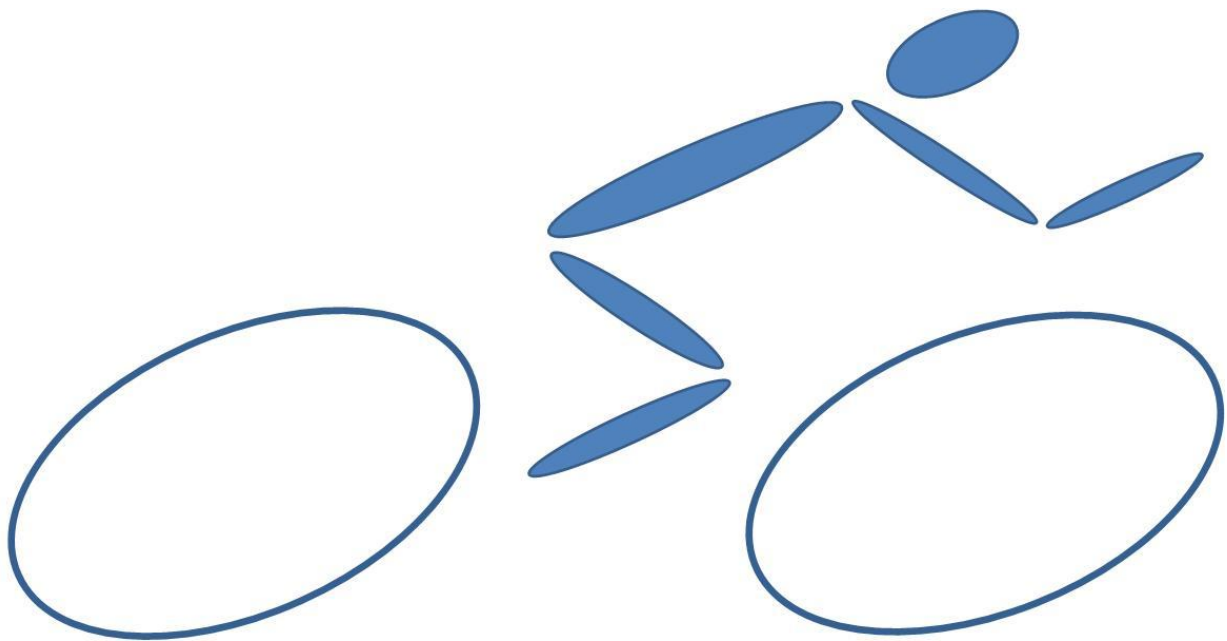


Indoor Training For Cyclists

Get in shape indoors when
you can't ride outside

Includes 50 Indoor Trainer Workouts!



TM

David Ertl

USA Cycling Level 1 Coach

www.CyclesportCoaching.com

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Health Notice and Disclaimer

This book is intended to inform the reader about various cycling training workouts. **Many of the workouts outlined herein are strenuous in nature and should not be adopted without prior consultation with, and approval from, your health professional, or before you obtain proper instruction on technique from a qualified coach or personal trainer.** Cycling by nature is a dangerous activity and carries with it some inherent risks. Use of this information herein is at the sole choice and risk of the reader. The author is neither responsible for, nor liable for any harm or injury resulting from, the use of the information described herein.

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This book is available online at www.CyclesportCoaching.com

Also, be sure to check out my other eBooks '[101 Cycling Workouts](#)', and '[Training For Busy Cyclists](#)'.

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Prologue

If you are like me, you ride a bike because you love the feeling of propelling yourself along under your own power, breathing the fresh air, seeing the sights, sensing the speed and feeling the wind and sun on your face. Time seems to fly by as you fly through the countryside. You didn't take up bike riding because you like to sit still, working hard, not going anywhere, breathing stagnant indoor air under fluorescent lights and being bored out of your mind. Granted, we all love to ride our bikes outside and we do not look forward to having to ride our bikes and train indoors. Indoor riding seems artificial and is nothing like really riding a bike outdoors. When training indoors, it feels too much like we're doing exercise because *we have to do it* rather than because *we want to do it*. It's usually easier to get motivated for a training ride outside than an indoor session. For most of us, sitting on your bike going nowhere fast in the basement is not exactly fun or enjoyable.

Nonetheless, there are times when we need to train on our bike indoors if we are serious about staying in cycling shape on a year-round basis and there may actually be times when it's desirable to train indoors versus riding outside. Most often we think about training indoors during the wintertime, when it's too cold/snowy/icy to ride comfortably and safely outside. If you live in a climate which has real winters, there are many of those cold, windy, wintry days when it's 10 degrees (F) outside and there is no way you are going to risk frostbite for the sake of a bike ride. Granted, you love to ride your bike, but even you have your limits. There are times during the summer where the weather could be undesirable or unsafe to ride outside: high winds, heavy rain, fog, thunderstorms.

There are also times when it's better or more convenient to train indoors even if the weather is decent for riding outdoors. You may choose to train indoors if you don't have time to get outside for your ride whereas you can get in a short, intense indoor workout. Perhaps there is too much traffic at certain times of the day and it's safer and quicker to train indoors. Then there are days when you have to work late or have evening functions and you just can't get outside when it's daylight and your only option is to hit the indoor trainer for your workout. There are also times when you may be traveling and can take your bike and trainer along. You can do a workout in a hotel room or at a relative's house when otherwise you wouldn't be able to get to ride. I know from my own experience there are times when I have needed to train indoors on days with perfectly good weather, because I needed to be home with my young children and training indoors was the only option.

Finally, there are times when it is actually preferable to train indoors. These times are when you are conducting a very specific or complex workout or when you are conducting a fitness test on your bike. Riding an indoor trainer provides you with a consistent and controlled environment in which to conduct your test.

So there are many times when training indoors is a legitimate option. You may have some hardcore cycling friends who don't believe in indoor training. They will tell you it isn't really riding and doesn't 'count'. More power to them. If you are like most of us, though, there are times when it's warmer, safer, more convenient or more productive to train indoors. I would much rather put in a good, intense workout and get some cardiovascular benefit indoors rather than proving how tough I am by riding outside when it's below freezing. Yes, you can prove how tough you are riding outside in a blizzard but you can get a higher quality workout indoors when the conditions outside require you to focus on survival rather than on improving your fitness. Plus, how many times do you need to keep proving you are tough, anyway?

Now, despite having written this book about indoor training, I will be the first to tell you it's not the same as training outdoors. Despite all the advances in indoor trainer technology, there is something about actually riding outdoors that is missing when training indoors. If you can ride outside, that is almost always preferable. But if you can't, the indoor training option is the next best thing and is infinitely better than the other option of not training at all.

This eBook will give you the background necessary to set up a training plan for days or nights when you need to do your training indoors. The first chapter covers more on the reasons and justification for training indoors. The second chapter covers the various types of training that can be done indoors and the various types of equipment you can use. The third chapter discusses various techniques you can use to help you get the most out of your indoor training sessions. The fourth chapter lists 50 workouts you can do indoors.

Hopefully this eBook will give you lots of ideas for making your training more productive, more interesting and less guilt-free.

Don't just ride your bike, Train! -- David Ertl



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Chapter 1

Reasons for Training Indoors

Pay special attention to this title. It doesn't say 'Reasons for *Riding* Indoors', it says 'Reasons for *Training* Indoors'. There is a difference. Riding implies moving; being on your bike going for a bike ride for whatever reason: for pleasure, to get somewhere, to see and ride scenic terrain, or to increase your fitness. Cycling indoors really only addresses one of these reasons for riding your bike – to improve your fitness. You won't get anywhere, you won't see a lot of new scenery (unless you just painted the basement), and you aren't likely to hop on your trainer for fun and pleasure. If you do ride indoors for the fun of it, you need to get a life, and quickly! However, you can very effectively use your bike on an indoor trainer and get a great workout, perhaps even as well as you can ride outdoors, and in some cases, even better. Thus, cycling indoors is really only for the sole purpose of training to improve some aspect of your health and fitness. This book is geared towards using indoor cycling to improve your fitness when, for whatever reason, you can't train outdoors. This chapter is dedicated to describing the times when training indoors is advantageous and even superior to training outdoors. Most of us equate training indoors with wintertime, but as you will see in this chapter there can be many reasons for training indoors, weather being only one of them. In fact, there may be times when it's perfectly nice weather outside for riding when you will workout indoors for one of several reasons.

Winter

Winter is by far the most common reason we train indoors on our bikes. I am sure sales of indoor trainers of all types increase when winter strikes. It's the time of year to head indoors and try to hang on to some semblance of the fitness that you gained over the summer. So unless you live in a climate where winter doesn't exist or is mild, training indoors is often the only option in winter. While all of us would rather be on our bikes riding outdoors, at some point it becomes too snowy, icy, windy or cold. While you will see runners out in all sorts of wintry weather, cycling has two disadvantages over running in the winter. 1) Bikes need traction and do not work well at all on ice. 2) Bikes go faster than runners thus magnifying the wind chill. So it really comes down to wind and cold, snow and ice. It's difficult, not enjoyable and perhaps dangerous to ride in these conditions.

Keep in mind, we're talking about training here. Yes, you can bundle up and get

out and ride in very cold weather. I've ridden my mountain bike when there were a only few inches of snow, and when it was so cold my water bottle froze. You can even get studded bike tires so you can ride on ice. However, none of these situations are very conducive to 'training'. You are spending your time and energy keeping warm, keeping upright and surviving the cold, rather than being able to improve your fitness.

There's also the issue of darkness during the winter. Days are shorter and even if the temperature is okay and the roads are dry, you may not have time to go for a ride outside before or after work because it's dark. Read more about this in the 'Darkness' section below.

Heat and Humidity

There are some climates where there's actually worse weather conditions for riding in the summer than in the winter, due to the extreme heat and or humidity, in such places as Florida and the desert Southwest. Even in Iowa where I live, there are days where it hits the 100 degree mark and there's 90% humidity. While we can ride outside in these conditions, hard training in these conditions may not be very safe or effective. For these conditions, it may be more desirable and beneficial to train indoors in the air conditioning than to do so outdoors. It can also be more comfortable.

Rain and Thunderstorms

We all like to think we are tough and can ride in the rain, and if you ride enough you are going to get caught out in the rain. But starting a ride when it's already raining is another story. I've been known to do it but it's rare. I usually resort to the indoor trainer when it's raining. Because it's dry inside, you can concentrate on a good short but hard workout. Riding in the rain makes it more difficult to concentrate on your workout. You have water spraying in your eyes and face, on your glasses, and you are paying closer attention to the road to avoid puddles. You need to watch out for manhole covers and painted strips on roads which tend to be really slippery when wet. In addition, visibility is poorer when it's raining, especially in hard rain, and you increase the risk of riding in traffic when it's raining. If you have a structured interval session, it may be easier to accomplish and accomplish well by training indoors than trying to do it outside if it's raining hard. If you have an endurance ride planned and it gets rained out, it's more difficult simulating a long ride indoors but can be done if you have the mental

fortitude. Alternately, you can do a shorter but more intense workout if you are forced indoors. Thunderstorms provide a really good excuse to bag your outdoor ride and head for the indoor trainer. Rain is one thing, but lightning is another. It's just not safe riding outside when it is lightning. Thunderstorms often have strong winds associated with them which makes it more difficult and dangerous to ride outdoors.

Darkness

There are many companies that make very good lighting systems for bikes, both headlights and blinking red taillights. However, darkness, like rain seems to put the damper on riding. I haven't ridden a lot at night but I have had some very memorable nighttime rides. If you do ride outside at night, be sure to have a good headlight and taillight system. Wear light or reflective colored clothing (white is best) and try to stay off busy roads. If you have bike trails nearby, these are a much better choice when riding at night as the only vehicular traffic is at crossroads, although you do need to watch out for other cyclists, runners, pedestrians and possums. I actually ran over a possum once while riding at night, no kidding! Okay, I can't resist: Why did the chicken cross the road? Answer: To show the possum it could be done!

But even with protective lights and clothing, riding at night can be dangerous. It also makes it more difficult to do intense, structured workouts. First, you can't see where you are going as well, so you have to concentrate more on the road in front of you. It's also difficult to see your heart rate monitor, computer, or power meter when it's dark, to know how hard or fast you are going or to time intervals. Much of your indoor training may very well be done when it's dark after you get home from work and evening meetings or family events. Or, you may prefer to workout in the morning before work and it's almost always dark then. In the winter, it's dark even before you get home from work so you really don't have an option: either ride outside in the cold and dark or train indoors in the warmth and light. But even in the summer when it is light later, if you don't get home until after 9:00 PM, it's still going to be dark, unless you live north of the Arctic Circle.

Fog and Smog

There may be times when it's not a good idea to ride outdoors even if the temperature is right and there is no precipitation. Two of these times include fog and smog. When it's foggy out, visibility is poor and it's not safe to ride. You

can't be seen by motorists and you can't see very far in front of you and risk hitting something such as a pothole or pedestrian. Even with a light system, it's risky. Even riding on a bike trail is not safe as you may run into walkers, joggers or other bikes coming at you.

The other situation where it is not a good idea to ride is when there is an air pollution warning. If you live in a populated area where smog or ozone warnings are issued, usually late afternoon and early evening, you may risk your health by training outdoors. When you are training, you are breathing harder than normal so you are bringing in a lot of polluted air into your lungs even during a short ride. You may notice yourself coughing and your lungs being sore. Who knows to what long term risks you may be exposing yourself. In this situation, you may want to consider training indoors to spare your lungs and health some potential damage.

Unable to Leave the House

There may be days when the conditions are nice enough to ride outdoors but for one reason or another you can't leave the house. These situations may include such things as caring your young children or elderly parents, waiting around for a repairman to show up or to do their work while you need to be present, or waiting for a delivery. There have been numerous times when I was home alone with my children and would have loved to have gone outdoors to ride but couldn't, and they were too big to fit in the bike trailer. Even though it may be a nice day, your only choice may be to train indoors. One option might be to put your trainer outdoors on the porch or in the garage so at least you can get some fresh air.

Lack of Time

If you only have a short amount of time to ride, such as a half hour, you might better spend your time hopping on your trainer at home and getting in a good quality workout rather than riding outdoors. This depends on what the roads are like where you live, but if it takes you several minutes to get through traffic to where you can get to some open roads for your ride, you've just spent all your time and didn't get a very good workout. If you stay at home, you can immediately get on your bike and on with your workout.

Traveling

Several of the cyclists I coach have to travel for business. If you travel for business

or for pleasure, you should always consider stowing your bike in the car and taking it with you. Hopefully you can get out for a ride at your destination. But most business hotels are not in locations that are conducive to riding, even if you do bring along your bike. They are usually on interstates, at airports or downtown in cities. If you have the opportunity to bring your bike along with you on trips, throw in your trainer as well. That way at the very least you can get a workout done in your hotel room. (You might want to request a room on the ground floor if you are staying in a cheaply built motel or you might aggravate the guest below you.) Another option is to use the hotel gym if they have one. Often these will have a treadmill and recumbent stationary bike. I find hotel gym equipment to be marginal in quality and upkeep, or the gym is closed when I want to use it, so it is usually preferable to bring your own bike and trainer. Another option if traveling to a different city is to check to see if any of the gyms will allow you to get a daily guest pass to use their facility. You can usually find a spin bike to use for your workout or you might even luck out and be able to join one of their spin classes. Before you leave do a search on the internet to see what is available at your destination.

Controlled Environment

One final good reason to train indoors, regardless of weather, has to do with training in a controlled environment. Specific intervals, especially using a power meter, are often better done without stop signs, traffic, hills and wind. Indoor training allows you to concentrate on the workout at hand. Strong winds and hills make it difficult to do controlled intervals. When doing fitness tests, it is especially important to train in as similar an environment as possible from test to test. Indoor trainers offer a repeatable situation for which to compare tests.

As you can see, there are many reasons why you might need to train indoors. While you may wish you could ride outdoors, there will be times when your only options are to do nothing or to train indoors. Most of the time, training indoors will do you more good than doing nothing. So don't feel sorry for yourself if you are grinding away on your trainer on a nice, warm sunny day. Instead, congratulate yourself for being a serious athlete and improving your fitness, any way you can.

Chapter 2

Types of Indoor Cycling and Trainers

Indoor training can encompass almost any kind of exercise that can be done indoors, but for the purpose of this book only cycling-specific workouts are going to be covered. More specifically, this book will only cover workouts done on a stationary bike or your own bike mounted on a stationary trainer. There are many other exercises that can be done as a cyclist such as leg strength exercises and cross training on equipment such as elliptical and stair climbing machines. But these will not be discussed in this book. For ideas on these other indoor cycling-related workouts, see my other book, “101 Cycling Workouts” at www.101CyclingWorkouts.com.

Types of Indoor Cycling

There are two main ways to cycle indoors. One is to take part in a class where you are working out on an indoor trainer, usually some type of spin bike. The other is to ride by yourself on your own trainer.

Indoor Classes. Spin classes are very popular and are offered at many health and fitness clubs. These are classes which are led by a spin instructor who leads the class by calling out instructions on how to ride. For example, the instructor may tell you to spin faster, increase or decrease the resistance, stand up, sit down and how hard or easy to ride. Class size usually has 10 to 20 participants. The instructor almost always plays music to set a tempo and to keep the participants motivated. Class length is typically 50 to 60 minutes although longer sessions can be found at some gyms. Be sure to bring at least one water bottle and a towel. You will work up a good sweat in these classes.

Spin classes are an excellent way to stay in shape especially in the winter. It is much easier to work yourself hard when you are sharing class with others and having an instructor barking instructions. It's usually more motivational than doing a workout on your own. Also, going to a gym to do a scheduled class tends to make it more likely that you will do the workout than if you have an unscheduled appointment in the basement with your own trainer. If you have trouble disciplining yourself to workout on your own at home, consider taking part in spin classes. It's hard not to get a good workout in these classes.

You will want to try out different spin classes and instructors. Some are more like cyclists and some are more like aerobics instructors. As a cyclist, you will probably enjoy classes that are led by real cyclists who stick to basic cycling routines. Some instructors try to give you a whole-body workout during a spin class. Skip those and find classes that work strictly on cycling. For more ideas on how to get the most out of your spin classes, check out the ebook, “Keep It Real in Your Indoor Cycling Classes”, written by master spinning instructor Jennifer Sage. It can be found at [Keep It Real](#).

Another option to spin classes is to take part in an indoor cycling trainer class. This is where people bring their own bikes and trainers to a common location and do an indoor workout together. Typically there is a leader who determines the workout which is usually some type of interval workout, such as those found in Chapter 4 of this book. As a matter of fact, a major motivation for me writing this book was because I led a series of indoor cycling training workouts for our cycling team, the [Des Moines Cycle Club Race Team](#), for the past several winters and many of the workouts in Chapter 4 originated in those sessions.

Here’s a photo of me giving instructions prior to one of our team’s indoor team training sessions.



Bike shops are beginning to offer indoor training workouts and some bike clubs and race teams may also offer them in your area. Check around. If there aren't any, consider setting up an indoor training group in your town and you be the leader. You now have this book full of workouts to use! These are more fun than training alone and you will likely get a better workout as well. The downside is you have to haul your bike, clothes and trainer to the training location rather than leaving it in your home. But if you have the chance to do these, I think you will find that it's well worth the effort.

Training on your own. If you aren't doing some sort of indoor cycling class, then the other indoor option is to ride your own trainer indoors. Many people do this in the winter hoping to maintain some level of exercise and fitness when they can't get out on the road. And most people complain about it as well. Training indoors just isn't the same as riding outdoors. You don't go anywhere, you aren't moving, you sit and stare at the same wall the whole time, you get hot and sweaty. There just aren't a lot of enjoyable aspects to indoor training but there is one very important one. If you have a choice between training indoors versus not training at all, then indoor training is the best option and will do you much more good than doing nothing. Even if the training session isn't all that fun, you should feel better afterwards and feel better about yourself for doing it. Indoor training can be very effective if done correctly. This book is designed to help you get the maximum benefit possible from your time spent cycling indoors.

Types of indoor Trainers

There are several types of indoor trainer systems available to cycle indoors. The two main types are indoor exercise cycles and indoor trainers on which you mount your own bike. Many types offer some sort of resistance system to provide you with a better workout. Early versions relied on air resistance, using some sort of a fan attached to the trainer. The faster one pedaled, the faster the fan goes, the more resistance is generated and the harder it becomes to pedal. Wind resistance increases exponentially with speed, so the resistance becomes increasingly difficult as your ride faster just as it does outside. The next generation machines used magnets to generate resistance. As the pedals are cranked, they turn a magnetized wheel which runs between a pair of magnets. These can often be adjusted for more or less resistance. These were a lot quieter than the old 'wind trainers'. Newer models of trainers utilize a fluid system. These are units which

contain a viscous fluid and blades. As the wheel turns, it turns the blades which have to move through the fluid. These tend to be very quiet and yet generate high resistance which feels quite a bit like riding on the road.

Some trainers also come with some sort of weighted flywheel. One major difference between riding a real bike on the road and riding on an indoor trainer is that you do not have any momentum while riding indoors. If you are pedaling an indoor trainer with resistance, you get the feeling you are riding uphill all the time because you are working against a force yet you don't have any momentum to help you. Therefore, some trainers come with a flywheel to help simulate the momentum you would have if riding on the road. These do provide a feel that is closer to that of a real road bike.

Indoor Training Cycles: Indoor training cycles are exercise machines you ride which have at a minimum an adjustable seat, pedals, handlebars and some system for generating resistance. Many of these exercise cycles have a computer dashboard which estimates speed, resistance, cadence, miles 'ridden', and perhaps heart rate. Prices for stationary exercise bikes range anywhere from a few hundred dollars to several thousand dollars for top-end commercial models. There are two types of indoor training cycles: Exercise bikes and Spinning bikes.

Exercise Bikes

Probably the first of its kind, or at least the most recognizable, is the Schwinn Airdyne Exercise Bike, shown to the right.

This has an adjustable seat, pedals with a chain drive to a large fan, and moving handlebars for upper body exercise.



There are two main types of exercise bikes available: upright and recumbent. The upright models are set up like a regular bike with a seat that is above the pedals and handlebars in front.



The recumbent models resemble a recumbent bike with the seat lower and further back and the pedals and handlebars to the front.

The type you prefer really depends on the type of bike you ride. Those who ride standard road bikes will likely prefer the upright type while recumbent riders will often prefer the recumbent exercise bikes.

These types of exercise bikes are often found in health clubs and while it is possible to get a decent workout on these, a serious cyclist won't find these very appealing. Often, the seat and handlebars are not very adjustable and they put you in a position different from what you are used to on your own bike. They may or may not come with toe straps on the pedals, usually not, and this is a limitation if you are used to cleated pedals. These exercise bikes are good if you are traveling and your hotel has a gym with one of these. It is possible to get a decent workout on these bikes. I'd recommend that you bring your own heart rate monitor and chest strap along. You can always do intervals based on your heart rate. The readouts on these exercise bikes aren't always the most accurate so don't rely on them.

Spinning Bikes

With the advent of spin classes, better quality exercise bikes, called spinning bikes, have been developed. This has provided us with a whole class of exercise bikes that are smoother, better quality, more adjustable, have a heavy flywheel and some even come with a power meter built in. If you go to a gym, try to do your workout on one of these spinning bikes rather than one of the exercise bikes. Even if there isn't a spin class available, hop on one of these spin bikes to conduct your workout.

One of the first spinning bikes was the Schwinn spin bike. This was the first bike used in spinning classes. It has adjustable seat and handlebars and adjustable resistance.



Other popular spinning bikes include the LeMond Revmaster and the Star Trac Johnny G Spinning bikes.



LeMond Revmaster



Star Trac Johnny G

Recently a new line of indoor training cycles have hit the market which has built-in power meters. Saris makes a line of these indoor cycles which have built-in power meters so you can workout based on wattage rather than having to guess how hard you are working. Shown here is the Pro 300PT model. You can even download data from your workouts from these cycles.



Indoor Trainers: The other main category of indoor training devices is the indoor trainer. These are pieces of equipment on which you mount your own road bike and are able to ride your own bike indoors. The original indoor trainers were rollers. The other type of indoor trainers is the stationary trainer.

Rollers

The only way to ride indoors about 30 years ago was by riding on rollers. These are devices which have three metal drums. The rear wheel of your bike rests on the back two, and the front wheel rests on the front drum.



A rubber belt connects the front drum with the front drum from the rear wheel. As you pedal your bike, it turns the rear drums which in turn drive the front drum and turns your front wheel. As you can imagine, it takes some practice to learn

how to balance on these, but once you learn it's, well, like riding a bike, you never forget how! With enough practice you can eventually ride these with no hands or do one-legged cycling drills on them.

Originally rollers offered very little resistance. They could be ridden to simulate riding but didn't give much of a workout. They are good for improving balance, spinning smoothly and for teaching cyclists to ride a straight line. There is little room for error on rollers so you must ride steadily and straight. Rollers are also good for spinning. You can spin easily and quickly on rollers and are good for recovery rides and also to improve leg speed. Rollers are great for teaching smooth, fast spinning because once you get up to high RPMs, you tend to bounce, and bouncing on rollers is exaggerated.

More recently, roller manufacturers have developed mechanisms to add resistance to rollers. One such method is by attaching a fan to the front roller so that when pedaling, you turn the fan which serves two purposes. It adds a lot of resistance, and that resistance increases as you ride faster. It also provides a breeze to cool you off. The resistance generated by these fans is substantial. If you ride with them at the maximum resistance, you will be riding slower than what your ride outdoors for the same effort.



Other roller manufacturers have one of the drums drive a resistance device such as a magnetic unit.



To make riding on rollers seem more realistic, the E-Motion has a roller with a deck which moves forward and backward so you get more of the sensation of riding a bike outdoors where there is variation in forward motion.



Elite makes a roller which has parabolic ends on both ends of the roller to help keep you from sliding off the end of the roller. While many people cringe at the thought of riding off rollers and careening through their picture window, it's not that bad. Because you have no forward



momentum, when you ride off rollers, your wheels immediately stop and you just tend to fall over, which isn't necessarily pleasant, but you won't find yourself riding through your house unless you don't stop pedaling. But if you can't master riding rollers, or are afraid to fall over, there are adaptors that can fit on some makes that can attach to your fork so you are in a stable position.



One of the major differences between riding on the road and riding a trainer is momentum. On the road you have the momentum of your bike and body as it rolls along. If you coast, you keep moving and gradually slow down. On most trainers, at least those with any resistance, if you stop pedaling the rear wheel stops moving almost immediately because you don't have that momentum. Most trainers therefore feel like you are riding uphill all the time or riding into a strong headwind. Some makes have flywheel attachments which provide a feel more like that of a ride on the road. The Kreitler rollers have a very heavy flywheel which gives a feel similar to riding on the road, at least as much as possible on rollers.



There are many models of rollers available with varying features and sources of resistance. Some are quite effective in mimicking the effect of riding on the road. All of them are boring!

Stationary Trainers

More common than rollers are stationary trainers. These are devices that hook up to the rear wheel of the bicycle and have some form of resistance.



Wind Trainers: The major difference among stationary trainers is the source of resistance. The earliest models used air for resistance. The rear wheel drove a fan which generated wind resistance, and that resistance increased with speed of the wheel, so the faster one pedaled, the more resistance was generated. These so-called “wind trainers” can still be found and tend to be the least expensive type of trainer.



CycleOps wind trainer

Magnetic Trainers: After the wind trainer came the “mag trainers”. The resistance on these is generated through a magnetic field generated by the rear wheel. These have the advantage of being much quieter than wind trainers, which were notorious for being noisy. Most models have adjustable resistance levels. Below are a couple of models of mag trainers, Kenetic and Blackburn.



Kenetic mag trainer



Blackburn mag trainer

Fluid Trainers: Recently, a new type of trainer has come on the market, the “fluid trainer”. The resistance of these is generated by the turning of fluid within a chamber in the unit. As the wheel rotates, it turns a mechanism which moves through the fluid, thus creating resistance. These are superior to both the wind and mag trainers because they are very quite and much smoother. They can also create a tremendous amount of resistance.

CycleOps Fluid Trainer



Because the rear wheel is slightly raised when mounted on stationary trainers, the front wheel is lower than the rear wheel. Some trainer manufacturers sell riser blocks to make the bike level when mounted on a trainer, shown to the right. Other people just use a block of wood or some other object of the right height.



Some trainers come with meters which can measure the speed and may have resistance adjustments which can attach to the handlebars.

A more elaborate type of indoor trainer is the CompuTrainer. This has a stationary trainer-type unit but also has the capability to measure cadence, speed, power and heart rate. It can attach to a computer to perform diagnostics such as the smoothness of your spin. CompuTrainer has preloaded courses and provides the option to create custom courses as well.



Comparison of Rollers versus Stationary Trainers

Both rollers and stationary trainers have their advantages and disadvantages and I will summarize them here. I own both because I use each for different training purposes.

Portability: If you take your trainer with you, either as you travel or if you attend a group indoor training session, stationary trainers are easier to haul around than rollers, although most rollers now fold in the middle for easier portability.

Resistance: If you get rollers with a fan or a fluid trainer, you can generate as much resistance as you need from both of these. I tend to use my fluid trainer for very high intensity workouts because the fluid trainer provides a lot of resistance

and I don't have to concentrate on staying on the rollers when doing hard efforts. Rollers that don't have resistance or not much resistance are not very effective for training as they will not create enough of a stress on your leg muscles to stimulate improvement. This is their main disadvantage. However, rollers can help you improve the smoothness of your riding, which is an important advantage.

Road Feel: Rollers equipped with a flywheel provide more of a real feel of riding than stationary trainers. This is due to the fact that you are actually riding your bike and balancing and both wheels are moving under you. If you add a fan on front, it can feel quite a bit like riding outside. I tend to use my rollers when doing longer indoor rides as it is more bearable and realistic than riding on the stationary trainer for more than an hour. I have yet to find a stationary trainer with a large enough flywheel to give you the feel of momentum. Spinning bikes, on the other hand, have a large flywheel and they feel quite a bit like you are riding a real bike with the exception that you can't coast.

Price: Low end stationary trainers are the least expensive although bare-bone rollers are pretty reasonably priced also. You can spend more than \$1000 on an elaborate trainer system if you wish. Most rollers and trainers are in the \$200-500 price range. Shop around. There are a lot of second hand trainers available.

Speed measurement: One of the downsides of a stationary trainer is that it is difficult to measure the speed and distance you have ridden because most bicycle computers run off the front wheel. On a trainer, your front wheel is stationary thus you can't measure speed or distance unless you are able to hook it up to your rear wheel. You can measure speed and distance on rollers because the front wheel is moving.

Spinning: Rollers can help with your spinning technique. If you have rollers without resistance or can disengage it, you can spin with little resistance. This allows you to work on high cadence and the smoothness of your spin. Rollers also provide a great way to loosen up tight, tired legs after a hard ride or on your active recovery day. I spin on rollers between sets of squats as well. You can spin on a stationary trainer but even at the lowest settings there is some resistance.

Each type of indoor trainer has its unique advantages. If you cycle long enough, you will probably end up with rollers, stationary trainers and a spin bike, like me.

Chapter 3

How To Train Indoors

Setting Up Your Workout Area

Now that you have your trainer picked out, let's get going on setting up your workout area. In the previous chapter I mentioned that there are spinning classes and other indoor trainer sessions. This chapter is focused on methods to train by yourself in your own home. Some of the suggestions in this chapter can be used in a class setting but most will pertain to those in your home. This chapter will cover setting up your home trainer area, accessories you will want to have as you train indoors, sources of entertainment and instructional audio and video.

Location of your trainer: The first consideration is where to set up your trainer area. Most of the time your indoor training will be relegated to the basement, which isn't a bad choice for several reasons. Basements are usually cooler than the rest of your house, which is good as you will soon be dripping with sweat. Trainers and their associated noise (music, TV) cranked up so you can hear it can make a lot of noise and the basement keeps the noise out of the rest of the house. Finally, you want to set up your trainer in a dedicated space if possible. If you have to take out and put all your equipment away every time you want to train indoors, this starts to become quite a chore and can be one more thing which serves as a disincentive to train indoors. If everything is set up and all you have to do is hop on and go, it's much more conducive to training.

It's good if you can set your trainer up in a place that has a window. This serves two important purposes. First, it's nice to be able to open a window to get cool air in. Even in the winter you will find you want the window open. Second, it's always nice to be able to look outside when you are training indoors so you get a sense of being outside. And on snowy windy days, it's actually fun to look outside at what you could be riding in but don't have to! When we were shopping for our current house, one of my criteria was a walk-out basement so I could have windows to look out when training in the basement. Indoor training is hard enough. There's no sense making it worse by staring at a concrete wall and feeling like you are in a jail cell.

You may want to consider setting up your trainer on a deck, porch or in your

garage. When it is too cold to ride on the road due to the wind chill, you can set up your trainer outside the house or in the garage with the door open and feel like you are riding outside but without the wind chill. You may be surprised how cold it can be yet you will still be sweating. It will be chilly the first few minutes but then you will warm up nicely. One spring, I separated my shoulder in a crash and didn't want to lose all of my fitness going into the main season so I set up my trainer out on the front porch and rode there and got to enjoy the nice spring weather at least.

Wherever you set up your training area, make sure it is cool in both winter and summer. You generate a lot of heat cycling. You don't realize it as much when riding outdoors because you always have a 15-25 mph wind cooling you off. The basement is better than a second story room. Don't set it up next to the furnace. Having your trainer by a window which can be opened is good if you can arrange it, but if you are near a window, avoid setting it up in direct sunlight

Accessories for your training area: There are a few essentials you will want to complete your indoor training area. You will want to have a fan in front of you to blow on you and cool you off. I prefer a fan that is on a stand or pedestal which can blow directly into my face, rather than a floor fan. The more powerful the fan, the better. This is one time you do want a headwind. Even with a fan, you will probably want to have a small towel draped across the top tube of your bike to use to wipe off your face and to keep sweat from dripping onto your frame. I usually wear a headband and gloves to help absorb sweat as well. When my headband gets saturated and starts dripping, I know I've had a good workout! Even though you aren't going anywhere, don't forget your water bottle. Because you are sweating so much you will want and need to replace water even during a 30 minute or longer session.

It's a good idea to buy a rubber exercise mat to put under your bike and trainer. This will help even out the floor and dampen vibrations and will keep sweat from puddling on your floor or, worse yet, seeping into your carpet. If you are riding on rollers, you will probably want a small stool next to your bike to make it easier to get on and off. If you have a lot of items, such as water bottles, snacks, and TV or DVD/DVR remotes, you might want a table or stand next to your bikes on which to keep everything. I cut off the top of one of my old water bottles and put it in one of my water bottle cages and use it to hold my TV remote.

Entertainment and Instructional Audio and Visual: I know of very few people who get on a trainer and work out without any sound or visual stimulation. Many people prefer music, especially rock with a good fast beat to help keep them motivated and working hard. You can either bring in a stereo and blast it (that's why you are in the basement, remember?), or you can use an iPod or MP3 player and ear buds and keep it quiet for everyone else while you ride and rock out.

There is a whole array of cycling videos you can purchase and watch while training indoors. I prefer these to music. I have recorded hours of bike races on my VCR, then DVD, for many years and I watch them during the winter. My goal each year is to watch the previous summer's worth before winter is over. You can also purchase DVDs of bike races (www.worldcycling.com).

There are also videos you can purchase which show rides along scenic roads, such as those available from Global Ride (www.globalride.net). These have music and narration to encourage you on while showing you a ride from a cyclist's perspective.

If you want to focus on training hard and are not concerned about being entertained, then there are a number of training videos and audio files you can purchase. Two of the more common videos are the Carmichael DVD series (www.trainright.com) and the Spinerval series (www.spinervals.com). Videos such as these walk you through a workout. They typically show an indoor training session and have a coach walking around and talking about the workout as you do it. These are very effective at making you work harder even though it's just a video.

There are also audio options which can be played on iPods and MP3 players that walk you through your workout. An example can be found at www.iamplify.com. You can also purchase numerous music albums created for spin classes and indoor training sessions that are just music but have good up-tempo beats.

Methods of Indoor Training

Now that everything is set up and ready to go, let's discuss the many ways to use your indoor trainer to get a good workout. There are a number of ways you can train indoors, just as there are for outdoor training. As a matter of fact, most of the workouts you can do outside can also be done indoors. Only a few, such as explosive sprints and out of the saddle hard efforts don't work so well on an indoor trainer. But other workouts, such as aerobic and anaerobic intervals, high end efforts, strength and hill climbing simulation, recovery workouts, and even endurance workouts can be done indoors and this chapter will discuss how these can be done.

There is quite a variety of types of workouts you can do through cycling indoors. I use the following categories: Recovery, Endurance, Tempo, Aerobic Threshold, Anaerobic, Maximum Effort, Leg Speed, Power, and Strength. All of these can be done on an indoor trainer and you will see examples of these in the workouts listed in Chapter 4. In fact, the workouts are grouped by these categories. Below are definitions of these categories of workouts. These are defined by 'zones' and first we need an understanding of training zones to get the most out of these workouts.

Training Zones

Training zones are used in these workouts to prescribe the intensity at which you should do these workouts. In order to get the desired benefits from these workouts, you need to make sure you are doing them at the proper effort level to elicit the desired physiological responses. There are four methods you can use on an indoor trainer to determine the intensity with which you are training. These are: 1) Power 2) Heart Rate 3) Rating of Perceived Exertion (RPE) and 4) Speed. Power is the best way to train because you are basing your effort on the direct output of your work, your power. If you don't have a power meter or a trainer that provides power readings, then the next best method is heart rate because it allows you to measure your effort and how your body responds. I use a Power Tap on my indoor training bike and also monitor heart rate. I can tell you that heart rate has a pretty good correlation with power when doing structured intervals indoors, especially on longer intervals where your heart rate is able to reach a steady state. Just be aware that there is a lag between the time when you start your interval and when your heart rate catches up. This lag is around 20

seconds. Below you will find a description for determining training zones based on both power and heart rate. If you don't have either a power meter or heart rate monitor, I'd strongly suggest you at least invest in a heart rate monitor. They are quite affordable and you don't need anything fancy. Even the very basic models provide all you need. However, if you don't even have a heart rate monitor, you can always do intervals based on feel. The system used is RPE and is described below. Even if you have a power meter or heart rate monitor, it's still a good idea to develop your own feel for your effort. Try to develop the ability to guess your power output or heart rate by the way your body feels. This type of body awareness helps put you in tune with the way you feel at various effort levels. Finally, you can also use a speedometer on your trainer or your bike. If you are using a stationary trainer where only the rear wheel is moving, consider getting a cycling computer that can run off the rear wheel instead of the front wheel. The actual speed means little because it varies so much with the type of trainer, tire pressure, and resistance you are using. However, you can use relative speed differences to gauge your efforts. For example, when the workout calls for Zone 2, you might choose to pedal at 17 mph and when it calls for Zone 4, speed might kick up to 20 mph.

The type of metabolic response one experiences when training is determined by the percentage of capacity at which one is exercising. These effort levels are based on the percentage of your Anaerobic Threshold (AT) using a heart rate monitor or Threshold Power (TP) using a power meter. These training zones are listed in these workouts which target the physiological system most impacted by the workout. For example, zone 2 workouts are at a heart rate that is fairly low and this emphasizes those metabolic systems important for low intensity endurance workouts. For determination of your zones, the percentage of AT, not percentage of maximum heart rate (MHR) will be used. The main reason for this is because it's difficult and risky to test one's maximum heart rate, whereas it is possible to estimate your AT quite accurately and safely. If you have a power meter, there are power zones similar to heart rate zones and those are described below, as well as the method for determining your own zones.

There are several versions of zones used by coaches; the system used in this book has six levels:

- Zone 1 = Recovery
- Zone 2 = Endurance
- Zone 3 = Tempo
- Zone 4 = Threshold
- Zone 5 = Anaerobic
- Zone 6 = Maximal Effort

Lactate Threshold (LT) or Anaerobic Threshold (AT): This is the effort level at which you begin to accumulate lactic acid in your muscles; the heart rate where anaerobic energy production is kicking in to supplement your aerobic energy production. It is also the rate at which your effort is no longer sustainable for long periods of time, typically just for a few minutes. AT generally occurs at 85-92% of MHR. See the section below to determine your heart rate zones.

Heart Rate Zones:

- Zone 1** = Recovery (<71% of AT) – uses the aerobic system
- Zone 2** = Endurance (72-81% of AT) – uses the aerobic system
- Zone 3** = Tempo Pace (82-91% of AT) – uses mainly aerobic system
- Zone 4** = Threshold Pace (92-102% of AT) – uses mainly aerobic system with some anaerobic system
- Zone 5** = Anaerobic Pace (103-110% of AT) – uses the anaerobic system to a large degree in addition to the aerobic system.
- Zone 6** = Maximum aerobic capacity (Too short to record HR but greater than 105% of AT); the anaerobic and Creatine Phosphate systems are used.

Threshold Power (TP): TP is the sustainable power output you can produce for up to an hour. This generally corresponds closely to your Anaerobic Threshold level. See the section below to determine your power zones.

Power Zones:

- Zone 1** = Recovery (<55% of TP) – uses the aerobic system
- Zone 2** = Endurance (56-75% of TP) – uses the aerobic system
- Zone 3** = Tempo Pace (76-90% of TP) – uses mainly aerobic system
- Zone 4** = Threshold Pace (91.0 -105% of TP) – uses mainly aerobic system with some anaerobic system

Zone 5 = Anaerobic Pace (106-120% of TP) – uses the anaerobic system to a large degree in addition to the aerobic system.

Zone 6 = Maximum aerobic capacity ($\dot{V}O_2$ Max) (>120% of TP); anaerobic and Creatine Phosphate systems are used.

Determining your AT and TP: Because AT and TP are based on the maximum sustainable pace you can maintain for up to an hour, it's possible to estimate this heart rate or power from a shorter time trial effort, such as a 20 minute time trial. Find a road that is relatively level and free of traffic and intersections. If you can't find a stretch of road that allows you to ride this long, find a road that's about 5 miles and do an 'out-and-back' course to get your 20 minute test done. Alternately, you can do this on an indoor trainer. In some ways an indoor trainer gives you a more repeatable result as you don't have the weather and traffic variables. Warm up thoroughly, and then begin the 20 minute time trial. Ride as hard as you can at a pace you can maintain for the full 20 minutes. There is a fine line between going out too fast and not pushing yourself hard enough. You may need to do a few of these before you figure out your true sustainable pace. Record your heart rate and/or power towards the end of the 20 minutes. Do not accelerate or sprint at the end. What you are after is your sustainable, steady state heart rate or power. If you have a computer that allows you, take the average heart rate or power for the last 10 minutes of the effort.

The pace you can maintain for 20 minutes is slightly faster than the pace you can maintain for an hour. So take your heart rate or power from this 20 minute test and multiply by 0.95 to arrive at your sustainable pace, which is your estimated Anaerobic Threshold (AT) or Threshold Power (PT). Use this value to estimate your own zones and you will be able to know your own heart rate or power zones that are described in the 'Workout Description' of each workout.

Use the chart below to identify your zones based on your own AT and TP values obtained from your test.

Heart Rate Training Zones

	Recovery	Endurance	Tempo	Threshold	Anaerobic	Max Effort
A.T. Heart Rate (Beat/Min)	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
130	<94	94-107	108-120	121-134	135-143	>143
135	<97	97-111	112-124	125-139	140-149	>149
140	<101	101-115	116-129	130-144	145-154	>154
145	<104	104-119	120-133	134-149	150-160	>160
150	<108	108-123	124-138	139-155	156-165	>165
155	<112	112-127	128-143	144-160	161-171	>171
160	<115	115-131	132-147	148-165	166-176	>176
165	<119	119-135	136-152	153-170	171-182	>182
170	<122	122-139	140-156	157-175	176-187	>187
175	<126	127-144	145-161	162-180	181-193	>193
180	<130	130-148	149-166	167-185	186-198	>198
185	<133	133-152	153-170	171-191	192-204	>204
190	<137	137-156	157-175	176-196	197-209	>209
195	<140	140-160	161-179	180-201	202-215	>215

Power Training Zones

	Recovery	Endurance	Tempo	Threshold	Anaerobic	Max Effort
Threshold Power (Watts)	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
200	<110	110-150	151-182	183-212	213-240	>240
210	<116	116-158	159-191	192-223	224-252	>252
220	<121	121-165	166-200	201-233	234-264	>264
230	<127	127-173	174-209	210-244	245-276	>276
240	<132	132-180	181-218	219-254	255-288	>288
250	<138	138-188	189-228	229-265	266-300	>300
260	<143	143-195	196-237	238-276	277-312	>312
270	<149	149-203	204-246	247-286	287-324	>324
280	<154	154-210	211-255	256-297	298-336	>336
290	<160	160-218	219-264	265-307	308-348	>348
300	<165	165-225	226-273	274-318	319-360	>360
310	<171	171-233	234-282	283-329	330-372	>372
320	<176	176-240	241-291	292-339	340-384	>384
330	<182	182-248	249-300	301-350	351-396	>396

These power zones are based on those used by Hunter Allen and Andrew Coggan described in their book, "[Training and Racing with a Power Meter](#)" (Velopress, 2006).

Rating of Perceived Exertion (RPE)

RPE is useful to judge your effort when you don't have a heart rate monitor or power meter. Even if you do have these gadgets, it's still useful to understand how your body feels at these different intensities. RPE has traditionally used a 6-20 scale, but I prefer the modified 1-10 scale as it is easier to remember. It is a subjective measure but once you get experience with it, you can quickly tell your RPE value. Here is the description of RPE and how to convert it to the 6 Zones used in this eBook:

RPE Ratings and corresponding Zones

RPE 0 = No effort (coasting)

RPE 1 = Very light – no resistance

RPE 2 = Light 0-2 = Zone 1

RPE 3 = Moderate 3 = Zone 2

RPE 4 = Somewhat hard 4 = Zone 3

RPE 5 = Quite Hard effort

RPE 6 = Hard effort 5-6 = Zone 4

RPE 7 = Very Hard

RPE 8 = Very, Very Hard 7-8 = Zone 5

RPE 9 = Extremely Hard

RPE 10 = Maximal exertion 9-10 = Zone 6

Types of Workouts

Recovery (Zone 1): These workouts are meant to help your body recover from heavy exercise. Cycling training works the legs hard and they need rest every 1-3 days. Active recovery, such as spinning in a low gear, is actually more beneficial than taking the day off completely. Active recovery moves the muscles and helps loosen them up and flushes waste products from them. It is a form of self-massage. This type of workout can be done especially well on an indoor trainer by removing or reducing the resistance to its lowest level and spinning. This works well on all types of trainers, but especially well on rollers with no resistance or spinning bikes with the resistance backed way off.

Endurance (Zone 2): It is possible to do endurance rides on indoor trainers but this takes more mental strength than physical strength. Time and miles go by more slowly when training indoors so it takes some fortitude to ride more than 1.5 hours on an indoor cycle. This is best done with other people. It seems easier when other people are going through the same thing. The longest I've ridden was for 3 hours and that was in my garage with about 10 other people doing the same thing. Some people prefer to watch a movie while doing endurance rides.

Tempo (Zone 3): Tempo pace is faster than endurance pace, but not so fast that you reach your anaerobic threshold. This pace requires more concentration but isn't really 'hard'. These workouts are better suited for indoor training than endurance workouts because they are done for shorter times and distances.

Threshold (Zone 4): These workouts improve your aerobic engine – they increase the speed you can ride before going anaerobic or into oxygen debt. These are great workouts to do on a trainer because they are hard but can be done fairly quickly. In 40-60 minutes you can get a great workout completed. These typically are timed intervals of fairly short duration. Alternating the efforts with recovery periods helps pass the time, too. Many of the workouts presented in Chapter 4 are in this zone.

Anaerobic (Zone 5): These are very hard intervals and can be done easily indoors, as long as you have a stable trainer with a lot of resistance. Like threshold workouts, these are short but intense. In less than an hour you can get a thorough workout and do yourself a lot of good. ***One word of caution:*** *These are very intense workouts and should only be done if you have a good solid fitness base and clearance from your physician to do intense exercise.*

Maximum Effort (Zone 6): As the name suggests, these workouts are aimed at developing maximum cardiovascular power. These are best done outdoors on your bike. Because these workouts require an all-out effort, they require you to get out of the saddle and stand and push down very hard on the pedals. Many bike trainer setups are not built to handle this type of effort. Certainly rollers are not suited to this and many stationary trainers are not stable enough or able to hold the rear wheel strongly enough to do these safely. The best way to do these workouts is on a spinning bike, due to their heavy and stable design. A couple of Max Effort workouts are included in this book that can be done on a spinning type bike. ***Caution:*** *As with Anaerobic workouts, these should only be done if you are fit, healthy and have your physician's approval to exercise at your maximum ability.*

Leg Speed Workouts: This book also contains a few leg speed drills which are easily done on an indoor trainer. Actually, these are better done indoors than outside because you can adjust the resistance low and really focus on working on your leg speed and smoothness of your spinning. These are especially effective on rollers with no resistance.

Chapter 4

Indoor Training Workouts

Understanding and Using the Workouts

To help you understand these workouts, here are a few explanations.

Warmup: Every workout begins with a warmup, from 10-15 minutes depending on the type of workout. The more intense the workout, the longer your warmup should be. Warmups are intended to get your body temperature up, which helps the muscles contract and joint flex better, and to increase your heart rate in preparation for the upcoming workout. Here are some ways to think about warming up. Start out by spinning with fairly low resistance or gearing for the first 3-5 minutes. Gradually increase your resistance, gearing and/or cadence as you progress through your warmup. If you are going to be doing zone 4-6 workouts, you should mix in a couple of 30 second intervals by increasing your cadence and/or resistance, to start to get your heart rate up so it will be ready for the workout. In most workouts, I have included a couple of minutes of one-legged spinning during the warmup. These one-legged drills are useful to help develop a fluid pedal action. Doing them during each warmup ensures that you do these frequently. Even if you have rollers, you can do these with some practice. You may want to hold on to something the first few times. These can be easily incorporated as part of your warmup.

Intervals: Most of these workouts contain some sort of intervals. Intervals are periods of harder efforts followed by periods of easier efforts. The harder part of the interval is intended to push your body to a higher level of exertion than it is normally used to. This has the positive effect of improving your strength, cardiovascular fitness and your energy systems (aerobic, anaerobic). All workouts have a column indicating the zone you should be targeting, both for the hard part of the interval as well as the recovery period. If you are using RPE or power as your gauge, start the interval and maintain at that level of exertion. If you are using heart rate, though, you need to be aware that your heart rate has a 20-30 lag between the time you start your interval and the time it catches up to your effort. For the first few intervals, it may take as long as a minute before your heart rate is able to get up to your intended level. So for the first 30-60 seconds, you will need to guess at the appropriate effort level until your heart rate catches up.

If you have over-shot your predetermined heart rate zone you will need to back off during the remainder of the interval until it is in the appropriate heart rate zone. If after 45 seconds your heart rate isn't as high as you want it to be, you will have to increase your effort until it is. With some experience you will soon be able to zero in rather quickly on the appropriate effort level needed to get to your desired training zone. One caveat to this: If the interval is one minute in length or less, and they are as short as 15 seconds in some workouts, then heart rate is not such a good indicator of effort because of this lag. Therefore you will have to rely on the RPE method and go more by feel instead of heart rate.

Layout of the intervals: The intervals in these workouts are typically an "On/Off" pattern, meaning that you work hard for a designated duration (the On phase) and then you shift to a lower gear/resistance and recover for a designated duration (the Off phase). For example, you may see:

2 minutes in Zone 4

2 minutes in Zone 1-2

This represents one "On/Off" interval. The 2 minutes in Zone 4 is the "On" part of the interval and the 2 minutes in Zone 1-2 is the "Off" or Recovery part of the interval. Typically when I refer to 'an interval', I am referring to both the On and Off parts together.

However, beware that some workouts, such as Workout 49, may have several back to back On periods at different intensities with no Off or recovery period in between each one. In many workouts, there will be a series of intervals, called Sets, which may contain several On/Off intervals, then followed by a longer Off period to allow for a more full recovery before the next set is begun.

Recovery: When doing intervals it is important to match harder efforts with easier efforts to allow recovery. The purpose of intervals is to push yourself hard, harder than you can maintain for long periods of time. Because you ride these at a pace higher than you can maintain, you can only do these for short periods of time before you need a break to recover. The recovery phase is the Off period of the interval. By repeatedly pushing yourself harder, you will eventually be able to ride faster, longer. Intervals also allow your body's systems to be fully engaged. You don't use all of your physiological capability riding for 2 hours in Zone 2, but if

you do some Zone 5 intervals, you definitely will be forcing your body to use every available system to generate energy and strength. The recovery phase of intervals is incorporated into the workout to allow you to push hard repeatedly yet have this built-in recovery to allow yourself to do several intervals throughout the workout.

Cool Down: After each workout is a Cool Down period, typically 5 minutes but can be done longer if you desire. These should be ridden with light resistance and without much effort of your leg muscles. During the Cool Down, you are doing just that – allowing your body’s temperature to come down, along with your heart rate. Gradually slowing down after a hard workout is better than abruptly stopping. When you have been working hard you have a lot of blood flowing through your heart, arteries and veins. You don’t want to just stop. You want to allow your heart and blood to more gradually return to its normal resting state. Cool Downs also provide a gentle massage to the legs because you are moving them at low intensity. Don’t short-change yourself on the Cool Down. Enjoy it as a reward for your workout.

Length of Workouts: Most of the workouts in this book are about 1 hour in length. This is a decent length of time to train indoors. It takes quite a bit of motivation to go longer and you can get a really good workout done in one hour. This hour typically includes a 10 minute warmup and 5 minute cool down. Some of the workouts are longer, such as the endurance rides, of course, and a few are shorter. However, all of these workouts can be done either longer or shorter than indicated. Many of these have intervals and the length of the workout can be varied by varying the number of intervals you choose to do, to fit your time preference.

Workout Categories

These workouts are grouped by the type of workout. Some workouts include multiple categories (e.g. threshold and anaerobic) in which case they are grouped by the predominant type. There are 7 groupings:

1. Recovery
2. Leg Speed Workouts
3. Endurance Workouts
4. Tempo Workouts

5. Threshold Workouts
6. Anaerobic Intervals
7. Strength and Power Workouts

Workout Layout

Each workout has the same format.

Time: In the left-most column, there is the time in minutes:seconds. Some of the longer, endurance workouts show hours:minutes:seconds. The time shown is cumulative and indicates when that segment of the workout begins. That segment will run until the next time is shown, then you change to that next interval.

Duration: This is the time doing the given phase of the workout, such as the length of the interval or rest period.

Resistance: The Resistance column indicates the level of resistance you should set your bike and or trainer for that segment of the workout. Some trainers allow you to adjust resistance. If that isn't possible, or you max out your resistance setting and need more, then you can use the gears on your bike to adjust resistance as well. The resistance levels are subjective (easy, moderate, hard, very hard) because each trainer and bike gearing is different, but they will give you a relative idea of how hard you should be pushing.

Zone: The Zone column indicates the intensity with which that part of the workout is to be done. Refer to the discussion above to learn how to interpret these zones.

Cadence: A suggested cadence is given as well. Because preferred cadence of cyclists vary so much, you may use these more as a guideline than a hard and fast rule. If you tend to spin a lot, you might want to go higher than the stated cadence. If you don't spin, you may choose to go lower. Ranges of cadences are given in many cases so you can choose a cadence within the higher or lower end of the range that suits you. The cadences should give you a relative idea of how fast or slow to pedal. In some workouts, there are very high cadences given because those workouts are intended to work on smooth spinning. In other workouts, where leg strength is being targeted, very low cadences are given.

Description: Each segment of the workout has a brief description of the type of pedaling you should be doing.

Between all of this information, you should have a good idea of the intent of each segment of the workout.

Recovery Workouts

These sessions are designed to help your legs recover from previous hard workouts. These are easy workouts and involve little resistance on the pedals and typically involve fairly high, easy cadences. These are 'active recovery' workouts. You are using your legs but doing so easily. Through spinning, you can speed recovery by pumping blood through the tired muscles in a way that refreshes without tiring you further. Think of these as a way to massage the legs by spinning on the bike.

Workout 1 is the simplest of recovery workouts – easy spinning for 20 minutes. Keep the cadence up and resistance down.

Workout 1: Recovery Spin					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	20 min	2	Easy-Med	90-100	Easy spinning
25:00	5 min	1-2	Easy	80-100	Cool down
30:00					Workout Completed

Workout 2 alternates between zones 1 and 2. Cadence is high and resistance is low.

Workout 2: Recovery Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	2 min	1	Easy	90-100	Easy spinning
7:00	2 min	2	Easy-Med	90-100	Easy spinning
9:00	2 min	1	Easy	90-100	Easy spinning
11:00	2 min	2	Easy-Med	90-100	Easy spinning
13:00	2 min	1	Easy	90-100	Easy spinning
15:00	2 min	2	Easy-Med	90-100	Easy spinning
17:00	2 min	1	Easy	90-100	Easy spinning
19:00	2 min	2	Easy-Med	90-100	Easy spinning
21:00	2 min	1	Easy	90-100	Easy spinning
23:00	2 min	2	Easy-Med	90-100	Easy spinning
25:00	5 min	1	Easy	80-100	Cool Down
30:00					Workout Completed

Workout 3 contains 30 second periods of high cadence spinning. Although these intervals take some concentration, they should not be hard on the legs and can serve as a recovery workout. Keep resistance low.

Workout 3: High Cadence Intervals					
Time		Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	30 sec	2	Easy	100-110	Fast spinning
5:30	90 sec	2	Easy	80-90	Easy spinning
7:00	30 sec	2	Easy	100-110	Fast spinning
7:30	90 sec	2	Easy	80-90	Easy spinning
9:00	30 sec	2	Easy	100-110	Fast spinning
9:30	90 sec	2	Easy	80-90	Easy spinning
11:00	30 sec	2	Easy	100-110	Fast spinning
11:30	90 sec	2	Easy	80-90	Easy spinning
13:00	30 sec	2	Easy	100-110	Fast spinning
13:30	90 sec	2	Easy	80-90	Easy spinning
15:00	30 sec	2	Easy	100-110	Fast spinning
15:30	90 sec	2	Easy	80-90	Easy spinning
17:00	30 sec	2	Easy	100-110	Fast spinning
17:30	90 sec	2	Easy	80-90	Easy spinning
19:00	30 sec	2	Easy	100-110	Fast spinning
19:30	90 sec	2	Easy	80-90	Easy spinning
21:00	30 sec	2	Easy	100-110	Fast spinning
21:30	90 sec	2	Easy	80-90	Easy spinning
23:00	30 sec	2	Easy	100-110	Fast spinning
23:30	90 sec	2	Easy	80-90	Easy spinning
25:00	5 min	2	Easy	100-110	Cool down
30:00					Workout Completed

Leg Speed Workouts

Being able to maintain a high cadence, or pedaling speed, is important for developing into a proficient cyclist. The faster you pedal, to a point, the more efficient you are. It doesn't take much energy to spin your legs around. The faster you spin, the less effort you use to push on the pedals to go the same speed. That's because you are breaking the work into smaller pieces (more pedal strokes). You can push a large gear at 60 rpm or a smaller gear at 90 rpm. Typically, experienced cyclists pedal around 90 rpm. For you to be able to pedal at 90 rpm or more for hours on end, some leg speed drills are included to work on developing a quick yet smooth pedaling action. If you can spin 120 rpm or more without bouncing all over your saddle, you will be able to spin easily and efficiently at 90-100 rpm. These workouts will help smooth out your pedaling and allow more of your energy make it to your pedals and not be wasted. These can also serve as recovery workouts.

Workout 4 is a leg speed drill to increase the fluidity and ability to spin quickly and smoothly. It's a short workout and can double as a recovery spin.

Workout 4: Sustained Spinning					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	5 min	2	Easy	100-120	Spin quickly without bouncing
15:00	2 min	2	Easy	90	Spin normally
17:00	5 min	2	Easy	100-120	Spin quickly without bouncing
23:00	2 min	2	Easy	90	Spin normally
25:00	5 min	2	Easy	100-120	Spin quickly without bouncing
30:00	5 min	1-2	Easy	80-100	Cool Down
35:00					Workout Completed

Workout 5 contains very high cadence spins to develop top-end spinning ability. Concentrate on pedaling smooth circles without bouncing on the saddle.

Workout 5: Spin-ups					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	30 sec	2	Easy	120+	Spin very quickly without bouncing
10:30	2 min	2	Easy	90	Spin normally
12:30	30 sec	2	Easy	120+	Spin very quickly without bouncing
13:00	2 min	2	Easy	90	Spin normally
15:00	30 sec	2	Easy	120+	Spin very quickly without bouncing
15:30	2 min	2	Easy	90	Spin normally
17:30	30 sec	2	Easy	120+	Spin very quickly without bouncing
18:00	2 min	2	Easy	90	Spin normally
20:00	30 sec	2	Easy	120+	Spin very quickly without bouncing
20:30	2 min	2	Easy	90	Spin normally
22:30	30 sec	2	Easy	120+	Spin very quickly without bouncing
23:00	2 min	2	Easy	90	Spin normally
25:00	30 sec	2	Easy	120+	Spin very quickly without bouncing
25:30	5 min	1-2	Easy	80-100	Cool Down
30:30					Workout Completed

Workout 6 is designed to develop strength and smoothness in each leg so your pedaling stroke becomes more efficient and smooth, and to work on the up-stroke. These take practice but you will notice improvement if you do these regularly.

Workout 6: One Legged Pedaling Drills					
Time	Duration	Zone	Resistance	Cadence	Description
00:00	10 min	1	Easy	90-100	Warmup with moderately high cadence
10:00	1 min	3	Medium	70-90	One legged pedaling - left leg
11:00	1 min	3	Medium	70-90	One legged pedaling - right leg
12:00	2 min	1	Easy	80-95	Spin easily with both legs
14:00	1 min	3	Medium	70-90	One legged pedaling - left leg
15:00	1 min	3	Medium	70-90	One legged pedaling - right leg
16:00	2 min	1	Easy	80-95	Spin easily with both legs
18:00	1 min	3	Medium	70-90	One legged pedaling - left leg
19:00	1 min	3	Medium	70-90	One legged pedaling - right leg
20:00	2 min	1	Easy	80-95	Spin easily with both legs
22:00	1 min	3	Medium	70-90	One legged pedaling - left leg
23:00	1 min	3	Medium	70-90	One legged pedaling - right leg
24:00	6 min	1	Easy	80-100	Cool down - easy spinning with both legs
30:00					Workout Completed

Endurance Workouts

Endurance is the heart and soul of cycling. Road cycling is an endurance activity. While endurance is more enjoyable outdoors, you need to be working on it year-round and if you can't get out and do at least one or two endurance rides each month during the winter, you'd better convince yourself to do a couple of these workouts indoors so your endurance doesn't slip too much. These workouts take some determination and it's easy to quit after an hour. But try to stick with it and force yourself to go at least an hour and a half. Any less and you won't really be maintaining endurance. Put in a good movie or video or put on a ball game on TV, load up on liquids and snacks, and settle in for the duration.

Workout 7 is an indoor one hour endurance ride. Typically endurance rides outdoors are longer but indoors, one hour seems quite long.

Workout 7: 1 Hour Endurance Ride					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	45 min	2	Medium	80-95	Endurance pace
55:00	5 min	1-2	Easy	80-100	Cool down
1:00:00					Workout Completed

Workout 8 is a longer endurance ride. If you can stand it, feel free to go longer!

Workout 8: 1.5 Hour Endurance Ride					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	35 min	2	Medium	80-95	Endurance pace
45:00	5 min	1-2	Easy	80-90	Easy recovery pace
50:00	35 min	2	Medium	80-95	Endurance pace
1:25:00	5 min	1-2	Easy	80-100	Cool down
1:30:00					Workout Completed

Workout 9 is an endurance ride which has 1 minute aerobic thresholds in.

Workout 9: Endurance Ride w/ 1 Minute Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	1 min	4	Hard	80-90	Hard aerobic threshold effort
11:00	4 min	2	Medium	90-100	Spin at endurance pace
15:00	1 min	4	Hard	80-90	Hard aerobic threshold effort
16:00	4 min	2	Medium	90-100	Spin at endurance pace
20:00	1 min	4	Hard	80-90	Hard aerobic threshold effort
21:00	4 min	2	Medium	90-100	Spin at endurance pace
25:00	1 min	4	Hard	80-90	Hard aerobic threshold effort
26:00	4 min	2	Medium	90-100	Spin at endurance pace
30:00	1 min	4	Hard	80-90	Hard aerobic threshold effort
31:00	4 min	2	Medium	90-100	Spin at endurance pace
35:00	1 min	4	Hard	80-90	Hard aerobic threshold effort
36:00	4 min	2	Medium	90-100	Spin at endurance pace
40:00	1 min	4	Hard	80-90	Hard aerobic threshold effort
41:00	4 min	2	Medium	90-100	Spin at endurance pace
45:00	1 min	4	Hard	80-90	Hard aerobic threshold effort
46:00	4 min	2	Medium	90-100	Spin at endurance pace
50:00	1 min	4	Hard	80-90	Hard aerobic threshold effort
51:00	4 min	2	Medium	90-100	Spin at endurance pace
55:00	1 min	4	Hard	80-90	Hard aerobic threshold effort
56:00	4 min	2	Medium	90-100	Spin at endurance pace
1:00:00	1 min	4	Hard	80-90	Hard aerobic threshold effort
1:01:00	4 min	2	Medium	90-100	Spin at endurance pace
1:05:00	1 min	4	Hard	80-90	Hard aerobic threshold effort
1:06:00	4 min	2	Medium	90-100	Spin at endurance pace
1:10:00	1 min	4	Hard	80-90	Hard aerobic threshold effort
1:11:00	4 min	2	Medium	90-100	Spin at endurance pace
1:15:00	1 min	4	Hard	80-90	Hard aerobic threshold effort
1:16:00	4 min	2	Easy	90-100	Spin at endurance pace
1:20:00	1 min	4	Hard	80-90	Hard aerobic threshold effort
1:21:00	4 min	2	Medium	90-100	Spin at endurance pace
1:25:00	5 min	1-2	Easy	80-100	Cool down
1:30:00					Workout Completed

Workout 10 contains periods of 5 minute intervals at threshold level to make this a more challenging endurance session.

Workout 10: Endurance Ride w/ 5 Minute Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	5 min	4	Hard	80-90	Hard aerobic threshold effort
15:00	10 min	2	Medium	90-100	Spin at endurance pace
25:00	5 min	4	Hard	80-90	Hard aerobic threshold effort
30:00	10 min	2	Medium	90-100	Spin at endurance pace
40:00	5 min	4	Hard	80-90	Hard aerobic threshold effort
45:00	10 min	2	Medium	90-100	Spin at endurance pace
55:00	5 min	4	Hard	80-90	Hard aerobic threshold effort
1:00:00	10 min	2	Medium	90-100	Spin at endurance pace
1:10:00	5 min	4	Hard	80-90	Hard aerobic threshold effort
1:15:00	10 min	2	Medium	90-100	Spin at endurance pace
1:25:00	5 min	1-2	Easy	80-100	Cool down
1:30:00					Workout Completed

Tempo Workouts

Tempo rides are a little faster than endurance rides, but not so fast that they feel hard. They should require concentration to keep the pace up but if you can't maintain these for 30 minutes or more without too much discomfort, then you are doing them too hard. Tempo workouts help push your aerobic system and are good to do when you want a longer ride but don't have time for an endurance length ride.

Workout 11 gives you a steady state tempo workout. This is good to do when you don't want to do hard intervals but want a good workout that gets you out of the endurance zone.

Workout 11: Steady State Tempo Ride					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	45 min	3	Medium	80-95	Steady state in zone 3
55:00	5 min	1-2	Easy	80-100	Cool down
1:00:00					Workout Completed

Workout 12 breaks the tempo pace into 5 minute intervals interspersed with endurance pace intervals.

Workout 12: 5 Minute Tempo Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	5 min	3	Medium	80-95	Steady state in zone 3
15:00	5 min	2	Medium	80-95	Zone 2 recovery
20:00	5 min	3	Medium	80-95	Steady state in zone 3
25:00	5 min	2	Medium	80-95	Zone 2 recovery
30:00	5 min	3	Medium	80-95	Steady state in zone 3
35:00	5 min	2	Medium	80-95	Zone 2 recovery
40:00	5 min	3	Medium	80-95	Steady state in zone 3
45:00	5 min	2	Medium	80-95	Zone 2 recovery
50:00	5 min	3	Medium	80-95	Steady state in zone 3
55:00	5 min	1-2	Easy	80-100	Cool down
1:00:00					Workout Completed

Workout 13 gives you 10 minute intervals at tempo pace broken up with endurance pace intervals.

Workout 13: 10 Minute Tempo Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	10 min	3	Medium	80-95	Steady state in zone 3
20:00	5 min	2	Medium	80-95	Zone 2 recovery
25:00	10 min	3	Medium	80-95	Steady state in zone 3
35:00	5 min	2	Medium	80-95	Zone 2 recovery
40:00	10 min	3	Medium	80-95	Steady state in zone 3
50:00	5 min	1-2	Easy	80-100	Cool down
55:00					Workout Completed

Workout 14 has 4 minute tempo intervals interspersed with short 1 minute endurance paced intervals. These can help you build up to steady state tempo pace.

Workout 14: 4 Minute Tempo Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	4 min	3	Medium	80-95	Steady state in zone 3
14:00	1 min	2	Medium	80-95	Zone 2 recovery
15:00	4 min	3	Medium	80-95	Steady state in zone 3
19:00	1 min	2	Medium	80-95	Zone 2 recovery
20:00	4 min	3	Medium	80-95	Steady state in zone 3
24:00	1 min	2	Medium	80-95	Zone 2 recovery
25:00	4 min	3	Medium	80-95	Steady state in zone 3
29:00	1 min	2	Medium	80-95	Zone 2 recovery
30:00	4 min	3	Medium	80-95	Steady state in zone 3
34:00	1 min	2	Medium	80-95	Zone 2 recovery
35:00	4 min	3	Medium	80-95	Steady state in zone 3
39:00	1 min	2	Medium	80-95	Zone 2 recovery
40:00	4 min	3	Medium	80-95	Steady state in zone 3
44:00	1 min	2	Medium	80-95	Zone 2 recovery
45:00	4 min	3	Medium	80-95	Steady state in zone 3
49:00	1 min	2	Medium	80-95	Zone 2 recovery
50:00	4 min	3	Medium	80-95	Steady state in zone 3
54:00	1 min	2	Medium	80-95	Zone 2 recovery
55:00	5 min	1-2	Easy	80-100	Cool down
1:00:00					Workout Completed

Threshold Workouts

Threshold workouts maintain and improve your aerobic capacity. Aerobic capacity is the ability to work hard for long periods of time without going anaerobic. As long as your lungs, heart and blood can deliver oxygen to your working muscles, they can operate aerobically and keep working for a long time. But once you work so hard that you can't supply enough oxygen, you go anaerobic and that pace only lasts a few minutes. This is called oxygen debt and your breathing will be come very fast. Threshold workouts have you train just below the point where you go anaerobic. By doing so you will train your body to be more efficient and deliver more oxygen to your muscles, thus increasing the size of your aerobic engine. This will help you ride faster for longer before you do go anaerobic. Threshold workouts should be done year-round and work well on indoor trainers. In about an hour you can get a great aerobic workout. This is the second largest chapter as these get into more vigorous intervals, which are a good use of your indoor training time.

Workout 15 is a single 30 minute interval (think time trial) at your threshold pace or slightly below.

Workout 15: Steady State Threshold					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	30 min	4	Med-Hard	80-95	Zone 4 Threshold pace
40:00	5 min	1-2	Easy	80-100	Cool down
45:00					Workout Completed

Workout 16 contains two 20 minute threshold intervals. Doing these can help build you up to doing time trials for 30 minutes or longer.

Workout 16: 2 x 20 Minute Threshold					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	20 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
30:00	10 min	2	Easy	90-100	Spin easily for recovery
40:00	20 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
1:00:00	5 min	1-2	Easy	80-100	Cool down
1:05:00					Workout Completed

Workout 17 provides a pair of 15 minute threshold intervals. These are a variation of Workout 16 and likewise can help you with your time trialing ability.

Workout 17: 2 x 15 Minute Threshold					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	15 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
25:00	10 min	2	Easy	90-100	Spin easily for recovery
35:00	15 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
50:00	5 min	1-2	Easy	80-100	Cool down
55:00					Workout Completed

Workout 18 contains three, 10 minute threshold intervals. Doing these can be done to build up to longer, continuous time trials.

Workout 18: 3 x 10 Minute Threshold					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	10 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
20:00	5 min	2	Easy	90-100	Spin easily for recovery
25:00	10 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
35:00	5 min	2	Easy	90-100	Spin easily for recovery
40:00	10 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
50:00	5 min	1-2	Easy	80-100	Cool down
55:00					Workout Completed

Workout 19 has six shorter (5 minute) threshold intervals. In all, it adds up to 30 minutes at threshold effort.

Workout 19: Alternating 5 Minute Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
15:00	5 min	2	Easy	90-100	Spin easily for recovery
20:00	5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
25:00	5 min	2	Easy	90-100	Spin easily for recovery
30:00	5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
35:00	5 min	2	Easy	90-100	Spin easily for recovery
40:00	5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
45:00	5 min	2	Easy	90-100	Spin easily for recovery
50:00	5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
55:00	5 min	2	Easy	90-100	Spin easily for recovery
1:00:00	5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
1:05:00	5 min	1-2	Easy	80-100	Cool down
1:10:00					Workout Completed

Workout 20 contains 10 – 3 minute threshold intervals totaling 30 minutes at threshold. Doing these can help build up longer time trials.

Workout 20: Alternating 3 Minute Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	3 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
13:00	3 min	2	Easy	90-100	Spin easily for recovery
16:00	3 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
19:00	3 min	2	Easy	90-100	Spin easily for recovery
22:00	3 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
25:00	3 min	2	Easy	90-100	Spin easily for recovery
28:00	3 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
31:00	3 min	2	Easy	90-100	Spin easily for recovery
34:00	3 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
37:00	3 min	2	Easy	90-100	Spin easily for recovery
40:00	3 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
43:00	3 min	2	Easy	90-100	Spin easily for recovery
46:00	3 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
49:00	3 min	2	Easy	90-100	Spin easily for recovery
52:00	3 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
55:00	3 min	2	Easy	90-100	Spin easily for recovery
58:00	3 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
1:01:00	3 min	2	Easy	90-100	Spin easily for recovery
1:04:00	3 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
1:07:00	5 min	1-2	Easy	80-100	Cool down
1:12:00					Workout Completed

Workout 21 provides 15 x 2 minute intervals. They start out feeling fairly easy and end up quite difficult by the time you do 15 of them.

Workout 21: Alternating 2 Minute Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
12:00	2 min	2	Easy	90-100	Spin easily for recovery
14:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
16:00	2 min	2	Easy	90-100	Spin easily for recovery
18:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
20:00	2 min	2	Easy	90-100	Spin easily for recovery
22:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
24:00	2 min	2	Easy	90-100	Spin easily for recovery
26:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
28:00	2 min	2	Easy	90-100	Spin easily for recovery
30:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
32:00	2 min	2	Easy	90-100	Spin easily for recovery
34:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
36:00	2 min	2	Easy	90-100	Spin easily for recovery
38:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
40:00	2 min	2	Easy	90-100	Spin easily for recovery
42:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
44:00	2 min	2	Easy	90-100	Spin easily for recovery
46:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
48:00	2 min	2	Easy	90-100	Spin easily for recovery
50:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
52:00	2 min	2	Easy	90-100	Spin easily for recovery
54:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
56:00	2 min	2	Easy	90-100	Spin easily for recovery
58:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
1:00:00	2 min	2	Easy	90-100	Spin easily for recovery
1:02:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
1:04:00	2 min	2	Easy	90-100	Spin easily for recovery
1:06:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
1:08:00	7 min	1-2	Easy	80-100	Cool down
1:15:00					Workout Completed

Workout 22 contains 30 – 1 minute threshold intervals. Doing these is a way to build up to time trialing. One minute isn't hard, but becomes hard after 30 times!

Workout 22: Alternating 1 Minute Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
11:00	1 min	2	Easy	90-100	Spin easily for recovery
12:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
13:00	1 min	2	Easy	90-100	Spin easily for recovery
14:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
15:00	1 min	2	Easy	90-100	Spin easily for recovery
16:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
17:00	1 min	2	Easy	90-100	Spin easily for recovery
18:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
19:00	1 min	2	Easy	90-100	Spin easily for recovery
20:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
21:00	1 min	2	Easy	90-100	Spin easily for recovery
22:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
23:00	1 min	2	Easy	90-100	Spin easily for recovery
24:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
25:00	1 min	2	Easy	90-100	Spin easily for recovery
26:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
27:00	1 min	2	Easy	90-100	Spin easily for recovery
28:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
29:00	1 min	2	Easy	90-100	Spin easily for recovery
30:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
31:00	1 min	2	Easy	90-100	Spin easily for recovery
32:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
33:00	1 min	2	Easy	90-100	Spin easily for recovery
34:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
35:00	1 min	2	Easy	90-100	Spin easily for recovery
36:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
37:00	1 min	2	Easy	90-100	Spin easily for recovery
38:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
39:00	1 min	2	Easy	90-100	Spin easily for recovery
40:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace

Workout 22: Alternating 1 Minute Intervals, Continued

Time	Duration	Zone	Resistance	Cadence	Description
41:00	1 min	2	Easy	90-100	Spin easily for recovery
42:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
43:00	1 min	2	Easy	90-100	Spin easily for recovery
44:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
45:00	1 min	2	Easy	90-100	Spin easily for recovery
46:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
47:00	1 min	2	Easy	90-100	Spin easily for recovery
48:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
49:00	1 min	2	Easy	90-100	Spin easily for recovery
50:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
51:00	1 min	2	Easy	90-100	Spin easily for recovery
52:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
53:00	1 min	2	Easy	90-100	Spin easily for recovery
54:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
55:00	5 min	1-2	Easy	80-100	Cool down
1:00:00					Workout Completed

Workout 23 is a fast moving workout because you are doing an interval every minute, 30 seconds long. These build up fatigue as the workout goes along.

Workout 23: Alternating 30 Second Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
10:30	30 sec	2	Easy	90-100	Spin easily for recovery
11:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
11:30	30 sec	2	Easy	90-100	Spin easily for recovery
12:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
12:30	30 sec	2	Easy	90-100	Spin easily for recovery
13:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
13:30	30 sec	2	Easy	90-100	Spin easily for recovery
14:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
14:30	30 sec	2	Easy	90-100	Spin easily for recovery
15:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
15:30	30 sec	2	Easy	90-100	Spin easily for recovery
16:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
16:30	30 sec	2	Easy	90-100	Spin easily for recovery
17:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
17:30	30 sec	2	Easy	90-100	Spin easily for recovery
18:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
18:30	30 sec	2	Easy	90-100	Spin easily for recovery
19:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
19:30	5.5 min	2	Easy	90-100	Spin easily for recovery
25:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
25:30	30 sec	2	Easy	90-100	Spin easily for recovery
26:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
26:30	30 sec	2	Easy	90-100	Spin easily for recovery
27:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
27:30	30 sec	2	Easy	90-100	Spin easily for recovery
28:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
28:30	30 sec	2	Easy	90-100	Spin easily for recovery
29:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
29:30	30 sec	2	Easy	90-100	Spin easily for recovery
30:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace

Workout 23: Alternating 30 Second Intervals, Continued

Time	Duration	Zone	Resistance	Cadence	Description
30:30	30 sec	2	Easy	90-100	Spin easily for recovery
31:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
31:30	30 sec	2	Easy	90-100	Spin easily for recovery
32:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
32:30	30 sec	2	Easy	90-100	Spin easily for recovery
33:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
33:30	30 sec	2	Easy	90-100	Spin easily for recovery
34:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
34:30	5.5 min	2	Easy	90-100	Spin easily for recovery
40:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
40:30	30 sec	2	Easy	90-100	Spin easily for recovery
41:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
41:30	30 sec	2	Easy	90-100	Spin easily for recovery
42:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
42:30	30 sec	2	Easy	90-100	Spin easily for recovery
43:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
43:30	30 sec	2	Easy	90-100	Spin easily for recovery
44:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
44:30	30 sec	2	Easy	90-100	Spin easily for recovery
45:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
45:30	30 sec	2	Easy	90-100	Spin easily for recovery
46:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
46:30	30 sec	2	Easy	90-100	Spin easily for recovery
47:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
47:30	30 sec	2	Easy	90-100	Spin easily for recovery
48:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
48:30	30 sec	2	Easy	90-100	Spin easily for recovery
49:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
49:30	5.5 min	1-2	Easy	80-100	Cool down
55:00					Workout Completed

Workout 24 provides a variety of threshold intervals, from 3 minutes down to 30 seconds and back up.

Workout 24: Pyramid Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	3 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
13:00	3 min	2	Easy	90-100	Spin easily for recovery
16:00	2.5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
18:30	2.5 min	2	Easy	90-100	Spin easily for recovery
21:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
23:00	2 min	2	Easy	90-100	Spin easily for recovery
25:00	1.5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
26:30	1.5 min	2	Easy	90-100	Spin easily for recovery
28:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
29:00	1 min	2	Easy	90-100	Spin easily for recovery
30:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
30:30	30 sec	2	Easy	90-100	Spin easily for recovery
31:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
32:00	1 min	2	Easy	90-100	Spin easily for recovery
33:00	1.5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
34:30	1.5 min	2	Easy	90-100	Spin easily for recovery
36:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
38:00	2 min	2	Easy	90-100	Spin easily for recovery
40:00	2.5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
42:30	2.5 min	2	Easy	90-100	Spin easily for recovery
45:00	3 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
48:00	3 min	2	Easy	90-100	Spin easily for recovery
51:00	30 sec	5	Hard	80-95	Very Hard short effort
51:30	1 min	2	Easy	90-100	Spin easily for recovery
52:30	30 sec	5	Med-Hard	80-95	Very Hard short effort
53:00	1 min	2	Easy	90-100	Spin easily for recovery
54:00	30 sec	5	Med-Hard	80-95	Very Hard short effort
54:30	5.5 min	1-2	Easy	80-100	Cool down
1:00:00					Workout Completed

Workout 25 is similar to Workout 24, except here you start with 30 second intervals and go up to 3 minutes and then back down to 30 seconds.

Workout 25: Reverse Pyramid Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
10:30	30 sec	2	Easy	90-100	Spin easily for recovery
11:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
12:00	1 min	2	Easy	90-100	Spin easily for recovery
13:00	1.5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
14:30	1.5 min	2	Easy	90-100	Spin easily for recovery
16:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
18:00	2 min	2	Easy	90-100	Spin easily for recovery
20:00	2.5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
22:30	2.5 min	2	Easy	90-100	Spin easily for recovery
25:00	3 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
28:00	3 min	2	Easy	90-100	Spin easily for recovery
31:00	2.5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
33:30	2.5 min	2	Easy	90-100	Spin easily for recovery
36:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
38:00	2 min	2	Easy	90-100	Spin easily for recovery
40:00	1.5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
41:30	1.5 min	2	Easy	90-100	Spin easily for recovery
43:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
44:00	1 min	2	Easy	90-100	Spin easily for recovery
45:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
45:30	30 sec	2	Easy	90-100	Spin easily for recovery
46:00	30 sec	5	Hard	80-95	Very Hard short effort
46:30	1 min	2	Easy	90-100	Spin easily for recovery
47:30	30 sec	5	Med-Hard	80-95	Very Hard short effort
48:00	1 min	2	Easy	90-100	Spin easily for recovery
49:00	30 sec	5	Med-Hard	80-95	Very Hard short effort
49:30	1 min	2	Easy	90-100	Spin easily for recovery
50:30	30 sec	5	Med-Hard	80-95	Very Hard short effort
51:00	5 min	1-2	Easy	80-100	Cool down
56:00					Workout Completed

Workout 26 has two sets of intervals starting at 30 seconds and going up to 3 minutes.

Workout 26: Increasing Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
10:30	30 sec	2	Easy	90-100	Spin easily for recovery
11:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
12:00	1 min	2	Easy	90-100	Spin easily for recovery
13:00	1.5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
14:30	1.5 min	2	Easy	90-100	Spin easily for recovery
16:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
18:00	2 min	2	Easy	90-100	Spin easily for recovery
20:00	2.5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
22:30	2.5 min	2	Easy	90-100	Spin easily for recovery
25:00	3 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
28:00	5 min	2	Easy	90-100	Spin easily for recovery
33:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
33:30	30 sec	2	Easy	90-100	Spin easily for recovery
34:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
35:00	1 min	2	Easy	90-100	Spin easily for recovery
36:00	1.5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
37:30	1.5 min	2	Easy	90-100	Spin easily for recovery
39:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
41:00	2 min	2	Easy	90-100	Spin easily for recovery
43:00	2.5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
45:30	2.5 min	2	Easy	90-100	Spin easily for recovery
48:00	3 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
51:00	5 min	2	Easy	90-100	Spin easily for recovery
56:00					Workout Completed

Workout 27 has two series of aerobic intervals of decreasing length. They start out at 3 min and each successful interval is 30 seconds shorter. Try to pick up the pace as the intervals get shorter.

Workout 27: Decreasing Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	3 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
13:00	3 min	2	Easy	90-100	Spin easily for recovery
16:00	2.5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
18:30	2.5 min	2	Easy	90-100	Spin easily for recovery
21:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
23:00	2 min	2	Easy	90-100	Spin easily for recovery
25:00	1.5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
26:30	1.5 min	2	Easy	90-100	Spin easily for recovery
28:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
29:00	1 min	2	Easy	90-100	Spin easily for recovery
30:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
30:30	4.5 min	2	Easy	90-100	Spin easily for recovery
35:00	3 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
38:00	3 min	2	Easy	90-100	Spin easily for recovery
41:00	2.5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
43:30	2.5 min	2	Easy	90-100	Spin easily for recovery
46:00	2 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
48:00	2 min	2	Easy	90-100	Spin easily for recovery
50:00	1.5 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
51:30	1.5 min	2	Easy	90-100	Spin easily for recovery
53:00	1 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
54:00	1 min	2	Easy	90-100	Spin easily for recovery
55:00	30 sec	4	Med-Hard	80-95	Zone 4 Threshold Pace
55:30	4.5 min	2	Easy	90-100	Spin easily for recovery
1:00:00					Workout Completed

Anaerobic Workouts

If you push yourself hard enough, eventually your heart and lungs can't keep up your oxygen supply and you go anaerobic. This is where you feel 'out of breath' and your muscles will start burning. This pace can only be maintained for a few minutes before your muscles will shut down and your pace will decrease. By training at this intensity for short periods, however, you can increase the speed and time in this zone. Because these anaerobic intervals are short, 30 seconds to 4 minutes, these workouts are well suited for indoor training. These are very tough workouts and require good recovery so don't do these more than once or at most twice a week. In the off-season, you may not even want to do these workouts as they require a good solid fitness base. However, if you miss a hard ride during the summer, and can only ride indoors, these are great workouts to do.

This is the largest set of workouts as these are what are typically thought of as 'intervals'. These are hard but can lead to great fitness.

One word of caution: *These are very intense workouts and should only be done if you have a good solid fitness and aerobic base and clearance from your physician to do intense exercise.*

Workout 28 has a series of 5 minute intervals. The first 4 minutes of each interval are done at threshold pace and the last minute is done at near maximum ability, after being fatigued by the first 4 minutes. This trains you to exert hard efforts while fatigued.

Workout 28: Intervals with Sprint at End					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	4 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
14:00	1 min	6	Very Hard	90-100	Maximum effort
15:00	3 min	2	Easy	90-100	Spin easily for recovery
18:00	4 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
22:00	1 min	6	Very Hard	90-100	Maximum effort
23:00	3 min	2	Easy	90-100	Spin easily for recovery
26:00	4 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
30:00	1 min	6	Very Hard	90-100	Maximum effort
31:00	3 min	2	Easy	90-100	Spin easily for recovery
34:00	3 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
37:00	30 sec	6	Very Hard	90-100	Maximum effort
37:30	3.5 min	2	Easy	90-100	Spin easily for recovery
41:00	3 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
44:00	30 sec	6	Very Hard	90-100	Maximum effort
44:30	3.5 min	2	Easy	90-100	Spin easily for recovery
48:00	3 min	4	Med-Hard	80-95	Zone 4 Threshold Pace
51:00	30 sec	6	Very Hard	90-100	Maximum effort
51:30	30 sec	2	Easy	90-100	Spin easily for recovery
52:00	30 sec	6	Very Hard	90-100	Maximum effort
52:30	30 sec	2	Easy	90-100	Spin easily for recovery
53:00	30 sec	6	Very Hard	90-100	Maximum effort
53:30	6.5 min	2	Easy	90-100	Spin easily for recovery
1:00:00					Workout Completed

Workout 29 is designed to increase your VO2 max, your maximum ability to deliver oxygen to your muscles. These are 30 second maximum level efforts followed by 2.5 minutes to allow fairly full recover to allow you to give another good effort.

Workout 29: 30 Second VO2 Max Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	30 sec	6	Very Hard	90-100	Maximum effort
10:30	2.5 min	2	Easy	90-100	Spin easily for recovery
13:00	30 sec	6	Very Hard	90-100	Maximum effort
13:30	2.5 min	2	Easy	90-100	Spin easily for recovery
16:00	30 sec	6	Very Hard	90-100	Maximum effort
16:30	2.5 min	2	Easy	90-100	Spin easily for recovery
19:00	30 sec	6	Very Hard	90-100	Maximum effort
19:30	2.5 min	2	Easy	90-100	Spin easily for recovery
22:00	30 sec	6	Very Hard	90-100	Maximum effort
22:30	2.5 min	2	Easy	90-100	Spin easily for recovery
25:00	30 sec	6	Very Hard	90-100	Maximum effort
25:30	2.5 min	2	Easy	90-100	Spin easily for recovery
28:00	30 sec	6	Very Hard	90-100	Maximum effort
28:30	2.5 min	2	Easy	90-100	Spin easily for recovery
31:00	30 sec	6	Very Hard	90-100	Maximum effort
31:30	2.5 min	2	Easy	90-100	Spin easily for recovery
34:00	30 sec	6	Very Hard	90-100	Maximum effort
34:30	2.5 min	2	Easy	90-100	Spin easily for recovery
37:00	30 sec	6	Very Hard	90-100	Maximum effort
37:30	7.5 min	2	Easy	90-100	Spin easily for recovery
45:00					Workout Completed

Workout 30 is similar to Workout 29 except the intervals are 1 minute. This forces you to put out a maximum effort for a longer period of time.

Workout 30: 1 Minute VO2 Max Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	1 min	6	Very Hard	90-100	Maximum effort
11:00	3 min	2	Easy	90-100	Spin easily for recovery
14:00	1 min	6	Very Hard	90-100	Maximum effort
15:00	3 min	2	Easy	90-100	Spin easily for recovery
18:00	1 min	6	Very Hard	90-100	Maximum effort
19:00	3 min	2	Easy	90-100	Spin easily for recovery
22:00	1 min	6	Very Hard	90-100	Maximum effort
23:00	3 min	2	Easy	90-100	Spin easily for recovery
26:00	1 min	6	Very Hard	90-100	Maximum effort
27:00	3 min	2	Easy	90-100	Spin easily for recovery
30:00	1 min	6	Very Hard	90-100	Maximum effort
31:00	3 min	2	Easy	90-100	Spin easily for recovery
34:00	1 min	6	Very Hard	90-100	Maximum effort
35:00	3 min	2	Easy	90-100	Spin easily for recovery
38:00	1 min	6	Very Hard	90-100	Maximum effort
39:00	3 min	2	Easy	90-100	Spin easily for recovery
42:00	1 min	6	Very Hard	90-100	Maximum effort
43:00	3 min	2	Easy	90-100	Spin easily for recovery
46:00	1 min	6	Very Hard	90-100	Maximum effort
47:00	8 min	2	Easy	90-100	Spin easily for recovery
55:00					Workout Completed

Workout 31 increases the length of the interval to 2 minutes. You won't be able to maintain as hard an effort as you can for Workouts 29 or 30, but try to hold as high an effort as possible for the full 2 minutes.

Workout 31: 2 Minute VO2 Max Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	2 min	6	Very Hard	90-100	Maximum effort
12:00	4 min	2	Easy	90-100	Spin easily for recovery
16:00	2 min	6	Very Hard	90-100	Maximum effort
18:00	4 min	2	Easy	90-100	Spin easily for recovery
22:00	2 min	6	Very Hard	90-100	Maximum effort
24:00	4 min	2	Easy	90-100	Spin easily for recovery
28:00	2 min	6	Very Hard	90-100	Maximum effort
30:00	4 min	2	Easy	90-100	Spin easily for recovery
34:00	2 min	6	Very Hard	90-100	Maximum effort
36:00	4 min	2	Easy	90-100	Spin easily for recovery
40:00	2 min	6	Very Hard	90-100	Maximum effort
42:00	4 min	2	Easy	90-100	Spin easily for recovery
46:00	2 min	6	Very Hard	90-100	Maximum effort
48:00	4 min	2	Easy	90-100	Spin easily for recovery
52:00	2 min	6	Very Hard	90-100	Maximum effort
54:00	6 min	2	Easy	90-100	Spin easily for recovery
1:00:00					Workout Completed

Workout 32 provides a series of 30 second intervals with a 30 second recovery interval. Fatigue will build during these sets of intervals, forcing you to push through fatigue.

Workout 32: 30 Second Lactate Tolerance Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	30 sec	5	Very Hard	90-100	Anaerobic Level

Workout 32: 30 Second Lactate Tolerance Intervals, Continued

Time	Duration	Zone	Resistance	Cadence	Description
10:30	30 sec	2	Easy	90-100	Spin easily for recovery
11:00	30 sec	5	Very Hard	90-100	Anaerobic Level
11:30	30 sec	2	Easy	90-100	Spin easily for recovery
12:00	30 sec	5	Very Hard	90-100	Anaerobic Level
12:30	30 sec	2	Easy	90-100	Spin easily for recovery
13:00	30 sec	5	Very Hard	90-100	Anaerobic Level
13:30	30 sec	2	Easy	90-100	Spin easily for recovery
14:00	30 sec	5	Very Hard	90-100	Anaerobic Level
14:30	5.5 min	2	Easy	90-100	Spin easily for recovery
20:00	30 sec	5	Very Hard	90-100	Anaerobic Level
20:30	30 sec	2	Easy	90-100	Spin easily for recovery
21:00	30 sec	5	Very Hard	90-100	Anaerobic Level
21:30	30 sec	2	Easy	90-100	Spin easily for recovery
22:00	30 sec	5	Very Hard	90-100	Anaerobic Level
22:30	30 sec	2	Easy	90-100	Spin easily for recovery
23:00	30 sec	5	Very Hard	90-100	Anaerobic Level
23:30	30 sec	2	Easy	90-100	Spin easily for recovery
24:00	30 sec	5	Very Hard	90-100	Anaerobic Level
24:30	5.5 min	2	Easy	90-100	Spin easily for recovery
30:00	30 sec	5	Very Hard	90-100	Anaerobic Level
30:30	30 sec	2	Easy	90-100	Spin easily for recovery
31:00	30 sec	5	Very Hard	90-100	Anaerobic Level
31:30	30 sec	2	Easy	90-100	Spin easily for recovery
32:00	30 sec	5	Very Hard	90-100	Anaerobic Level
32:30	30 sec	2	Easy	90-100	Spin easily for recovery
33:00	30 sec	5	Very Hard	90-100	Anaerobic Level
33:30	30 sec	2	Easy	90-100	Spin easily for recovery
34:00	30 sec	5	Very Hard	90-100	Anaerobic Level
34:30	5.5 min	2	Easy	90-100	Spin easily for recovery
40:00	30 sec	5	Very Hard	90-100	Anaerobic Level
40:30	30 sec	2	Easy	90-100	Spin easily for recovery
41:00	30 sec	5	Very Hard	90-100	Anaerobic Level
41:30	30 sec	2	Easy	90-100	Spin easily for recovery
42:00	30 sec	5	Very Hard	90-100	Anaerobic Level
42:30	15 sec	2	Easy	90-100	Spin easily for recovery
42:45	30 sec	5	Very Hard	90-100	Anaerobic Level
43:15	15 sec	2	Easy	90-100	Spin easily for recovery
43:30	30 sec	5	Very Hard	90-100	Anaerobic Level
44:00	6 min	2	Easy	90-100	Spin easily for recovery
50:00					Workout Completed

Workout 33 is similar to Workout 32 except both the interval and recovery are 1 minute long.

Workout 33: 1 Minute Lactate Tolerance Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling – left leg
6:00	1 min	3	Medium	70-90	One legged pedaling – right leg
7:00	1 min	3	Medium	70-90	One legged pedaling – left leg
8:00	1 min	3	Medium	70-90	One legged pedaling – right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	1 min	5	Very Hard	90-100	Anaerobic Level
11:00	1 min	2	Easy	90-100	Spin easily for recovery
12:00	1 min	5	Very Hard	90-100	Anaerobic Level
13:00	1 min	2	Easy	90-100	Spin easily for recovery
14:00	1 min	5	Very Hard	90-100	Anaerobic Level
15:00	1 min	2	Easy	90-100	Spin easily for recovery
16:00	1 min	5	Very Hard	90-100	Anaerobic Level
17:00	1 min	2	Easy	90-100	Spin easily for recovery
18:00	1 min	5	Very Hard	90-100	Anaerobic Level
19:00	5 min	2	Easy	90-100	Spin easily for recovery
24:00	1 min	5	Very Hard	90-100	Anaerobic Level
25:00	1 min	2	Easy	90-100	Spin easily for recovery
26:00	1 min	5	Very Hard	90-100	Anaerobic Level
27:00	1 min	2	Easy	90-100	Spin easily for recovery
28:00	1 min	5	Very Hard	90-100	Anaerobic Level
29:00	1 min	2	Easy	90-100	Spin easily for recovery
30:00	1 min	5	Very Hard	90-100	Anaerobic Level
31:00	1 min	2	Easy	90-100	Spin easily for recovery
32:00	1 min	5	Very Hard	90-100	Anaerobic Level
33:00	5 min	2	Easy	90-100	Spin easily for recovery
38:00	1 min	5	Very Hard	90-100	Anaerobic Level
39:00	1 min	2	Easy	90-100	Spin easily for recovery
40:00	1 min	5	Very Hard	90-100	Anaerobic Level
41:00	45 sec	2	Easy	90-100	Spin easily for recovery
41:45	1 min	5	Very Hard	90-100	Anaerobic Level
42:45	30 sec	2	Easy	90-100	Spin easily for recovery
43:15	1 min	5	Very Hard	90-100	Anaerobic Level
44:15	15 sec	2	Easy	90-100	Spin easily for recovery
44:30	1 min	5	Very Hard	90-100	Anaerobic Level
45:30	4.5 min	2	Easy	90-100	Spin easily for recovery
50:00					Workout Completed

Workout 34 is similar to Workouts 32 and 33 except the interval is 2 minutes while the recovery period is only one minute, causing increasing fatigue as you go through these sets, forcing you to push through lactic acid fatigue.

Workout 34: 2 Minute Lactate Tolerance Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling – left leg
6:00	1 min	3	Medium	70-90	One legged pedaling – right leg
7:00	1 min	3	Medium	70-90	One legged pedaling – left leg
8:00	1 min	3	Medium	70-90	One legged pedaling – right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	2 min	5	Very Hard	90-100	Anaerobic Level
12:00	1 min	2	Easy	90-100	Spin easily for recovery
13:00	2 min	5	Very Hard	90-100	Anaerobic Level
15:00	1 min	2	Easy	90-100	Spin easily for recovery
16:00	2 min	5	Very Hard	90-100	Anaerobic Level
18:00	1 min	2	Easy	90-100	Spin easily for recovery
19:00	2 min	5	Very Hard	90-100	Anaerobic Level
21:00	5 min	2	Easy	90-100	Spin easily for recovery
26:00	2 min	5	Very Hard	90-100	Anaerobic Level
28:00	1 min	2	Easy	90-100	Spin easily for recovery
29:00	2 min	5	Very Hard	90-100	Anaerobic Level
31:00	1 min	2	Easy	90-100	Spin easily for recovery
32:00	2 min	5	Very Hard	90-100	Anaerobic Level
34:00	1 min	2	Easy	90-100	Spin easily for recovery
35:00	2 min	5	Very Hard	90-100	Anaerobic Level
37:00	6 min	2	Easy	90-100	Spin easily for recovery
43:00	2 min	5	Very Hard	90-100	Anaerobic Level
45:00	1 min	2	Easy	90-100	Spin easily for recovery
46:00	2 min	5	Very Hard	90-100	Anaerobic Level
48:00	1 min	2	Easy	90-100	Spin easily for recovery
49:00	2 min	5	Very Hard	90-100	Anaerobic Level
51:00	1 min	2	Easy	90-100	Spin easily for recovery
52:00	2 min	5	Very Hard	90-100	Anaerobic Level
54:00	6 min	2	Easy	90-100	Spin easily for recovery
1:00:00					Workout Completed

Workout 35 provides a series of 3 minute intervals alternating with 2 minute recovery periods. It will be very difficult to maintain your effort for 3 minutes, but that is what it is intended to do. Aim for low zone 5 for these intervals.

Workout 35: 3 Minute Lactate Tolerance Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	3 min	5	Very Hard	90-100	Anaerobic Level
13:00	2 min	2	Easy	90-100	Spin easily for recovery
15:00	3 min	5	Very Hard	90-100	Anaerobic Level
18:00	2 min	2	Easy	90-100	Spin easily for recovery
20:00	3 min	5	Very Hard	90-100	Anaerobic Level
23:00	2 min	2	Easy	90-100	Spin easily for recovery
25:00	3 min	5	Very Hard	90-100	Anaerobic Level
28:00	6 min	2	Easy	90-100	Spin easily for recovery
34:00	3 min	5	Very Hard	90-100	Anaerobic Level
37:00	2 min	2	Easy	90-100	Spin easily for recovery
39:00	3 min	5	Very Hard	90-100	Anaerobic Level
42:00	2 min	2	Easy	90-100	Spin easily for recovery
44:00	3 min	5	Very Hard	90-100	Anaerobic Level
45:00	2 min	2	Easy	90-100	Spin easily for recovery
47:00	3 min	5	Very Hard	90-100	Anaerobic Level
50:00	10 min	2	Easy	90-100	Spin easily for recovery
1:00:00					Workout Completed

Workout 36 provides a different version of lactate tolerance intervals. These are decreasing intervals from 3 to 1 minute with corresponding decreases in recovery periods.

Workout 36: 3, 2, 1 Minute Lactate Tolerance Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs

Workout 36: 3, 2, 1 Minute Lactate Tolerance Intervals, Continued					
Time	Duration	Zone	Resistance	Cadence	Description
10:00	3 min	5	Very Hard	90-100	Anaerobic Level
13:00	2 min	2	Easy	90-100	Spin easily for recovery
15:00	3 min	5	Very Hard	90-100	Anaerobic Level
18:00	2 min	2	Easy	90-100	Spin easily for recovery
20:00	3 min	5	Very Hard	90-100	Anaerobic Level
23:00	2 min	2	Easy	90-100	Spin easily for recovery
25:00	3 min	5	Very Hard	90-100	Anaerobic Level
28:00	5 min	2	Easy	90-100	Spin easily for recovery
33:00	2 min	5	Very Hard	90-100	Anaerobic Level
35:00	1 min	2	Easy	90-100	Spin easily for recovery
36:00	2 min	5	Very Hard	90-100	Anaerobic Level
38:00	1 min	2	Easy	90-100	Spin easily for recovery
39:00	2 min	5	Very Hard	90-100	Anaerobic Level
41:00	1 min	2	Easy	90-100	Spin easily for recovery
42:00	2 min	5	Very Hard	90-100	Anaerobic Level
44:00	5 min	2	Easy	90-100	Spin easily for recovery
49:00	1 min	5	Very Hard	90-100	Anaerobic Level
50:00	30 sec	2	Easy	90-100	Spin easily for recovery
50:30	1 min	5	Very Hard	90-100	Anaerobic Level
51:30	30 sec	2	Easy	90-100	Spin easily for recovery
52:00	1 min	5	Very Hard	90-100	Anaerobic Level
53:00	30 sec	2	Easy	90-100	Spin easily for recovery
53:30	1 min	5	Very Hard	90-100	Anaerobic Level
54:30	5.5 min	2	Easy	90-100	Spin easily for recovery
1:00:00					Workout Completed

Workout 37 is designed to increase leg strength as well as cardiovascular fitness. These are a series of 4 x 1 minute intervals. During each successive minute, shift to the next harder gear and try to maintain your same speed. Cadence will drop some with each gear change.

Workout 37: Increasing Resistance Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	1 min	4-5	Medium	90-100	Moderate Gear

Workout 37: Increasing Resistance Intervals, Continued

Time	Duration	Zone	Resistance	Cadence	Description
11:00	1 min	4-5	Harder	80-90	Next Harder Gear
12:00	1 min	4-5	Harder	70-80	Next Harder Gear
13:00	1 min	4-5	Hardest	60-70	Next Harder Gear
14:00	4 min	2	Easy	90-100	Spin easily for recovery
18:00	1 min	4-5	Medium	90-100	Moderate Gear
19:00	1 min	4-5	Harder	80-90	Next Harder Gear
20:00	1 min	4-5	Harder	70-80	Next Harder Gear
21:00	1 min	4-5	Hardest	60-70	Next Harder Gear
22:00	4 min	2	Easy	90-100	Spin easily for recovery
26:00	1 min	4-5	Medium	90-100	Moderate Gear
27:00	1 min	4-5	Harder	80-90	Next Harder Gear
28:00	1 min	4-5	Harder	70-80	Next Harder Gear
29:00	1 min	4-5	Hardest	60-70	Next Harder Gear
30:00	4 min	2	Easy	90-100	Spin easily for recovery
34:00	1 min	4-5	Medium	90-100	Moderate Gear
35:00	1 min	4-5	Harder	80-90	Next Harder Gear
36:00	1 min	4-5	Harder	70-80	Next Harder Gear
37:00	1 min	4-5	Hardest	60-70	Next Harder Gear
38:00	4 min	2	Easy	90-100	Spin easily for recovery
42:00	1 min	4	Hard	90-100	Zone 4 Threshold Pace
43:00	1 min	2	Easy	90-100	Spin easily for recovery
44:00	1 min	4	Hard	90-100	Zone 4 Threshold Pace
45:00	50 sec	2	Easy	90-100	Spin easily for recovery
45:50	1 min	4	Hard	90-100	Zone 4 Threshold Pace
46:50	40 sec	2	Easy	90-100	Spin easily for recovery
47:30	1 min	4	Hard	90-100	Zone 4 Threshold Pace
48:30	30 sec	2	Easy	90-100	Spin easily for recovery
49:00	1 min	4	Hard	90-100	Zone 4 Threshold Pace
50:00	20 sec	2	Easy	90-100	Spin easily for recovery
50:20	1 min	4	Hard	90-100	Zone 4 Threshold Pace
51:20	10 sec	2	Easy	90-100	Spin easily for recovery
51:30	1 min	4	Hard	90-100	Zone 4 Threshold Pace
52:30	7.5 min	2	Easy	90-100	Spin easily for recovery
1:00:00					Workout Completed

Workout 38 has a series of decreasing length intervals, starting at 4 min in zone 4, decreasing to 1 min in zone 5. Increase the intensity and effort with each successively shorter interval. This workout finishes up with a shorter, more intense set of intervals.

Workout 38: Decreasing Length Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	4 min	4	Hard	90-100	Zone 4 Threshold Pace
14:00	1 min	2	Easy	90-100	Spin easily for recovery
15:00	3 min	4	Hard	90-100	Zone 4 Threshold Pace
18:00	1 min	2	Easy	90-100	Spin easily for recovery
19:00	2 min	4	Harder	90-100	Zone 4 Threshold Pace
21:00	1 min	2	Easy	90-100	Spin easily for recovery
22:00	1 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
23:00	4 min	2	Easy	90-100	Spin easily for recovery
27:00	4 min	4	Hard	90-100	Zone 4 Threshold Pace
31:00	1 min	2	Easy	90-100	Spin easily for recovery
32:00	3 min	4	Hard	90-100	Zone 4 Threshold Pace
35:00	1 min	2	Easy	90-100	Spin easily for recovery
36:00	2 min	4	Harder	90-100	Zone 4 Threshold Pace
38:00	1 min	2	Easy	90-100	Spin easily for recovery
39:00	1 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
40:00	4 min	2	Easy	90-100	Spin easily for recovery
44:00	2 min	5	Hard	90-100	Zone 5 Anaerobic Pace
46:00	1 min	2	Easy	90-100	Spin easily for recovery
47:00	1.5 min	5	Harder	90-100	Zone 5 Anaerobic Pace
48:30	1 min	2	Easy	90-100	Spin easily for recovery
49:30	1 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
50:30	30 sec	2	Easy	90-100	Spin easily for recovery
51:00	30 sec	6	Very Hard	90-100	Maximum effort
51:30	8.5 min	2	Easy	90-100	Spin easily for recovery
1:00:00					Workout Completed

Workout 39 is similar to Workout 38 but starts with shorter intervals (3 minutes) and goes to 30 second intervals, which should be done at higher intensities. This workout finishes up with a series of 30 second all-out intervals.

Workout 39: Decreasing Length, Increasing Intensity Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling – left leg
6:00	1 min	3	Medium	70-90	One legged pedaling – right leg
7:00	1 min	3	Medium	70-90	One legged pedaling – left leg
8:00	1 min	3	Medium	70-90	One legged pedaling – right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	3 min	4	Hard	90-100	Zone 4 Threshold Pace
13:00	1 min	2	Easy	90-100	Spin easily for recovery
14:00	2 min	4	Hard	90-100	Zone 4 Threshold Pace
16:00	1 min	2	Easy	90-100	Spin easily for recovery
17:00	1 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
18:00	30 sec	2	Easy	90-100	Spin easily for recovery
18:30	30 sec	6	Very Hard	90-100	Maximum effort
19:00	4 min	2	Easy	90-100	Spin easily for recovery
23:00	3 min	4	Hard	90-100	Zone 4 Threshold Pace
26:00	1 min	2	Easy	90-100	Spin easily for recovery
27:00	2 min	4	Hard	90-100	Zone 4 Threshold Pace
29:00	1 min	2	Easy	90-100	Spin easily for recovery
30:00	1 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
31:00	30 sec	2	Easy	90-100	Spin easily for recovery
31:30	30 sec	6	Very Hard	90-100	Maximum effort
32:00	4 min	2	Easy	90-100	Spin easily for recovery
36:00	3 min	4	Hard	90-100	Zone 4 Threshold Pace
39:00	1 min	2	Easy	90-100	Spin easily for recovery
40:00	2 min	4	Hard	90-100	Zone 4 Threshold Pace
42:00	1 min	2	Easy	90-100	Spin easily for recovery
43:00	1 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
44:00	30 sec	2	Easy	90-100	Spin easily for recovery
44:30	30 sec	6	Very Hard	90-100	Maximum effort
45:00	4 min	2	Easy	90-100	Spin easily for recovery
49:00	30 sec	5	Very Hard	90-100	Zone 5 Anaerobic Pace
49:30	30 sec	2	Easy	90-100	Spin easily for recovery
50:00	30 sec	5	Very Hard	90-100	Zone 5 Anaerobic Pace
50:30	30 sec	2	Easy	90-100	Spin easily for recovery
51:00	30 sec	5	Very Hard	90-100	Zone 5 Anaerobic Pace
51:30	30 sec	2	Easy	90-100	Spin easily for recovery

Workout 39: Decreasing Length, Increasing Intensity Intervals, Continued					
Time	Duration	Zone	Resistance	Cadence	Description
52:00	30 sec	5	Very Hard	90-100	Zone 5 Anaerobic Pace
52:30	30 sec	2	Easy	90-100	Spin easily for recovery
53:00	30 sec	5	Very Hard	90-100	Zone 5 Anaerobic Pace
53:30	6.5 min	2	Easy	90-100	Spin easily for recovery
1:00:00					Workout Completed

Workout 40 provides a series of short intervals that decrease from 2 minutes down to 30 seconds. These are done at high and increasing intensity.

Workout 40: Short Decreasing Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling – left leg
6:00	1 min	3	Medium	70-90	One legged pedaling – right leg
7:00	1 min	3	Medium	70-90	One legged pedaling – left leg
8:00	1 min	3	Medium	70-90	One legged pedaling – right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	2 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
12:00	1.5 min	2	Easy	90-100	Spin easily for recovery
13:30	1.5 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
15:00	1 min	2	Easy	90-100	Spin easily for recovery
16:00	1 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
17:00	30 sec	2	Easy	90-100	Spin easily for recovery
17:30	30 sec	6	Very Hard	90-100	Maximum effort
18:00	4 min	2	Easy	90-100	Spin easily for recovery
22:00	2 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
24:00	1.5 min	2	Easy	90-100	Spin easily for recovery
25:30	1.5 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
27:00	1 min	2	Easy	90-100	Spin easily for recovery
28:00	1 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
29:00	30 sec	2	Easy	90-100	Spin easily for recovery
29:30	30 sec	6	Very Hard	90-100	Maximum effort
30:00	4 min	2	Easy	90-100	Spin easily for recovery
34:00	2 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
36:00	1.5 min	2	Easy	90-100	Spin easily for recovery
37:30	1.5 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
39:00	1 min	2	Easy	90-100	Spin easily for recovery
40:00	1 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
41:00	30 sec	2	Easy	90-100	Spin easily for recovery
41:30	30 sec	6	Very Hard	90-100	Maximum effort

Workout 40: Short Decreasing Intervals, Continued					
Time	Duration	Zone	Resistance	Cadence	Description
42:00	4 min	2	Easy	90-100	Spin easily for recovery
46:00	2 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
48:00	1.5 min	2	Easy	90-100	Spin easily for recovery
49:30	1.5 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
51:00	1 min	2	Easy	90-100	Spin easily for recovery
52:00	1 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
53:00	30 sec	2	Easy	90-100	Spin easily for recovery
53:30	30 sec	6	Very Hard	90-100	Maximum effort
54:00	6 min	2	Easy	90-100	Spin easily for recovery
1:00:00					Workout Completed

Workout 41 is a series of intervals starting out long (10 minutes) and decreasing down to 30 seconds at the end. Increase intensity as the intervals get shorter.

Workout 41: Long Decreasing Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling – left leg
6:00	1 min	3	Medium	70-90	One legged pedaling – right leg
7:00	1 min	3	Medium	70-90	One legged pedaling – left leg
8:00	1 min	3	Medium	70-90	One legged pedaling – right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	10 min	4	Hard	90-100	Zone 4 Threshold Pace
20:00	5 min	2	Easy	90-100	Spin easily for recovery
25:00	6 min	4	Hard	90-100	Zone 4 Threshold Pace
31:00	4 min	2	Easy	90-100	Spin easily for recovery
35:00	4 min	4	Hard	90-100	Zone 4 Threshold Pace
39:00	3 min	2	Easy	90-100	Spin easily for recovery
42:00	3 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
45:00	2 min	2	Easy	90-100	Spin easily for recovery
47:00	2 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
49:00	1 min	2	Easy	90-100	Spin easily for recovery
50:00	1 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
51:00	30 sec	2	Easy	90-100	Spin easily for recovery
51:30	30 sec	6	Very Hard	90-100	All out maximum effort
52:00	8 min	2	Easy	90-100	Spin easily for recovery
1:00:00					Workout Completed

Workout 42 provides two pyramid intervals, one from a short interval to long back to short, and the other starts long, goes down to a short interval and back to a long one. Make the shorter intervals more intense.

Workout 42: Pyramid Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	1 min	4	Hard	90-100	Zone 4 Threshold Pace
11:00	1 min	2	Easy	90-100	Spin easily for recovery
12:00	2 min	4	Hard	90-100	Zone 4 Threshold Pace
14:00	2 min	2	Easy	90-100	Spin easily for recovery
16:00	3 min	4	Hard	90-100	Zone 4 Threshold Pace
19:00	1 min	2	Easy	90-100	Spin easily for recovery
20:00	2 min	4	Hard	90-100	Zone 4 Threshold Pace
22:00	1 min	2	Easy	90-100	Spin easily for recovery
23:00	1 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
24:00	30 sec	2	Easy	90-100	Spin easily for recovery
24:30	30 sec	6	Very Hard	90-100	Maximum effort
25:00	4 min	2	Easy	90-100	Spin easily for recovery
29:00	3 min	4	Hard	90-100	Zone 4 Threshold Pace
32:00	2 min	2	Easy	90-100	Spin easily for recovery
34:00	2 min	4	Hard	90-100	Zone 4 Threshold Pace
36:00	1 min	2	Easy	90-100	Spin easily for recovery
37:00	1 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
38:00	30 sec	2	Easy	90-100	Spin easily for recovery
38:30	30 sec	6	Very Hard	90-100	Maximum effort
39:00	1 min	2	Easy	90-100	Spin easily for recovery
40:00	1 min	5	Very Hard	90-100	Zone 5 Anaerobic Pace
41:00	2 min	2	Easy	90-100	Spin easily for recovery
43:00	2 min	4	Hard	90-100	Zone 4 Threshold Pace
45:00	3 min	2	Easy	90-100	Spin easily for recovery
48:00	3 min	4	Hard	90-100	Zone 4 Threshold Pace
51:00	9 min	2	Easy	90-100	Spin easily for recovery
1:00:00					Workout Completed

Workout 43 has a series of 6 minute intervals broken into three parts: The first 3 minutes is in a moderate gear at zone 4 pace, during the next 2 minutes shift to the next harder gear and push harder, the final minute is in the next higher gear pushing harder yet. Your cadence will drop as you shift but try to keep your speed up. These can be done to simulate a hill climb where the hill gets steeper as it goes up.

Workout 43: 6 Minute Increasing Resistance Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	3 min	4	Medium	85	Moderate Gear - Zone 4
13:00	2 min	4	Harder	80	Next Harder Gear
15:00	1 min	5	Harder	75	Next Harder Gear - Zone 5
16:00	5 min	2	Easy	90-100	Spin easily for recovery
21:00	3 min	4	Medium	85	Moderate Gear - Zone 4
24:00	2 min	4	Harder	80	Next Harder Gear
26:00	1 min	5	Harder	75	Next Harder Gear - Zone 5
27:00	5 min	2	Easy	90-100	Spin easily for recovery
32:00	3 min	4	Medium	85	Moderate Gear - Zone 4
35:00	2 min	4	Harder	80	Next Harder Gear
37:00	1 min	5	Harder	75	Next Harder Gear - Zone 5
38:00	5 min	2	Easy	90-100	Spin easily for recovery
43:00	3 min	4	Medium	85	Moderate Gear - Zone 4
46:00	2 min	4	Harder	80	Next Harder Gear
48:00	1 min	5	Harder	75	Next Harder Gear - Zone 5
49:00	6 min	2	Easy	90-100	Spin easily for recovery
55:00					Workout Completed

Workout 44 is an interval workout where both the work interval and its associated recovery period are of random duration, ranging from 30 seconds to 3 minutes. The objective here is to have varying lengths of work efforts and also have varying lengths of recovery, so in some cases you are not fully recovered before you start your next interval.

Workout 44: Random Intervals #1					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	1 min	4	Hard	90-100	Zone 4 Threshold Pace
11:00	2 min	2	Easy	90-100	Spin easily for recovery
13:00	30 sec	4	Hard	90-100	Zone 4 Threshold Pace
13:30	3 min	2	Easy	90-100	Spin easily for recovery
16:30	1 min	4	Hard	90-100	Zone 4 Threshold Pace
17:30	1.5 min	2	Easy	90-100	Spin easily for recovery
19:00	2.5 min	4	Hard	90-100	Zone 4 Threshold Pace
21:30	1.5 min	2	Easy	90-100	Spin easily for recovery
23:00	30 sec	5	Very Hard	90-100	Zone 4 Threshold Pace
23:30	2 min	2	Easy	90-100	Spin easily for recovery
25:30	1 min	6	Very Hard	90-100	Zone 4 Threshold Pace
26:30	30 sec	2	Easy	90-100	Spin easily for recovery
27:00	1.5 min	4	Hard	90-100	Zone 4 Threshold Pace
28:30	3 min	2	Easy	90-100	Spin easily for recovery
31:30	3 min	4	Hard	90-100	Zone 4 Threshold Pace
34:30	2.5 min	2	Easy	90-100	Spin easily for recovery
37:00	2 min	5	Very Hard	90-100	Zone 4 Threshold Pace
39:00	1.5	2	Easy	90-100	Spin easily for recovery
40:30	30 sec	6	Very Hard	90-100	Zone 4 Threshold Pace
41:00	1 min	2	Easy	90-100	Spin easily for recovery
42:00	2.5 min	5	Very Hard	90-100	Zone 4 Threshold Pace
44:30	2 min	2	Easy	90-100	Spin easily for recovery
46:30	3 min	4	Hard	90-100	Zone 4 Threshold Pace
49:30	1 min	2	Easy	90-100	Spin easily for recovery
50:30	30 sec	5	Very Hard	90-100	Zone 4 Threshold Pace
51:00	9 min	2	Easy	90-100	Spin easily for recovery
1:00:00					Workout Completed

Workout 45 is another interval workout where both the work interval and its associated recovery period are of random duration, ranging from 30 seconds to 3 minutes. The objective here is to have varying lengths of work efforts and also have varying lengths of recovery, so in some cases you are not fully recovered before you have to start your next interval.

Workout 45: Random Intervals #2					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	30 sec	4	Hard	90-100	Zone 4 Threshold Pace
10:30	3 min	2	Easy	90-100	Spin easily for recovery
13:30	2.5 min	4	Hard	90-100	Zone 4 Threshold Pace
16:00	1 min	2	Easy	90-100	Spin easily for recovery
17:00	2 min	4	Hard	90-100	Zone 4 Threshold Pace
19:00	1.5 min	2	Easy	90-100	Spin easily for recovery
20:30	1.5 min	4	Hard	90-100	Zone 4 Threshold Pace
22:00	30 sec	2	Easy	90-100	Spin easily for recovery
22:30	2 min	5	Very Hard	90-100	Zone 4 Threshold Pace
24:30	3 min	2	Easy	90-100	Spin easily for recovery
27:30	2.5 min	6	Very Hard	90-100	Zone 4 Threshold Pace
30:00	1 min	2	Easy	90-100	Spin easily for recovery
31:00	30 sec	4	Hard	90-100	Zone 4 Threshold Pace
31:30	1 min	2	Easy	90-100	Spin easily for recovery
32:30	3 min	4	Hard	90-100	Zone 4 Threshold Pace
35:30	2 min	2	Easy	90-100	Spin easily for recovery
37:30	2.5 min	5	Very Hard	90-100	Zone 4 Threshold Pace
40:00	1.5 min	2	Easy	90-100	Spin easily for recovery
41:30	30 sec	6	Very Hard	90-100	Zone 4 Threshold Pace
42:00	3 min	2	Easy	90-100	Spin easily for recovery
45:00	1.5 min	5	Very Hard	90-100	Zone 4 Threshold Pace
46:30	2 min	2	Easy	90-100	Spin easily for recovery
48:30	1 min	4	Hard	90-100	Zone 4 Threshold Pace
49:30	5.5 min	2	Easy	90-100	Spin easily for recovery
55:00					Workout Completed

Workout 46 is a third interval workout where both the work interval and its associated recovery period are of random duration, ranging from 30 seconds to 3 minutes. The objective here is to have varying lengths of work efforts and also have varying lengths of recovery, so in some cases you are not fully recovered before you start your next interval.

Workout 46: Random Intervals #3					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	2.5 min	4	Hard	90-100	Zone 4 Threshold Pace
12:30	2 min	2	Easy	90-100	Spin easily for recovery
14:30	1 min	4	Hard	90-100	Zone 4 Threshold Pace
15:30	1.5 min	2	Easy	90-100	Spin easily for recovery
17:00	30 sec	4	Hard	90-100	Zone 4 Threshold Pace
17:30	3 min	2	Easy	90-100	Spin easily for recovery
20:30	2.5 min	4	Hard	90-100	Zone 4 Threshold Pace
23:00	3 min	2	Easy	90-100	Spin easily for recovery
26:00	30 sec	5	Very Hard	90-100	Zone 4 Threshold Pace
26:30	2 min	2	Easy	90-100	Spin easily for recovery
28:30	1 min	6	Very Hard	90-100	Zone 4 Threshold Pace
29:30	1.5 min	2	Easy	90-100	Spin easily for recovery
31:00	2 min	4	Hard	90-100	Zone 4 Threshold Pace
33:00	2.5 min	2	Easy	90-100	Spin easily for recovery
35:30	30 sec	4	Hard	90-100	Zone 4 Threshold Pace
36:00	1 min	2	Easy	90-100	Spin easily for recovery
37:00	3 min	5	Very Hard	90-100	Zone 4 Threshold Pace
40:00	1.5 min	2	Easy	90-100	Spin easily for recovery
41:30	2.5 min	6	Very Hard	90-100	Zone 4 Threshold Pace
44:00	30 sec	2	Easy	90-100	Spin easily for recovery
44:30	1.5 min	5	Very Hard	90-100	Zone 4 Threshold Pace
46:00	1 min	2	Easy	90-100	Spin easily for recovery
47:00	3 min	4	Hard	90-100	Zone 4 Threshold Pace
50:00	5 min	2	Easy	90-100	Spin easily for recovery
55:00					Workout Completed

Strength and Power Workouts

It is possible to work on strength and power on an indoor trainer. While most of these workouts are better done outdoors where you can use hills or headwinds to provide resistance, you can do them indoors if you have a sturdy trainer which supplies a lot of resistance. Spin bikes are best suited to these workouts because they are stable and you can crank down the resistance as hard as you can pedal.

Word of Caution: *As with Anaerobic workouts, these should only be done if you are fit, healthy and have your physician's approval to exercise at your maximum ability.*

Workout 47 emphasizes leg strength. Think of it as a strength workout on the bike. You will need a trainer which offers high resistance. You may also need to use the higher gears on your bike. The objective is to ride for 5 minutes pushing a large (hard) gear at a fairly low cadence (70-80). This should feel slow to you but allows you to work your leg muscles more thoroughly.

Workout 47: Low RPM Grinds					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling – left leg
6:00	1 min	3	Medium	70-90	One legged pedaling – right leg
7:00	1 min	3	Medium	70-90	One legged pedaling – left leg
8:00	1 min	3	Medium	70-90	One legged pedaling – right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	5 min	4	Very Hard	70-80	Low RPM High Resistance
15:00	5 min	2	Easy	90-100	Spin easily for recovery
20:00	5 min	4	Very Hard	70-80	Low RPM High Resistance
25:00	5 min	2	Easy	90-100	Spin easily for recovery
30:00	5 min	4	Very Hard	70-80	Low RPM High Resistance
35:00	5 min	2	Easy	90-100	Spin easily for recovery
40:00	5 min	4	Very Hard	70-80	Low RPM High Resistance
45:00	5 min	2	Easy	90-100	Spin easily for recovery
50:00	5 min	4	Very Hard	70-80	Low RPM High Resistance
55:00	5 min	2	Easy	90-100	Spin easily for recovery
1:00:00					Workout Completed

Workout 48 simulates a long hill climb. Each 12 minute interval is a series of three consecutive 4-minute intervals. Every 4 minutes, increase the gearing to make the pedaling more difficult. Your cadence will drop every time you shift but try to keep the same speed. Your heart rate should also increase every 4 minutes.

Workout 48: Simulated Hill Climbs					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	4 min	4	Hard	90-95	Zone 4 effort
14:00	4 min	4	Harder	80-90	Increased Resistance, Lower RPM
18:00	4 min	4	Hardest	70-80	High Resistance, Low RPM
22:00	5 min	2	Easy	90-100	Spin easily for recovery
27:00	4 min	4	Hard	90-95	Zone 4 effort
31:00	4 min	4	Harder	80-90	Increased Resistance, Lower RPM
35:00	4 min	4	Hardest	70-80	High Resistance, Low RPM
39:00	5 min	2	Easy	90-100	Spin easily for recovery
44:00	4 min	4	Hard	90-95	Zone 4 effort
48:00	4 min	4	Harder	80-90	Increased Resistance, Lower RPM
52:00	4 min	4	Hardest	70-80	High Resistance, Low RPM
56:00	9 min	2	Easy	90-100	Spin easily for recovery
1:05:00					Workout Completed

Workout 49 is a series of intervals made up of 1 minute efforts. Every minute, increase the resistance by shifting to the next harder gear. Start off spinning normally in a moderate gear. By the end of each 5 minute interval, your cadence will be fairly slow. Try to maintain a steady speed throughout each 5 minute interval.

Workout 49: Increased Resistance Intervals					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling – left leg
6:00	1 min	3	Medium	70-90	One legged pedaling – right leg
7:00	1 min	3	Medium	70-90	One legged pedaling – left leg
8:00	1 min	3	Medium	70-90	One legged pedaling – right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	1 min	4	Medium	90-100	Zone 4 effort – Normal Cadence
11:00	1 min	4	Harder	85-95	Increase one gear
12:00	1 min	4	Harder	80-90	Increase one gear
13:00	1 min	4	Harder	75-85	Increase one gear
14:00	1 min	4	Hardest	70-80	Increase one gear
15:00	5 min	2	Easy	90-100	Spin easily for recovery
20:00	1 min	4	Medium	90-100	Zone 4 effort – Normal Cadence
21:00	1 min	4	Harder	85-95	Increase one gear
22:00	1 min	4	Harder	80-90	Increase one gear
23:00	1 min	4	Harder	75-85	Increase one gear
24:00	1 min	4	Hardest	70-80	Increase one gear
25:00	5 min	2	Easy	90-100	Spin easily for recovery
30:00	1 min	4	Medium	90-100	Zone 4 effort – Normal Cadence
31:00	1 min	4	Harder	85-95	Increase one gear
32:00	1 min	4	Harder	80-90	Increase one gear
33:00	1 min	4	Harder	75-85	Increase one gear
34:00	1 min	4	Hardest	70-80	Increase one gear
35:00	5 min	2	Easy	90-100	Spin easily for recovery
40:00	1 min	4	Medium	90-100	Zone 4 effort – Normal Cadence
41:00	1 min	4	Harder	85-95	Increase one gear
42:00	1 min	4	Harder	80-90	Increase one gear
43:00	1 min	4	Harder	75-85	Increase one gear
44:00	1 min	4	Hardest	70-80	Increase one gear
45:00	10 min	2	Easy	90-100	Spin easily for recovery
55:00					Workout Completed

Workout 50 is designed to increase your seated power. These are 1 minute intervals done with very high resistance so that you can only pedal about 70-80 RPM even though you are pushing very hard on the pedals. If your cadence drops below 70, shift to the next easier gear but keep pushing hard.

Workout 50: One Minute High Gear Pushes					
Time	Duration	Zone	Resistance	Cadence	Description
0:00	5 min	1-2	Easy	90-100	Warmup
5:00	1 min	3	Medium	70-90	One legged pedaling - left leg
6:00	1 min	3	Medium	70-90	One legged pedaling - right leg
7:00	1 min	3	Medium	70-90	One legged pedaling - left leg
8:00	1 min	3	Medium	70-90	One legged pedaling - right leg
9:00	1 min	2	Easy	90-100	Spin easily with both legs
10:00	1 min	5	Very Hard	70-80	Push all out
11:00	2 min	2	Easy	90-100	Spin easily for recovery
13:00	1 min	5	Very Hard	70-80	Push all out
14:00	2 min	2	Easy	90-100	Spin easily for recovery
16:00	1 min	5	Very Hard	70-80	Push all out
17:00	2 min	2	Easy	90-100	Spin easily for recovery
19:00	1 min	5	Very Hard	70-80	Push all out
20:00	2 min	2	Easy	90-100	Spin easily for recovery
22:00	1 min	5	Very Hard	70-80	Push all out
23:00	6 min	2	Easy	90-100	Spin easily for recovery
29:00	1 min	5	Very Hard	70-80	Push all out
30:00	2 min	2	Easy	90-100	Spin easily for recovery
32:00	1 min	5	Very Hard	70-80	Push all out
33:00	2 min	2	Easy	90-100	Spin easily for recovery
35:00	1 min	5	Very Hard	70-80	Push all out
36:00	2 min	2	Easy	90-100	Spin easily for recovery
38:00	1 min	5	Very Hard	70-80	Push all out
39:00	2 min	2	Easy	90-100	Spin easily for recovery
41:00	1 min	5	Very Hard	70-80	Push all out
42:00	8 min	2	Easy	90-100	Spin easily for recovery
50:00					Workout Completed

Bell Lap

This eBook is designed to help you become a better cyclist by making use of indoor training. Most of us don't have the luxury of riding outdoors all the time. If you want to continue improving your fitness, throughout the year, and year after year, you need to train year round. If you live in a place where winter prevents you from riding outdoors consistently on a year-round basis, or if you have conflicts which prevent you from riding outdoors as much as you would like, then indoor cycling may be your only alternative, if not because of cold and snow, then because of short days and darkness. If you are serious about improving your cycling fitness, you won't hesitate to hop on your indoor trainer if that is the only way you will get a workout. But as you can see, there are a lot of other reasons in addition to winter why training indoors may be a good idea or your only alternative. These reasons include lack of time, bad weather, need to be home with kids, and in some cases you can get a better workout or test when done indoors where the conditions are controlled and repeatable.

No one is saying that training indoors is as good as the real thing, and it certainly isn't as fun. The reward is increased fitness. Almost all of the workouts in this eBook are fairly intense to very intense. In about an hour session, you can get a great workout which will maintain and perhaps even improve your fitness. Indoor workouts should be more intense than what you would do outdoors, because you don't want to spend as much time training indoors. It's very difficult mentally to train for extended periods indoors. While a 3 hour ride outdoors on a nice day is fun, grinding away for an hour indoors seems longer. Therefore keep your indoor workouts short but keep them intense so you get a worthwhile workout.

Try a variety of different workouts. As you can see, it's possible to work on leg speed, endurance, aerobic and anaerobic fitness, strength and power as well as recovery on an indoor trainer. Try them all. This is by no means a complete set of possible workouts so make up your own workouts as well.

You are now ready to train indoors. You know what type of trainer you want, you have your indoor training area set up and you have a set of 50 workouts to get you started. Best wishes with your training.