



Created by **Tom Scotto / Stage5 Cycling, Inc.**

Training Type: **Speed / Endurance**

Working HR Zones: **Zone 1 to Zone 5a**

Cycling Specificity: **5**

Total Class Length: **60 minutes**

Profile Description

This profile is called **RPMx**. It consists of 3 different speed drills and 1 effort for practical application and to demonstrate short-term adaptation. All of the drills are done on a flat road with 2-3 minutes of recovery between sets / progressive speed efforts.

The profile looks as follows:

Warm-up

Spin-Ups

10-second accelerations / 20-second recovery (5 minutes)

2 x 3-minute progressive speed intervals (70 – 120 rpm). Includes 2 minutes of recovery between intervals.

1 x 7-minute progressive speed interval (80 – 120 rpm)

Steady-State Tempo – 7 Minutes on a fast flat road @ a steady cadence of 100 rpm. Progressive out-of-the-saddle efforts of increasing length (10 seconds building to 30 seconds).

Cool-down / Stretch

The progressive speed intervals use music that changes speed intermittently. This music technique requires the use of music editing software such as MixMeister, Sony Acid Pro or the like.

Objective and Intensity

RPMx is designed to help riders adapt to higher legs speeds and promote a higher average cadence. The intensities will range depending on how developed a rider's pedal technique is and how relaxed they remain throughout the drills. Riders with good pedal technique, who remain relaxed, will be able to maintain the various cadences at a lower perceived effort. Riders that struggle and consequently tense up and wrestle with the bike will experience higher heart rates. One of the benefits of this adaptation is to produce a higher average cadence with less energy expenditure (less oxygen and fuel consumption and reduced muscular fatigue).

The adaptation to higher cadences is developed through neuromuscular training, muscle engagement and relaxation.

Neuromuscular Training during this workout is in the form of anatomical adaptation. The focus is to consistently increase the leg speed under a consistent workload (resistance) to train the body to send the electrical signal from the brain to the muscle faster (hense, neuro – muscular).

Muscle Engagement is a focus on the various muscle groups of the legs used during the pedal stroke. This workout does not spend time on biomechanic drills, so it may be more beneficial to use an RPMx workout after riders have experienced 2-3 biomechanics workouts that focus on specific leg muscle engagement. Regardless a review of the muscles and proper pedal technique is helpful during the warm-up.

One of the biggest hindrances to leg speed is often a rider's failure to relax. It is common for riders to tense-up as their legs go faster. Rider's will need to learn how to relax and "let go" to avoid tightening up (contracting) muscles around the hips, knees and ankles. Muscles that surround the leg joints (or or those that cross joints) which remain tense, hinder the joint's ability to move and can greatly reduce leg speed.

The RPMx Ride

The Warm-up

Part One: Relaxation and Proper Form (5 Minutes)

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

The focus of our workout may seem like a contradiction. Our goal will be to ride as relaxed as possible while moving through a range of fast leg speeds. The more you try to force the speed, the more you will hinder your speed. You will need to work on not only relaxing your arms, hands, shoulders, back, neck and chest, but your abdomen and legs as well.

Do not suck your stomach or tighten it up in any way. Take in a deep breath and imagine you are breathing into your stomach so that it visibly expands. Exhale slowly and fully.

Everything must be relaxed. Imagine you are a wet noodle riding a bike.

**Part Two: Review of Pedal Technique
(5 Minutes)**

In addition to reviewing pedal technique, the purpose of the second part of the warm-up is to activate the leg muscles. Have riders add resistance until their cadence slows to 60 RPM. They will alternate in and out of the saddle every 30-seconds. Have the focus on a different part of the pedal stroke during each of the 30-second seated efforts. By then end of the warm-up, riders should be at a perceived exertion of 70% (Zone 2-3).

We want to maintain a circular/round pedal stroke throughout all of the speed drills during the workout. Remember the biomechanics work we've done a few weeks ago. Pull up on the pedals, continue over the top, push down and pull back.

Pedal from your hips, butt and quads. This is your drivetrain.

Relax your feet, ankles and toes. Don't force your heels down or point your toes down. Your feet have a simple mission – follow your knees wherever they go.

Drill #1: 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 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!

Recovery (2 Minutes)

Have riders return to an easy flat road (with resistance). This is a perceived effort of 60% or Zone 1.

Drill #2: 2 3-Minute Progressive Speed Intervals

Length: 8 Minutes

Intensity: 70-80% PE / Zone 3-4

Cadence: 70 – 120 RPM

As the music begins (at 70 RPM) riders are encouraged to use resistance to slow their legs. Have riders check to make sure they have enough resistance by attempting to stand and remain stable and relaxed.

During the next 3 minutes our goal is to follow the tempo (beat / rhythm) of the music. We are going to start at this speed which is 70 RPM. Every 30-45 seconds you are going to hear a cowbell. This indicates the speed of the music is going to increase. We will end with a speed of 120 RPM. Stay relaxed. Pedal from the hips.

(2-Minute recovery on an easy flat road)

Let's do it again. Now that you know what to expect, you can gauge your effort and make adjustments to your resistance so you can continually increase speed and remain in control until the end.

Recovery: 3 Minutes

After the second 3-minute progressive speed interval, provide 3 minutes on an easy road to allow riders to recovery. This is a good time to review relaxation (head to toe). Remember, some rider are not going to be able to maintain or obtain a cadence of 120 RPM. Encourage them to continually work on their leg speed and remember that “Form comes BEFORE fitness and speed”. If they can't get the speed, just work on form.

Drill #3: 7-Minute Progressive Speed Interval

Length: 7 Minutes

Intensity: 70-85% PE / Zone 3-5a

Cadence: 80 – 120 RPM

As the music begins inform riders that they will now embark on a 7 minute version of the drill they just completed. Have riders add resistance to slow their legs to the tempo of the music (80 RPM). Have them stand to test they have an adequate load on their legs.

This next drill will give us an opportunity to not only work on our leg speed but our endurance at different speeds. Here is a little heads-up....during the last 3-minute speed drill we only spent about 30-seconds at 120 RPM. During this 7-minute drill, we will spend almost 2 minutes at 120 RPM. This is the time to learn to let your legs go free. To Fly.

There will be a small interlude (non-rhythmic section) in the music before each change in leg speed. Let's start by checking our form in the mirror – RELAX.

Recovery: 3 Minutes

Drill #4: Steady-State Cruise Interval

Length: 7 Minutes

Intensity: 70-85% PE / Zone 3-5a

Cadence: 100 RPM

This is a great opportunity to have riders immediately experience the benefits of the speed work they just did. Don't tell them the speed of the music. Let them bring their legs to speed first.

In general, it has been found that the most efficient leg speed for muscular endurance and power output is between 90 – 100 RPM. So let's finish our session with a drill that targets this efficient cadence. Bring your leg speed to the tempo of the music and then add resistance so there is adequate workload on the legs to stand. We are going to hold a steady tempo for the first minute. We will then come out of the saddle each minute, starting with a 10-second standing effort, then a 15-second effort, 20-second effort, etc. We will end with 2 30-second standing efforts. Your goal is to maintain the same leg speed in and out of the saddle. If you are not able to stand or find yourself very fatigued, stay in the saddle and focus on your form and pedal technique.

By the way, you are now pedaling at 100 RPM! It doesn't feel that fast, does it. You have experienced the benefit of these cadence drills. Your brain is beginning to send the signal to your muscles faster and you are learning to remain relaxed as you ride. This will not only help you as you take indoor cycling classes but will also greatly improve your speed, efficiency and bike handling skills on the road where it counts.

After the drill, allow riders to recover on an easy flat road for 3-5 minutes before transitioning to your stretch routine. Ask riders to identify any tension in their muscles and joints as they stretch. Request that they “let it go”. This is also a great time to let riders know that they have pedaled approximately 10,000 pedal rotations (both legs). If riders felt like they were fighting their bike, it may be due to incorrect setup. This may be your opportunity to “Finally” setup that rider that would never let you address their form on the bike. “*The last thing you want is to do 10,000 rotations with your legs and joints in the wrong alignment!*”

Various Cues

- Relax your shoulders and arms with a light grip on the handlebars.
- Make sure your shoulders are not climbing in your ears as your legs go faster
- Breathe, relax, pedal....breathe, relax, pedal...
- Imagine you are hinged at the hips.
- Relax your ankles and feet. Move your toes.
- Pedal from the balls of your feet and not your heels.
- Relax your stomach and let it balloon out as you breathe.
- Don't force your heels down or point your toes. Your feet should simply follow your knees.
- Pull up, over-the-top, push down and pull back. Think circles.
- Think fast and your legs will follow.

- Don't tense up. Release and give your legs permission to fly.
- Let speed is not about strength, but remaining relaxed with a smooth pedal stroke.
- The faster you pedal, the more relaxed you need to become.

A Note about the Music

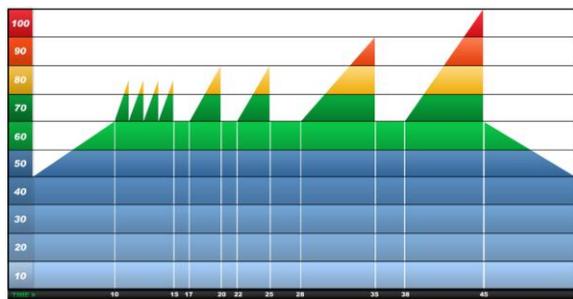
The music used for this workout was created by Stage5 Cycling specifically for the drills. The mp3's of each song (excluding the warm-up and cool-down) have been provided to ICI/Pro with permission to distribute to their members.

Stage5

CYCLING

RPM^x

Speed - Endurance



		Intensity	Cadence	Time	Description
1.		50-60	80	4:30	Intro / Warm-Up
2.		70	95	4:30	Warm-Up 2
3.		65-75	60-120	5:00	Spin-Ups 15 – 30 Seconds
4.		60	80	2:00	Recovery
5.		75-80	70-120	8:00	[2 SETS] Progressive Speed 70rpm to 120rpm (15sec intervals) – 2 Minutes Recovery
6.		60	80	3:00	Recovery
7.		60-85	80-120	7:00	Progressive Speed 80rpm to 120rpm (~1-Minute Intervals)
8.		60	80	3:00	Recovery
9.		85	100	7:00	Steady-State Cruise Interval 10sec to 30sec standing efforts (increase each minute)
10		> 60	95	6:00	Cool-down
11		> 50	85	5:00	Stretch

**S5 RPMx****14 songs, 1 hour, 114.5 MB**

Name	Time	Album	Artist
Numero Deux	4:36	Numero Deux	The Dining Rooms
M Dupont	4:42	Background Music for Your Persona...	The Dining Rooms
Viva Kneivel	4:47	Cooking With Lasers	The Baldwin Brothers
Recovery 1 (2min)	2:08	Stage5 Cycling Recovery	TJS Construction Company
RPM3	3:13		TJS Construction Company
Recovery 1 (2min)	2:08	Stage5 Cycling Recovery	TJS Construction Company
RPM3	3:13		TJS Construction Company
Recovery 1 (3min)	3:08	Stage5 Cycling Recovery	TJS Construction Company
RPMx	7:01		TJS Construction Company
Recovery 1 (3min)	3:08	Stage5 Cycling Recovery	TJS Construction Company
Andre's Groove	7:12		TJS Construction Company
M. Dupont	6:00	Subterranean Modern, Vol. 1	The Dining Rooms
Om Groove - Pt. 2	4:50	In the Om Zone	Steven Halpern
Om Groove - Pt. 2	4:50	In the Om Zone	Steven Halpern