is all about. Everything you've got left!

Depending on your comfort ability with bike racing you can explain why these are called Criterium (or Crit) sprints. A criterium is a popular type of bike race in the US that consists of a loop that is approximately 6/10s of a mile. These races are often held in the city so the course can be mapped through the streets, which creates sharp turns and curves. It is a great spectator event with lots of action and, often times, crashes. It just so happens, that the distance from the final corner to the start/finish line usually takes 30 seconds at full-tilt. Hence, the criterium sprint. Unlike other races which only have a sprint at the finish, riders can have the opportunity to sprint 20-30 times during a 60-80 lap race. These intermediate sprints, called “primes” (pronounced PREEMS), have riders competing for money and prizes. If you like to do criterium races and want to win stuff, these are the sprints you have to practice.

Alright, let's prepare to sprint. If you've not attempted to sprint for 30 seconds before, consider school in session. "You are going to get schooled". The same "safe" approach to our sprint still applies. We will Load, Stand, Sprint and then Unload and recover.

4....you are approaching that final corner – start adding resistance (shifting gears)...3...the legs are slowing down under the load.....2....you are banking into the turn.....1.....you fly out the other side Stand and HIT IT!

Take this first 10 seconds to wind up your legs and over-power that resistance (gear). 20 seconds to go....lock and load at 90-95% of your effort. You've got an opponent on your right....you've got an opponent on your left....who is going to throw it down....10 seconds to go FLIP THE SWITCH! Give it all you've got to the line! Do NOT back down....4...3....2...all the way....1.... Excellent! Shut it down and recover.

Repeat after 90-120 of recovery. Encourage riders to listen to their bodies. If they are not recovered when the next sprint starts, tell them to skip it and wait for the next one. Quality over Quantity.

Recovery: 3-5 Minutes

The workout may be taking a toll on your riders. If they are doing the workout correctly, their legs are now shredded and their lungs are burnt. Allow them 3 minutes to return to a recovery level of intensity (60% perceived exertion). After 3 minutes, instruct them to add a little resistance (or road) back to the bike to keep the body from falling into a cool-down mode. Prepare them for the final effort.

Drill #4: Climbing with Explosive Attacks

Length: 7 Minutes (one 15-second attack each minute)

Intensity: 80-85% RPE for steady climbing (Zone 4) / All-Out for attacks (Zone 5c+)

Cadence: 60 – 100 RPM

This final drill will be the most challenging of the workout. Unlike the previous sets where recovery was provided between sprints, riders will be climbing a mountain and asked to launch numerous 15-second attacks. After the attack (explosive effort) is complete, riders must return to the climb. The intensity of this drill will fluctuate between 80-85% perceived effort (~anaerobic threshold) and breathlessness.

This is our final effort. The climb will be 7 minutes long. We will alternate seated and standing each minute. We will attempt to launch a “vicious” 15-second attack each minute. When you are seated, the attack will be seated. When you are standing, the attack will be standing. This will give you an opportunity to compare your explosive power out of the saddle to your explosive power in the saddle. If you are not able to attack every minute, skip one and try the next attack. If your legs are totally fried at this point, just place yourself on a moderate to hard steady climb and ride to the top.

Let's build this mountain. Find the tempo of the music (60-80 rpm depending on the music) and start adding resistance. Do not slow your legs down, but add enough resistance so you are forced out of the saddle. This is our baseline. After each attack you will return to “this”.

Get ready. Here comes our first (out of the saddle) attack....4....3...2...1... LAUNCH! You've got to dig deep. Remember, you are on the side of a mountain, so I shouldn't see super-fast legs. I should see legs that look like they are on a steep mountain road. Riders behind you are trying to respond to your violent effort! Now sit in the saddle and return to your climbing tempo. Yes it hurts and your breathing is off the charts! Now you know what it feels like when you are watching Tour de France riders battling it out on the steep climbs of the Alps and Pyrenees! There is no rest for the weary. The next attack is coming up. This time seated. 4....3....2....1....Come-on! Show me something!

...and the brutality continues to the top.

Active Recovery, Cool-down and Stretch

After a workout this intense, it is beneficial to put riders on an easy road with a little bit of resistance. Target an intensity of 60-65% perceived exertion. This will keep their heart rates from plummeting while allowing the blood to do its magic, removing the byproducts of burning intense fuel and rehydrating the muscles and replenishing them with nutrients.

This is a great time to encourage them to think about the sound approach to training (after they've experienced it). Ask them how hard they thought the effort was on a scale of 1-10. If they are honest, you should receive mostly 9's and 10's. Then inform them that the workout only involved approximately 14 minutes of actual work. This leaves 46 minutes of warm-up, cool-down or recovery. How can a workout that only includes 14 minutes of work be that hard? This is the product of sound training which puts "quality" over "quantity" and uses real-world intensity and resistance.

The Music

Music selection is a key motivator in a workout like this. If I'm going to be pushing to my limit, I need music that gets me there. Here is the music I used for this workout, all of which can be found on iTunes:

Song Title	Time	Artist	Focus
Staten Island Groove	6:46	Down to the Bone	Warm-up (Intro)
Chroma	5:22	Alan Morse	Spin-Ups
Loner's Dream	3:28	Neal Schon	Form Sprints
Housewife	3:47	Dr. Dre	Recovery
Rail Yard	4:36	Junkie XL	15-Second Sprints
Drink Me Hot	3:53	Chris Joss	Recovery
Busy Child	7:25	The Crystal Method	Criterion Sprints
Everything About You	3:43	Neil Zaza	Recovery
Children of the Night	7:57	Juno Reactor	Climb w/Attacks
Casino Lounge	6:58	Peter Mergener	Active Recovery/Cool-down
Walker	5:20	Guardner	Stretch

NOTE: I will often use music editing software (Sony Acid Pro) to alter the length of different songs to provide more time for the number of sprints I plan to do (including intermediate recovery).

Have Fun!