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Spring Training



FOR
ROADIES

By Fred Matheny

RoadBikeRider.com



Spring Training for Roadies

By Fred Matheny

Cover design by Mike Shaw

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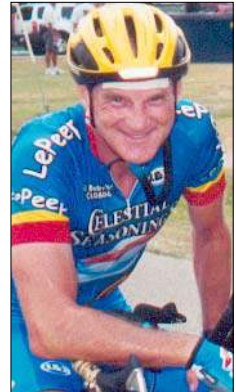
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About the Author

Fred Matheny has served as VP of RBR Publishing Company, which includes the www.RoadBikeRider.com website, the weekly *RoadBikeRider.com Newsletter*, and a book publishing division that specializes in “how to” information for road cyclists. He authored the popular newsletter column, *Ask Coach Fred*, answering questions on all aspects of cycling performance.



Fred began riding in the early '70s after an athletic career that included football and track. At Baldwin-Wallace College in Ohio, he was named the football team's “outstanding offensive lineman” and was an all-league selection.

After graduating and moving to Colorado, Fred took up cycling. He rode his first race in 1976, the Iron Horse from Durango to Silverton. A category 2 racer since 1978, his top results include a cat 3 win in the Mount Evans Hill Climb, a world record of 5 days, 11 hours in the 1996 Team Race Across America, gold in the Colorado masters time trial championship, and bronze in the masters national time trial championship.

Fred has written about cycling for 24 years, including 12 books and hundreds of articles. He served as *Bicycling* magazine's training & fitness editor for 5 years. In researching his writing, he interviews (and rides with) many of the world's top racers, coaches and exercise physiologists. He also coaches at cycling camps.

Fred and Debbie, his wife of 34 years, have a son, Ross, who is a high school teacher in Washington state.

Introduction

In *Off-Season Training for Roadies*, I said that winter is perhaps the most important time of the training year. This opinion is shared by Lance Armstrong's coach, Chris Carmichael, who maintains that “Lance won the Tour de France in November, December and January.”

But April and May are just as important for recreational riders as well as pros. Spring represents a crucial transition between winter's foundation and the summer season.

Much of your off-season work can be wasted in these 8 weeks if you do too little—or too much.

This eBook is about doing it just right.

Without the proper approach in spring, you won't build on the crosstraining and strength work you did from December through March. You won't be any faster, stronger or more skilled in July than you were at Christmas.

But if you get carried away with enthusiasm and train too hard and too long in the 8 transition weeks, you'll be tired when the season arrives. The fervor that fueled your training in April will be long gone. You'll hate your bike.

Don't let either awful fate befall you.

Fred Matheny

How to Use This Book

The goal of this eBook is to help you use spring to develop strength, power and speed that's ready for prime time—no matter what “prime time” means for you.

I've arranged the information in the order you need it to set up your most-effective spring training program.

Start by reviewing the material in **chapter 1** about goal setting, measuring intensity, and proper nutrition. Even if you think you know about these subjects, this review is important for understanding my approach.

Chapters 2, 3 and 4 are about foundation work—long rides, muscular endurance and lactate threshold workouts. You probably worked on these abilities in winter. In spring, they must be improved.

I cover the specific skills of climbing and sprinting in **chapters 5 and 6**. Winter fitness allows you to climb competently and sprint a little. By focusing on these skills for 8 spring weeks, you can get significantly better.

Spring is also when group training rides begin in most areas of the country (as opposed to winter social rides). Everyone is eager for the season, so group rides often get competitive. You'll improve by joining in. But you must be careful. **Chapter 7** tells you how to use these rides for your own needs while still contributing to the goals of the group.

It's important to kick up the intensity a notch in spring, but increased training volume and effort can lead to overtraining and injuries. **Chapters 8 and 9** show you how to fix problems so your season isn't compromised.

Spring training is often defined by spring weather—chilly and wet. **Chapter 10** covers dressing correctly, which can mean the difference between shrugging off the rain or being miserable. Also included are bike-handling tips for slick conditions.

In *Off-Season Training for Roadies*, I give guidelines for setting up a program divided into three 6-week blocks. I also include a sample week's schedule for each 6-week period.

In this eBook, I'll be even more specific about training plans. **Chapter 11** includes 8-week schedules for 3 levels of roadies:

- **Level 1: Fitness cyclist.** Choose this if you are just getting started in the sport or want to achieve and maintain general cycling fitness.
- **Level 2: Fast recreational cyclist.** This is the program for more experienced riders who want to perform well in group rides, in centuries and on multiday tours.
- **Level 3: Competitive cyclist.** This is for licensed racers. And it's for those who want to ride athletically with speed and power in club training rides and events.

Remember that these schedules are flexible. Everyone has different goals, varying amounts of training time and disparate abilities. Use the schedules as starting points for devising your own optimum schedule.

Also, recognize that you don't have to start this program in the spring. What you'll read works during any 2-month period if your goal is to convert general fitness into cycling-specific speed, power and endurance.

What if you didn't buy *Off-season Training for Roadies* and follow my winter program? What if you spent the cold months compressing deep hollows in your couch cushions and exercising only the fingers that control a TV remote?

Not a big problem. Simply follow 3 rules:

1. **Begin now.** Don't make excuses based on your lack of a winter base. Just start.
2. **Read this whole eBook.** It covers all the basics of training and equipment you'll need to do spring right.
3. **Follow the Level 1 program.** Although it's designed mainly for fitness riders, it also works well as an introductory schedule if you're starting with an unfit foundation. It will get you into sufficient shape to meet your summer goals.

On the other hand, if you used *Off-Season Training* to maximum advantage all winter (or came pretty close), the training techniques in this eBook will take you to new heights. Pick either the Level 2 or 3 program, depending on your goals.

Part 1

Training Techniques

Chapter 1

Foundation Information

I had a short and inglorious basketball career, marked mostly by broken bones in my foot for 2 consecutive years. (Those canvas basketball shoes in the '60s didn't provide much support.) But my predominant hoop memory is of the coach harping endlessly on the importance of what he called "fundamentals."

We spent most of our practices drilling on free throws, passing and dribbling. I was bored. I wanted to play basketball, not practice its parts. We even mocked his endlessly repeated mantra: "Fundamentals come first."

But you know what? Coach was right. We'd have been a much better team if we'd concentrated on those basic skills as much as he wanted us to.

In the same way, before you can begin a training program for cycling, you need to know the fundamentals. I cover these issues in depth in my RBR eBook, *Basic Training for Roadies*, but we need to review them here.

Even if you think you know all about setting goals and determining intensity, please read this information again.

Coach would be happy.

Set Your Goals

Your cycling objectives probably are based on summer events. Maybe you're aiming at a best-ever century or a PR in the local 10-mile time trial. Maybe you want to be strong every day on a weeklong tour.

Before you set up your spring training schedule (or follow one of the programs in [chapter 11](#)) take a few minutes to write out the goals you want to achieve this summer. You need to establish them in order to shape your training.

When setting goals, remember the basic rule of fitness—you can't be your best for everything all the time. If your endurance is high, your sprint speed probably won't be. If you can out-sprint everyone on the local club ride, your long-distance stamina is likely to be lacking.

Think of fitness as a geometrical figure with power, speed, endurance and recovery as the 4 corners.

If all are equal, you've got a square—and none of these attributes will be developed more than the others. You'll be an "all rounder," which is fine if you don't mind not being exceptionally good at anything.

However, if you work hard on one trait—say, endurance—then the square will get pulled into an elongated form. Endurance will be prominent but the other traits will recede.

Your task is to decide which ability you want to emphasize, then design a spring program that enables you to meet that goal.

To get you thinking, here are some sample goals and a glance at the training you'd need to meet them:

- **A CENTURY PR.** You need the endurance to last 100 miles, a good sense of pacing and a heightened "cruising speed"—the ability to ride relatively fast for hours without using excessive energy.
- **A TIME TRIAL PR.** You need to maximize the speed you can maintain at or slightly above your lactate threshold. If the course is hilly, you need some anaerobic power, too, so you can go slightly into oxygen debt on the climbs and recover on the descents, thus keeping your average speed high.
- **SHORT ROAD RACES AND CRITERIUMS.** Endurance isn't a major factor in these races. Instead, the key is speed to close gaps and hang with a fast pack. This speed also needs to be repeatable, especially in criteriums with their dozens of accelerations out of corners.
- **TOURS OF 5-10 DAYS.** Once you have the endurance to ride 75-100 miles during a one-day event, you need to develop the endurance to do it day after day on a tour.

Measure Your Intensity

Now the question becomes: How should training effort be measured?

This is crucial, especially in spring when ride intensity increases.

Train too easily and you won't stress your body enough to improve. Train too hard without adequate recovery and your performance will deteriorate. You won't even have enough energy to take out the trash. You'll get grumpy and unpleasant to be around.

Here are 4 methods of determining how hard you're working on the bike:

1. SPEED. For runners, there's a strong correlation between speed and effort. A track offers controlled conditions. A 75-second lap one week probably takes the same effort as running that speed the next week.

Things aren't as simple on a bike. Because you're riding on roads exposed to the elements, external factors such as wind have a large effect. It's easy to go 20 mph with a strong tailwind but much harder—maybe impossible—to ride back into the gale at that pace. And, of course, riding in the draft of a group of cyclists is much easier than time trialing on your own. Speed on a bike rarely correlates well with how hard your body is working.

Even so, I recommend installing a cyclecomputer for the useful data it provides for certain types of training. All computers tell you time, distance, average speed and maximum speed, and some models record elevation gain.

2. HEART RATE. Heart rate monitoring has revolutionized training in the last 15 years by revealing how hard the cardiovascular system is working. But this information isn't perfect. Heart rate can vary widely for a given amount of power output. It's influenced by factors such as hydration and muscle fatigue.

For example, if you ride hard for an hour, your heart rate will gradually rise even though you maintain a steady pace. This phenomenon, called "cardiac drift," is caused by overheating and dehydration.

So, heart rate isn't a number you can count on to reveal intensity. You have to know how to interpret what you see on the monitor.

3. WATTAGE. The best way to determine how much power you're generating is to measure it directly in watts. Some indoor trainers and health club exercise bikes have wattage readouts, but it has proven more difficult to develop lightweight, affordable and weather-sealed systems for outdoor use.

One unit, the German-made SRM, use strain gauges mounted in the crankarms. Another brand, the PowerTap, puts its strain gauges in the rear hub. Heart monitor manufacturer Polar is introducing a watt-measuring device that uses chain tension to produce a power reading.

4. RPE. Measuring watts is the best way to judge your training load. But the old-fashioned way—listening to your body—still works, too, although we've given it a modern twist. It's called "rating of perceived exertion" (RPE). It's the method I'll emphasize in this eBook.

Learn Your RPE

The Borg Scale for RPE uses numbers from 6 to 20, roughly corresponding to heart rate. Judge your exertion from 6 to 20, then simply add a zero to get heart rate in beats per minute

(bpm). Thus, an RPE of 18 is “very hard” and denotes a heart rate of around 180 bpm, assuming that max heart rate is about 200.

Because max heart rates differ dramatically among riders, I prefer a simpler RPE scale of 1 to 10. That’s what I’ll use in this eBook.

A rating of 1 means you’re motionless, comatose in front of the tube. Ratings from 2 to 4 denote levels of mild activity, such as walking or raking leaves. Those numbers aren’t important for training. The ones that are appear in the box on the next page.

With some practice, you’ll be able to stay at a given RPE level as you ride. The key transitions are from 7 to 8 (when you become aware of your breathing and conversation becomes difficult) and 8 to 9 (when breathing goes from steady and measured to gasping). When you reach 9, talking stops and your quads burn.

RPE	
5	= easy spin along the bike path
6	= light effort
7	= breathing steadily, rhythmically
8	= breathing harder but not panting
9	= beginning to gasp, can’t converse
10	= riding as hard as you can

Put It All Together

The ideal way to gauge intensity is to combine all 4 methods. By checking heart rate, speed and wattage, while at the same time judging perceived exertion, you’ll have a precise measure of your absolute effort—and how your body is reacting to it.

EXAMPLE! *Suppose you’re doing repeats up a hill that takes about 5 minutes to climb. When you feel good, your heart rate hits 160 bpm in the last minute of the climb. Your wattage averages 300. Your RPE is 9.*

On another day, the climb feels as hard as usual, maybe a bit harder. But your heart rate won’t go above 150 bpm, and your average wattage is 275. This combination indicates that you haven’t recovered from past training. You’re tired. You should rest and re-hydrate before attempting another intense training session.

In this example, if you had relied only on how you felt, you would have thought that all was well—you were climbing as hard as you usually do. But had you keyed off the depressed

heart rate and the lower wattage readout, they would have led you astray by telling you to go harder.

Only by combining all these measures of intensity do you get an accurate picture.

But here's an important point: RPE alone works nearly as well.

For this reason, and because you may not have a watt meter or care to invest hundreds of dollars in one, I'll base this eBook's training plans on RPE. In addition, because many of you probably do have a heart monitor (good ones now cost less than \$100), I've provided an easy way to convert RPE to heart rate training zones on [page 9](#).

Lactate Threshold Primer

Lactate threshold (LT) is an essential training concept. Here's a short course so we all understand it and can find it.

LT is defined as that level of exertion at which your body begins to produce more *lactate* (a byproduct of energy production) than it can use. LT is the intensity you can sustain for a time trial of about an hour. It's your maximum "steady state" intensity—you can sustain it, but just barely. In trained riders, LT is about 90-92% of max heart rate. An RPE on the border of 8 and 9 corresponds to your LT.

Top riders frequently train from slightly below to slightly above LT. This helps them raise the speed they can sustain without going into oxygen debt.

Lance Armstrong's coach, Chris Carmichael, says much of Lance's success can be attributed to his ability to climb faster than his rivals without going anaerobic. On successive climbs, Lance could cruise while others were working harder to maintain the pace. Can you guess who had more in his tank on the final climb to the finish?

LT is important for recreational riders, too. Developing a solid "cruising speed" means that you can ride faster centuries, climb better without suffering so much and keep up with strong groups on weekend rides.

Find Your LT

Lactate threshold can be pinpointed with a lab test. The technician will gradually increase the resistance as you pedal an ergometer. Blood will be drawn every couple of minutes. The blood will be tested for lactate concentrations. A lactate level of 4 millimoles per liter of blood is usually considered to be a person's LT. This can be correlated with heart rate and power output.

If you have a heart rate monitor, there's a simpler way to find LT. Do an all-out time trial of 30-60 minutes. Your average heart rate for the duration of the effort will be close to your lab-determined LT.

If you have a watt meter, average watts for the test time trial shows how much power you generate. You can use this figure to determine LT intensity, just like using average heart rate.

You can also come pretty close by feel. Gradually increase effort until you reach the point where breathing stops being regular and becomes forced. LT is the level of exertion just below where you lose control of your breathing and begin to pant and gasp.

Practice treading on the edge of this threshold. Increase your pace until you start to lose control of your breathing, then back off slightly until breathing settles down. Playing on this “red line” of performance is the best way to learn about your LT—and get an intense workout.

Once you know your LT heart rate, it can be roughly correlated to RPE using this chart:

Training Zone Conversions

Zone 1: 65-74% of LT heart rate = RPE 6

Zone 2: 75-84% of LT heart rate = RPE 7

Zone 3: 85-94% of LT heart rate = RPE 8

Zone 4: 95-105% of LT heart rate = RPE 9

Remember that you don't need a heart rate monitor for training. Once you get a feel for perceived exertion, RPE works just as well.

Beat Spring Weather

There's one sure thing about spring training. You're going to encounter spring weather. In most parts of the country, this means wind and rain, possibly sleet and snow—and the occasional nice day.

It's depressing to think about riding into the fury of the vernal equinox. But if you're prepared, you'll be able to ride in (and enjoy) anything April and May can throw at you. Just follow the 4 rules of spring training:

1. Get a beater bike.

I covered this subject in detail in *Off-season Training for Roadies* but it's worth another mention. Nothing makes training in lousy weather more doable than having a bike set up for it.

Any bike will work as long as it has:

- **YOUR REGULAR RIDING POSITION.** Be sure that saddle height, setback and reach to the handlebar is the same as on your summer bike.

- **AN OLD FRAME AND COMPONENTS.** If you use your good bike for rainy spring rides, it won't stay good for long. Grit and corrosion will age it prematurely. It's best to ride a tough old frame and components that you don't have to worry about. This way, you can save your good bike for dry roads.
- **FENDERS.** These keep your back, feet and bike relatively clean when roads are wet. Fenders also prevent rear-wheel spray from dousing your riding companions. You'll be more welcome in a group.

If it doesn't rain often where you live, consider clip-on fenders for the occasional rainy day. They don't provide as much coverage as regular full-length fenders, but they're easy to put on most road bikes.

2. Get the right clothes.

No matter how nasty the conditions, the right combination of base layers, insulating garments and shells will keep you warm, if not perfectly dry. I discuss specifics in [chapter 10](#).

3. Get the right attitude.

Remember the cardinal rule of riding in bad weather:

Conditions always seem worse from inside a warm house than they do from the saddle of your bike.

When you're lying on the couch, warm and cozy, watching the rain beat on the window, cycling is simply unimaginable. But if you get out there, properly equipped, it's not only possible, it's fun. Some of your most memorable rides will be rainy ones.

Many riders hate to start in the rain but don't mind if it begins falling after they're underway. Turn this outlook to your advantage by knowing that wet, chilly rides will feel better once you're underway.

And think of the psychological boost you'll get from training in bad conditions. You're riding and getting fitter while everyone else is cowering inside, moaning about the weather. You're learning essential wet-road bike-handling techniques, too.

As the old saying goes, you'd better train in the rain because some day you'll be racing in it (or riding a century in it, or touring in it).

4. Get an indoor trainer.

OK, there'll be some days when even a bombproof attitude won't get you out the door. When the gale is too nasty or roads are dangerously slippery, it's smarter to stay indoors. It's much better to sit on a trainer for an hour than on the couch all afternoon, wishing the sun would shine.

TIP! *Experienced riders usually don't ride an indoor trainer frequently during the winter. They know that stationary cycling can be boring. If they use up their store of enthusiasm in January, they'll hate getting on the trainer in spring when bad weather interferes with riding the road. Instead, they crosstrain in winter and save the trainer for spring. Then when they need a hard workout but can't get outside, they don't mind climbing on their nowhere bike.*

The best indoor workouts for spring are hard, intense and short. Get on the trainer, warm up for 15 minutes, do a structured interval workout, cool down for 10 minutes, and shower. In most cases, 60 minutes is the maximum you should ever spend. In *Off-Season Training for Roadies*, I describe a selection of trainer workouts that fit this time frame.

TIP! *Don't overlook your local health club's spinning classes. Some clubs offer cycling-specific workouts led by experienced riders. My teammates in Boulder, Colorado, sometimes meet at the club on sloppy spring Sundays and treat spinning as a group ride.*

See [chapter 10](#) for more advice on riding in spring rain and wind.

Nutritional Guidelines

As you increase training time and intensity, you need more food to fuel your efforts.

CAUTION! *One of the worst mistakes riders make is cutting back on calories when they're training hard. Yes, they lose weight. But without sufficient glycogen in their muscles, high-quality workouts are impossible. Stored glycogen is directly related to the amount of carbohydrate consumed.*

Not eating enough has more dangerous repercussions than merely lousy workouts. According to sports nutritionists, most cases of overtraining are due to chronic glycogen depletion. Riders try to lose weight at the same time they increase their training volume. At first this strategy works, but eventually they suffer the consequences of frequently "riding on empty." Their performances suffer, they get grouchy and irritable, and finally they lose interest in exercise or competition.

So, it's important to eat enough to fuel your training. But you don't need any complicated math to figure out how much carbohydrate to eat.

Tour de France champ Lance Armstrong is famous for weighing his food portions. He wanted to eat the exact number of calories to fuel his workouts while still reaching his ideal racing weight. But for the rest of us, sports nutrition doesn't have to be rocket science and portions don't have to be precise.

To make sure your muscles are well-stocked with glycogen, increase the percentage of carbohydrate in your meals. Simply eat more fruit, cereal, vegetables, pasta and whole-grain bread while cutting down on meat, margarine, salad dressing and other fatty foods.

During rides of 1-2 hours, drink at least one bottle of carbohydrate-rich sports drink every hour. During longer rides, nibble on fruit bars or energy bars at the rate of about 40 grams of carbohydrate per hour. That's about one energy bar or 6 fig bars.

After any training ride, remember to eat some carbohydrate as soon as possible. Studies have shown that muscle cells are most receptive to storing glycogen in the 2 hours after endurance exercise. Take advantage of this "glycogen window" by consuming about one gram of carbohydrate for each pound of bodyweight. So, a 150-pound rider needs 150 grams of carbo. This is roughly equal to washing down a banana and bagel with a glass of sports drink. Or, you can use a commercial post-exercise carbo-replacement drink such as Endurox.

Won't these carbo calories make you gain weight? No, not in most cases. I've found that 10-12 hours a week of riding and other exercise such as hiking and weight training allow me to eat virtually anything and maintain my best weight—as long as I don't go too heavy on fat. I eat lots of carbohydrate and take it easy on cookies, muffins and ice cream. But I don't deny myself reasonable portions of these treats when I want them.

Of course, your metabolism and tendency to gain or lose weight might be different from mine. But the "10-12 hours per week" rule works for many riders.

Reaching Ideal Cycling Weight

Low body weight is an obsession with pro riders. They know that a loss of only 5 pounds can reduce their time in a 5-mile climb by several minutes, everything else being equal. That's a huge improvement that can mean better race results.

So, it comes as no surprise that pros have tried medically unsound methods to lose weight. Some riders have even fallen prey to psychological problems due to their obsession with light weight.

EXAMPLE! *In a recent report, a Spanish pro with the ONCE team was said to suffer from bulimia. He was putting fingers down his throat so he'd vomit after meals, preventing the absorption of too many calories. He received professional counseling and the team kept him on, convinced he'd be able to recover.*

Obviously, single-minded determination to weigh as little as possible can have extremely negative effects. Before you set some arbitrary weight-loss goal, make sure you really do need to reduce.

The classic way to find out is with body fat analysis. It can be done using several techniques, including underwater weighing, skinfold calipers or electrical impedance. Most male endurance athletes have 5-10% body fat. Women with the same degree of fitness usually carry 3-5 percentage points more because of fat's role in child bearing.

These percentages aren't gospel, they're highly individual. According to Peter Janssen, M.D., in *Lactate Threshold Training* (Human Kinetics Publishing), the body fat of male endurance athletes may vary "from extremely low percentages (4-5%) to somewhat higher values (12-

13%), but every athlete has his or her ideal fat percentage which does not change...A too high or too low percentage will prevent the athlete from reaching top condition.”

TIP! *What’s the best way to tell if you need to lose weight? Your body-fat percentage can be evaluated in a lab, at your doctor’s office or even at your health club. But here’s a quicker, easier and cheaper technique.*

Get naked, stand in front of a full-length mirror, and bounce up and down. If something jiggles that shouldn’t, you’re carrying too much weight. Don’t laugh—this is often as accurate as fancy lab tests. It won’t give you a percentage, but your eyes don’t lie.

Weight-Loss Strategies

If you’re always hungry, feel out of gas and your motivation to train and race is low, you may be under-eating in an attempt to reach unnaturally low body weight. But if your energy is fine and you do need to lose weight, try these 6 proven techniques.

- **CONSUME MORE CARBO AND LESS FAT.** I don’t want to beat a dead horse (much less eat one). But as mentioned above, eating more carbohydrate in the form of fruit, cereal, vegetables, pasta and whole grain bread is the key. Cut down on meat, dairy products, baked goods, salad dressing and other fatty foods.
- **REDUCE THE SIZE OF EACH MEAL SLIGHTLY.** Don’t eliminate a whole meal in order to cut calories. Simply eat one serving of meat instead of 2, stop at one glass of wine, eat 2 cookies instead of 3, and so on. You won’t miss the lost calories this way.
- **SNACK.** That’s right. Snacking between meals is often discouraged in weight-loss programs, but it’s actually quite helpful. Six small meals per day provide a steady source of energy, while 3 meals encourage you to stuff yourself because you arrive at the table so hungry.
- **GET ON THE SCALE ONLY ONCE PER WEEK.** Weigh yourself under the same conditions—for example, upon rising and after visiting the bathroom. But weigh only once per week! Any weight loss achieved from one day to the next is probably due to dehydration rather than actual fat loss. It’s misleading.
- **MONITOR YOUR FEELINGS OF HUNGER AND ENERGY.** Any fit athlete who becomes tired and lethargic is probably glycogen deficient. If you’re ravenous most of the time, eat! Training is hard work. In the words of renowned coach Eddie Borysewicz, you have to “eat like a farmer” in order to fuel cycling’s level of manual labor.
- **ERR ON THE SIDE OF SLIGHTLY TOO MUCH BODY FAT.** Most riders who get into trouble do so because they tried to lose “that last 5 pounds.” You won’t go wrong if you’re a bit heavy. At worst, you won’t climb quite as well as you could. That’s no problem for recreational riders or even racers who compete on mostly flat or rolling courses. But the

penalty for being too skinny is reduced performance, constant fatigue and perhaps serious psychological problems such as anorexia or bulimia.

Chapter 2

Building Endurance

Cycling is about endurance. The sport captured the fancy of Europeans late in the 19th century by serving as a metaphor of life—long struggle, tough conditions, great odds. There's no arguing that cyclists who raced hundreds of miles over dirt and gravel roads on heavy, fixed-gear bikes deserved whatever fame they won. No wonder they called these superheroes “giants of the road.”

But endurance isn't an absolute. Instead, it's specific to events. For a sprinter, a 4,000-meter pursuit is a long, long race. But a Race Across America competitor considers a century a light warm up. One of RAAM's founding fathers, Michael Shermer, said that training didn't really begin till he saw 3 digits on his computer's mileage display.

How do we define endurance? Generally, it's the ability to ride steadily and comfortably for a time equal to the duration of your longest race or event. Of course, track pursuiter do road rides that are much longer than their races. And RAAM riders don't regularly embark on 3,000-mile training rides.

Sports scientists usually agree that any ride over 90 minutes helps build meaningful endurance. Most recreational riders and masters competitors find that occasionally riding 3-5 hours provides plenty of endurance for their events.

Two exceptions: First, if you're aiming at double centuries or long-distance events called *brevets* that range up to 620 miles, you'll need to put in more time. For touring, endurance over consecutive days is important, so training needs to include occasional back-to-back long rides.

In any case, authorities agree that a well-planned schedule of endurance riding builds an essential fitness base. On this foundation, you can erect a solid structure of speed, power and technique.

How to Add Mileage

The rule of thumb is to increase mileage no more than about 10% per week. This figure refers to total weekly mileage *and* the length of the week's longest ride. So, if last week you totaled 7 hours including a 2-hour long ride, the next week could be extended safely to about 7.5 hours with a long ride of about 2:15.

This rule isn't absolute, or course. Some riders can increase mileage faster without any physical penalties. Others need to carefully and gradually build up or they fall prey to tendinitis and exhaustion. Know yourself, and beware of the temptation to do too much too soon.

Another important point: You don't need a long ride every week. Your body won't forget how to go long in 7 days. Many successful riders do distance only once every 10 or 12 days, using the extra time and energy for shorter, faster training.

Distance *and* Speed

Cycling events require you to go the distance—but they also require speed and power. You need speed to stay with the pack or catch back up, and to sprint. Power is required for climbing and battling headwinds.

Think about when you get dropped. Is it when the pack is spinning along at a steady and moderate pace for a long time? I doubt it. It probably happens when the pace increases abruptly or the pack jams up a tough hill. If you have the power and speed to stick with these hard accelerations for 30 seconds or even a couple of minutes, the pace will ease and you'll still be in the shelter of the group. But if you lose contact even for a moment, you'll likely be off the back for good.

EXAMPLE! *Average power output during a road race is meaningless. Pros may average only about 150-170 watts—well within the capacity of recreational riders. However, watt-measuring devices such as the PowerTap reveal relentless spikes of power during races. Peak loads of more than 1,000 watts are common, and these surges are repeated many times. The wattage profile looks like the teeth of a saw.*

Now you see why a diet of long rides at a steady pace is fine for winter conditioning, but it's an outdated approach to be building endurance in the spring when events are much closer. It's much better to mix faster, harder efforts into long rides to simulate the demands of the events you're preparing for.

Even if you usually ride solo and set your own pace in long events, developing speed and power will increase your cruising speed. This means you'll ride faster with the same perceived effort. You'll also finish more comfortably by reducing overall on-bike time.

Here's the training approach I recommend:

During the middle third of any long ride, push some hills, do 2 or 3 fast time trial-like efforts near your lactate threshold, and throw in a few short jumps. On group rides, sprint for road signs or other landmarks against your training buddies. Sandwich this period of hard efforts between steady spinning in the first third and last third of the ride. This is the way to build speed and power in concert with endurance.

EXAMPLE! *Some riders prefer a more formal schedule of hard efforts during long rides. They think about the terrain they'll encounter and plan accordingly.*

Here's a sample 4-hour solo ride designed for flat-to-rolling roads with a hillier section near the middle.

FIRST 30 MINUTES – warm up on the ride out of town. Settle into an intensity of about RPE 7, or about 75% of max heart rate.

0:30 TO 1:30 – ride steadily at RPE 6-8. Don't go anaerobic on hills or into headwinds.

1:30 TO 1:50 – do a 20-minute time trial at RPE 8-9, or about 85-90% of max heart rate.

1:50 TO 2:00 – spin easily at RPE 6.

2:00 TO 2:30 – on a series of rolling hills that take 2-3 minutes to climb, ascend at RPE 8-9 and recover on the descents.

2:30 TO 3:00 – do 5 sprints of about 15 seconds each, separated by 5 minutes of easy spinning. Doing sprints now, near the end of the ride when you're getting tired, simulates sprinting at the end of a race.

3:00 TO 3:45 – settle back into your steady long-distance pace.

3:45 TO 4:00 – spin easily in the final 15 minutes to cool down.

Tips for Long Rides

- **PRE-HYDRATE.** Make it a point to drink at least 8 large glasses of water the day before a long ride. Put a water bottle on your desk at work and nip at it every 15 minutes. Have at least one of those 8 glasses with each meal because the sodium in food helps you retain the fluid you drink. Also, cut down on your caffeine and alcohol intake. These are mild diuretics. You don't want to urinate away the fluid you need to store.
- **OPEN YOUR LEGS.** Most riders go short and easy to rest and conserve energy the day before a long ride. That's fine, but take a tip from the pros and throw in 3 or 4 short sprints. These efforts "open the legs," making them feel ready the next day. Don't sprint all-out, just accelerate briskly.
- **PLAN A VARIED ROUTE.** Are you growing weary of riding the same roads? Use long-ride opportunities to explore new areas. Ask other riders for their favorite jaunts. Check with your local bike club or shop for cycling maps or route books. Get a Delorme Atlas for your state and draw up a cue sheet.

If you always ride on paved roads, don't be afraid to include some that aren't. A beater bike with beefy training tires can handle dirt and gravel. In fact, some pros ride dirt roads and even singletrack trails on their regular road bikes. It's a fun change of pace and sharpens bike-handling skills.

- **TAKE BREAKS.** It's a British cycling tradition to stop at a café for tea and a snack during long training rides. This stop is usually about 15 miles from the end so riders can meet their training objectives first, then socialize and spin easily home. A stop can be earlier, too, or there can be more than one. A long ride accommodates such breaks, and they needn't detract from training benefits.

EXAMPLE! *My favorite long route of about 100 miles traverses a rural area with few services. But the small town at the halfway point has a great little coffee shop with killer muffins. I ride pretty hard up the gradual climb into town and enjoy my snack on the sunny deck. The easy spin back down the hill helps the food digest. I still have 35 miles to resume my training pace before cooling down near home.*

- **MAKE THE TIME.** It can be hard to do a long ride during the week if you work full time. One way is go in earlier so you can get off earlier, then ride till sunset. Or, ride 90 minutes before work and 90 minutes after. If you commute by bike, take your regular route to the office, then a longer one home. If these rides have you on the road at dawn or dusk, be sure there's plenty of reflective material on your bike and clothes. Use a simple battery-powered headlight and taillight for extra safety.
- **INCLUDE THE FAMILY.** Weekends are the usual time for long rides, but you also don't want to abandon your spouse and kids. So, plan your ride around family activities. For instance, get up early to ride to the lake, beach or park while your family leaves later to drive there. You meet up, spend the afternoon together, and your bike goes on the rack for the trip home. You've gotten your long ride with minimal sacrifice of family time.
- **EAT AND DRINK.** On long rides, your endurance is often more affected by what you eat and drink than by your fitness. No matter how many training miles you've done, failing to keep fuel in your tank will doom your ride. Slug down 2 big swallows of fluid every 15 minutes and eat about 20 grams of carbohydrate (about half an energy bar) every 30 minutes. As a reminder to stay on schedule, set your watch's countdown timer to beep every quarter hour.

TIP! *Some energy bars have wrappers that are nearly impossible to open while riding. Tear the wrapper before the ride so it's easy to rip open. Or, cut the bar (still in the wrapper) into 3 bite-sized pieces.*

TIP! *If you're fading near the end of a long ride, stop for a soft drink with caffeine. The caffeine/sugar combo can provide a noticeable lift, especially if you aren't a regular caffeine user.*

Comfort and Safety

To prevent crotch numbness and undue tenderness during long hours in the saddle, stand frequently and sit in slightly different locations. Dwelling in one position and grinding away for hours is a recipe for discomfort. Use every hill and turn as an opportunity to stand for at least a few seconds.

Use long rides to test clothing for events. Although 2 brands of shorts may have padded liners that are comfortable for a couple of hours, one may start chafing as time wears on. Only by trying them on long training rides can you discover which pair is crotch nirvana and which is purgatory.

The same thinking goes for sports drinks and energy bars. Food or drink that tastes fine in typical conditions may gag you when it's hot and you're 4 hours into a tough century. If you have to force yourself to eat and drink certain products, it's guaranteed you won't eat and drink enough.

Should you carry a cell phone on rides? If you have one, why not? It's light and compact enough to tote in a jersey pocket or seat bag, and it can be a lifesaver if you fall victim to a mechanical problem on rural roads or get injured when you're riding alone. However, some riders consider cell phones a crutch whose presence discourages self-sufficiency and makes it too easy to give up on a tough ride and phone for a lift home. It's your call.

TIP! *Even a cell phone that's out of service can be used to call 911 in an emergency. If you have an old phone that's no longer in use, charge it up and take it on rides. You can't use it to call home when you bonk with 30 miles to go, but you can summon medical help if you become hurt or sick.*

Finally, is it better to ride long distances solo or with a group? It's much easier to control the intensity of your workout if you ride alone. Groups or training partners are fun, but you're governed by their pace. By yourself, you can ride at the right effort for your goals.

I recommend a mix. I do some long rides solo so I can accomplish exactly what I want. When I go with a group, I treat it as a social ride. I still get the saddle time I need, even if the intensity isn't optimum. It's also a chance to refresh bike-handling skills in a bunch.

TIP! *One way to animate group rides and make them more like actual events is to play games that simulate competitive situations. For instance, send one rider up the road. When he has a one-minute lead, chase him down by forming a fast paceline. When he's caught (don't forget to spray him from your water bottle!) roll easily for 10 minutes, then send another attacker to try his luck.*

[Chapter 7](#) has more about group rides.

Chapter 3

Muscular Endurance

Muscular endurance is a term used to describe the ability to turn a big gear at a relatively high cadence for a long time.

Muscular endurance isn't time trialing, which is done at or slightly above the lactate threshold. Muscular endurance workouts, on the other hand, take place at heart rates about 10 beats below time trial intensity. A high level of muscular endurance is a necessary precursor to TT speed because it improves strength and pedaling form.

This ability is often trained with efforts of 10-20 minutes in a gear that allows a cadence of 70-85 rpm with a heart rate about 10 beats below lactate threshold. These hard, steady efforts—a notch below time trial intensity—increase cruising speed. Soon, you'll be able to go 1-2 mph faster with no increase in perceived effort.

But muscular endurance is about more than legs, lungs and heart. Your upper body is important, too. Its muscles must be strong to stabilize your body during pedaling, especially important when you're using a slow cadence and a big gear. In addition, strong upper-body muscles are your best safeguard against long-ride discomfort and crash-induced injuries.

Building muscular endurance also involves conventional resistance training for the legs, usually with squats or leg presses. Although the time for heavy weight training is past once spring training begins, it's important to continue a twice-weekly maintenance program.

So, let's begin this chapter with a simple strength-maintenance routine that's compatible with spring and summer cycling. Then I'll discuss how to improve leg-muscle endurance with specific on-bike workouts.

Strength-Maintenance Workouts

On your 2 weekly rest or easy-riding days, do several simple upper-body resistance exercises. Here's an effective program that takes only 15 minutes:

1. ABDOMINALS. A strong midsection keeps your upper body steady as you pedal, the mark of a smooth and powerful rider. To strengthen your abs, do 3 sets of 25-50 crunches with your feet elevated and arms folded across your chest. Curl your upper body until your shoulder blades rise off the floor, pause, lower slowly, repeat.

2. UPPER-BODY PUSHING MUSCLES. If you've ever had sore triceps (on the back of your upper arm) from leaning on the handlebar during a long ride, you know why it's important to keep these muscles strong. Use one or more of these exercises.

- **DIPS** work all of the important pushing muscles of the upper body in one exercise. You can use a rack available from sporting goods stores, but 2 sturdy chairs work as well.

Place the chairs back-to-back, spaced the same distance as the length of your arm from elbow to fingertips. Stand between the chairs with your hands on top of the backs. Support your weight with straight arms by bending your knees back to raise your feet. Slowly lower your body until your upper arms are parallel to the floor, then push back up. That's one repetition. Aim for 3 sets of 10 reps.

- **PUSHUPS** work well, too, and don't require equipment. Keep your head up and back straight. Lower your chest until it almost touches the floor. Good form beats numbers—10 pushups done correctly are better than 15 done sloppily. If regular pushups are too difficult, do them from your knees rather than your toes.

3. UPPER-BODY PULLING MUSCLES. Ever notice how hard you pull on the handlebar during a steep climb or sprint? Use these exercises to strengthen your pulling muscles.

- **DUMBBELL ROWS.** Holding a dumbbell in one hand, bend over at the waist and rest the other hand on a low table or bench. Your back should be parallel to the floor. Raise the dumbbell slowly and steadily to your waist, then lower slowly. Keep your elbow close to your body. Do 10-15 repetitions, then switch arms. That's one set. Build to 3 sets.
- **SHOULDER SHRUGS.** These help you avoid neck and shoulder pain on long rides. Stand upright, holding a barbell or 2 dumbbells with straight arms. Keep your back straight as you relax your shoulders so they drop down fully. Then slowly hunch your shoulders toward your ears. Hold a second, then lower slowly. Don't bend your elbows. Build to 3 sets of 10-15 reps.

4. NECK ISOMETRICS. If you have neck fatigue or pain while riding, here's how to strengthen the muscles.

Stand straight and put the heels of your hands against your forehead, fingers pointing up. Push your head forward for 10 seconds while resisting with your hands. Next, interlace your fingers and put this "basket" on the back of your head, little fingers toward the ceiling. Push your head back while resisting with your hands for 10 seconds. Next, put the heel of your right hand, fingers up, on the right side of your head. Push your head to the side while you resist with your hand. Repeat on the left side. All of that is one set. Build to 3 sets.

Base Strength on the Bike

ONE-LEG TRAINING. I discuss one-leg workouts in *Off-Season Training for Roadies* and recommend them for indoor cycling. It's a great way to work on strength and pedaling form. Here's why:

When you pedal with both legs, the leg that pulls the foot through the bottom of the stroke, around the back and over the top gets help from the opposite leg. Pushing a pedal down is a more natural action than pulling it up.

When you're able to pull your leg through the bottom, up and across on the top with greater force, it lessens the resistance felt by the opposite leg pushing down. It improves the power generated by your quads on the downstroke.

That's what one-leg training works on. It's more easily done indoors, making it a good technique when spring weather is too nasty for venturing outside. Here's how:

Unclip one foot. Rest it on a chair by the side of the bike or hook it behind on the trainer stand. Pedal with the other leg, staying as smooth and circular as possible. At first, your clunky, ragged pedal stroke will tell you how much you need this drill! You might last only a minute before your hip flexors stop firing. But you'll improve quickly.

Aim for several 5-minute repeats with each leg in a moderately big gear of about 53x17 teeth, depending on the resistance of your trainer. Keep cadence fairly low, between 50 and 70 rpm.

Outside, do this drill twice a week about 20 minutes into an easy ride. Don't let your heart rate rise above 75% of max. The idea is to work the muscles, not the cardiovascular system.

Use a safe, lightly traveled road with few intersections. Ideally, there'll be a gentle uphill or light headwind. Unclip one foot and hold it just outside the revolving pedal. Pedal this way for several minutes, then switch feet. Keep your hips and upper body still. And keep your eyes up the road, not looking down.

Muscular Endurance on the Bike

A few years ago, I was in Winter Park, Colorado, at the U.S. Cycling Team's high-altitude training camp. Chris Carmichael was the national coach at the time. Team members included future pros Tyler Hamilton, Kevin Livingston, Fred Rodriguez and Chann McRae.

When I arrived, I found the riders pounding out intervals up Berthoud Pass, a 3-mile long, 6% grade. But instead of using the supple pedal stroke and rapid cadence of top climbers, they were plodding in a monstrous 53x15-tooth gear at a cadence of about 50 rpm.

It looked like they had broken their derailleurs and just wanted to get home.

Actually, they were building muscular endurance using a technique that I call "grinders." That's what it feels like—low-cadence, high-resistance grinding. It's like doing weight-training squats on the bike.

Grinders

There are 2 basic types:

1. 3-5 minutes, moderate grade of about 5%, 50-60 rpm, seated. Use a cyclecomputer that counts cadence so your rpm stays in this range. Concentrate on making perfect circles with pressure on the pedals all the way around each stroke. Keep your upper body quiet—don't rock your shoulders or hips.

Intensity is important. If you're breathing hard, you're doing this drill wrong. It's designed to strengthen muscles, not provide an anaerobic workout. Your heart rate should be about 10 beats below lactate threshold. You should feel the strain in your legs, not in your lungs.

2. 10-20 minutes, gradual grade of about 3%, 75-85 rpm, seated. These intervals are like time trialing in that you ride steadily for a relatively long time. But cadence is 10-15 rpm slower than you'd use in a competitive TT and effort is more moderate—about 5 beats below lactate threshold. Again, concentrate on your pedal stroke and overall form.

Long consistent grades work best because you'll be going at a steady pace and using a fairly large gear. Gravity gives you something to push against.

EXAMPLE! *East of my hometown of Montrose, Colorado, Highway 50 rises about 2,500 feet in 14 miles to the top of Cerro Summit. Only the final 4 miles are steep. There's a wide shoulder, no stop signs and few intersecting roads. It's a perfect venue for No. 2 grinders.*

My steep hills are west of town, climbing to agricultural mesa tops. Each one is 5-8% and about a kilometer long. They're perfect for big-gear No. 1 grinders.

You may not have such ideal terrain, but you can make do. For instance, consider the area around Bowling Green, Ohio. I ride there when we visit in-laws. Bowling Green is aptly named—the land is dead flat. But there's a prevailing southwest wind, so I simply do grinders into it. For short climbs there's a highway overpass just outside of town. It's not ideal, but it works.

Grinders are high-intensity workouts. The low cadence and high resistance will make your legs feel like you've done a tough weight-room workout.

So, do grinders only once per week in the 8 weeks of spring training. This leaves room for the other workouts outlined below and reduces the risk of chronic fatigue.

I talked earlier about including periods of harder efforts in your endurance rides. If you mix several grinders into your long weekend ride, count them as your once-per-week dose.

CAUTION! *Grinders seem like they'd wreck your knees in short order. But if you do them right, they won't. The exception: If you have a history of knee problems such as chondromalacia or patellar tendinitis, use an easier gear and a higher cadence.*

Chapter 4

Boosting Lactate Threshold

Lactate threshold training is in vogue because it was the foundation of Lance Armstrong's training. His coach, Chris Carmichael, believes that the secret to top performance is increasing "cruising speed"—the ability to go fast while still staying within the aerobic zone.

Why is power at LT so important?

EXAMPLE! *Suppose Lance is capable of generating an average of 450 watts at LT while he's climbing an alpine pass in the Tour de France. His rival, Jan Ullrich, averages only 415. On the first 3 passes of the day's stage, Lance climbs at an effort equal to 435 watts. He's still under his LT, riding hard but in control. To keep up, Ullrich has to go over his LT and into oxygen debt. He's burning his glycogen stores much faster than our man. On the fourth and deciding climb, Lance will have enough left to ride away and win.*

As Carmichael puts it, what's important is "the ability to produce significant power while remaining under your LT and in control."

Great, that's a clear concept. But how do you increase the power produced at LT? Not surprisingly, the answer is to do substantial training a little below, at or slightly above your lactate threshold.

Muscular endurance workouts like the grinders explained in [chapter 3](#) take care of training just below LT. Next, we'll see how to complete LT training. Then we'll look at some new research indicating that more-intense but shorter efforts increase LT even faster.

How to Ride at LT

It's an art to ride at lactate threshold. Your body produces very specific signals that you're treading on the "red line." It's what separates a pace you can maintain for 30-60 minutes from a slightly faster pace that produces more lactate than your body can recycle. Top time trialists are masters at playing with this physiological threshold.

One way to stay close to your threshold is to ride at the LT heart rate you determined in [chapter 1](#). So, if you average 160 bpm for a 30-60-minute all-out time trial, train your LT at 155 to 165 bpm.

If you have a watt meter, you can determine average power for that same test time trial and ride near that wattage during training.

But the simplest way is to listen closely to your body. Be aware of how it feels when you're riding perilously close to the threshold. The tip-off is when your breathing changes from steady and deep to panting. When you lose control of your breathing, it's a good sign you've exceeded LT.

LT Workouts

1. TRAINING TIME TRIALS. The standard LT workout mimics a time trial. Simply ride for 5-12 minutes at LT intensity, spin easily for 3-5 minutes to recover, then repeat.

During the hard interval, check your upper body. Are your hands, arms and shoulders relaxed? Or are you hunching your shoulders so you look like a turtle as you ride?

Tensing the upper body wastes precious energy. Strive to be fluid and elegant. Don't purposely rock your hips or torso. Allow movement that's natural, but keep it minimal.

The secret to doing hard repeats successfully is to be honest with yourself. If you plan to do 5 but can't sustain your speed during the fourth effort, that's it—end the workout. You won't get maximum benefit if you push through exhaustion merely to reach some arbitrary goal.

2. 30-Second Intervals. Another way to boost LT is to ride faster than your LT heart rate for short periods. Recent research by exercise scientist Veronique Billat suggests that intervals of 30 seconds hard followed by 30 seconds easy can boost LT markedly in a relatively short time—about 8 weeks of spring training!

How hard is "hard?" Billat's prescription is somewhat complicated, but essentially it's the maximum pace you can sustain for 6 minutes. The best way to find this pace is with a watt meter. Then match your all-out 6-minute wattage during your 30-second repeats.

If you don't have a watt meter, do it by feel. Duplicate the average *effort* you experienced in your 6-minute test. However, average *heart rate* for a 6-minute test doesn't work. Heart rate doesn't have time to stabilize at a target figure during brief 30-second efforts.

LT-boosting workouts are hard. That's why they're usually scheduled only once per week. You may wonder how you can improve such an important ability as LT when you're training it only 8 times in the spring. But studies show that nearly any hard effort gives it a boost. Climbing and sprinting during other workouts have a positive effect on LT.

Testing for LT Improvement

Twice during the 8 weeks of spring training, schedule a short time trial to test your fitness and see if you're improving.

At the end of week 4, find a 3-mile section of relatively flat road with little traffic and no stop signs. Mark a starting point and a turnaround so you use the same course later. Total distance should be about 5 miles. An out-and-back format reduces the effects of wind.

After a 20-minute warm up, roll slowly to your starting point, accelerate, and ride to the turnaround at a hard-but-sustainable pace of RPE 8-9. Carefully check both directions for traffic, make a U-turn, and ride back to the start with slightly greater intensity. Check your elapsed time and record it.

At the end of week 8, return to this course. Ideally, the weather will be about the same. Warm up as before, ride the exact course and compare times.

Faster? Great!

Slower? Don't worry too much, especially if the wind or weather was worse. Also, 4 weeks is a pretty short period in which to make substantial gains. You're looking for improvement over the entire 8-week spring program.

Don't rely solely on your elapsed time to judge training benefits. Obviously, a faster time means better fitness, assuming weather conditions are similar. But you'll also probably notice several subtle-but-important improvements, such as feeling more at home on the bike when you're going hard and a better sense of pacing.

Chapter 5

Climbing

Climbing is important. Vertical terrain is responsible for the biggest thrills—and the most intense pain—in the sport. In races, the crunch almost always comes when the road tilts up. Recreational tours such as Colorado's Ride the Rockies feature several thousand feet of climbing each day. And of course, climbs are followed by swooping, twisting descents where the grin-per-mile quotient is, literally, sky-high. For all these reasons, it pays to get good on hills.

Because climbing is a fight against gravity, your ultimate ability is determined by your power-to-weight ratio. Lean, small-boned riders need proportionally less power to climb well compared to big people.

That's why great climbers are nearly always diminutive. The few exceptions, such as Lance Armstrong and Miguel Indurain, generated so much power that their greater size didn't matter.

The good news is that you can improve your climbing regardless of your genetic makeup. The schedules in [chapter 11](#) include a healthy dose of hill training. In this chapter I'll show how to use spring climbing days to your best advantage.

EXAMPLE! *At 6-foot-4 and 190 pounds, my RBR partner, Ed Pavelka, is not built for climbing. But he lived for years in Vermont and Pennsylvania, where he had to climb at least a couple thousand vertical feet on every ride. Over time, this improved his fitness and technique, which made him feel it wouldn't be too futile to try some hilly events. He surprised himself by finishing 9th overall in the Assault on Mt. Mitchell, which ends with a 25-mile climb. Later, he placed 2nd of 55 masters in the Mt. Washington Hill Climb, which gains 4,700 feet in 7 miles, including grades of 18-22%. If you think you're too big to become a better climber, work at it and you might surprise yourself, too.*

Hills for Intervals

Because you should often be training on hills in this program, it pays to scout out the best climbs within a reasonable distance of home.

I hear what you're saying: "I live in Pancake, Indiana, and the biggest hill in four counties is a two-foot rise over a culvert."

Don't worry. As I say in [chapter 3](#), wind can substitute for real hills. So can highway overpasses. You could even use your indoor trainer with your bike's front wheel raised 4 inches to simulate a grade.

Assuming there are some hills in your area, categorize them this way for specific kinds of training:

- **SPRINTER'S HILLS.** These are short and fairly steep. Highway overpasses work fine. So do abrupt climbs out of stream-cut valleys. You may find these in city and state parks. I know of some good ones in Cleveland's park system.
- **HILLS FOR REPEATS.** The best hill for intervals takes 2-4 minutes to climb, has a steady grade of 6-8% and no traffic lights or stop signs. A road with several consecutive hills like this, separated by about 5 minutes of riding time, is ideal. It makes training more interesting. But one lone hill is fine, too. Simply climb it hard, turn around at the top, and recover as you ride back down and on the approach.
- **LONG CLIMBS.** These can vary from a hill that takes 5-8 minutes to climb to real mountains. Classic examples are the canyon climbs and mountain passes of western states, and the steep grades of the Appalachian Mountains and New England.

TRUE CONFESSION! *I live in a western Colorado town with arguably the most varied climbing in the country within a 20-mile radius. A dozen steep, kilometer-long climbs reach the tops of mesas. Longer ascents include 6 tough miles on the entrance road to Black Canyon National Park and the fearsome 3-mile, 16% East Portal climb. If I want to do a century, I can climb 13-mile-long Red Mountain Pass to the south or the 30-mile, 5,500-vertical-foot grind up Grand Mesa.*

Guess what? All of this great climbing terrain hasn't made me into a great climber. I do OK, but smaller or more talented riders can outclimb me even if they're restricted to a training diet of predominantly flat rides. You may not live in ideal terrain, but you can still close in on your potential.

Stand or Sit?

Is it better to be in the saddle or out when climbing? It's one of the questions asked most frequently by riders seeking stronger performance.

On short sprinter's hills, you should stand because you need to generate power. Standing produces more short-term oomph. You can use bodyweight to push down the pedals.

There's a downside, though. Standing uses more energy because your legs do double duty. They support your weight while also propelling the bike forward (and up.) This is why heart rates are about 5 bpm higher for a given speed while standing.

When you're sitting, the saddle supports your weight, letting all of your leg strength be used to overcome gravity. Generally, bigger and heavier riders prefer to sit more while smaller riders like to stand.

It's essential to find which method works better for you—or whether you're more efficient when alternating sitting and standing. If a mix is best, you need to determine the percentage of each that leads to fast, efficient climbing. Here's how:

DRILL! *Ride 4 times up a hill that takes at least 3 minutes. Use different methods. Do one repeat entirely in the saddle. Do another standing all the way. Do a third sitting for one portion and standing for the rest. Do the fourth by alternating stretches of sitting and standing.*

- *Keep your heart rate or perceived exertion the same on each repeat. Effort should be steady and hard but not all out. Time yourself on each ascent and then compare times.*
- *Don't do all 4 climbs the same day. You'll be tired before the end and your times won't mean much. Instead, spread the climbs over several days.*

If you see more than about 10 seconds improvement in each 2 minutes, you know you're more adapted to that style of climbing.

Continue experimenting. Find out how much or which part of a climb should be spent seated as compared to standing. How steep does a section need to be before it's more efficient to change positions?

TIP! *When climbing out of the saddle, the standard hand position is on the brake levers. This puts you slightly upright to see and breathe better. But more and more pros are seen climbing on the drops, as if sprinting. One reason is that climbing speeds have increased, making a lower, more aerodynamic position an advantage. Another is that it puts more of the shoulders, arms and lower back into the pedal stroke for greater power. At first it might feel awkward to climb in the drops, but try it for a while to see if it has advantages for you.*

Training for Faster Climbing

Not all of your hill training should consist of hammering up the climb, recovering and doing it again. Variations not only boost your improvement but also add variety to training. Here's how to do the drills that are included in the schedules in [chapter 11](#):

- **POWER ACCELERATIONS.** Here's a climbing drill you can do on flat roads. Shift to a high gear and roll slowly at about 5 mph. Staying in the saddle, accelerate as hard as you can for 10 seconds. Push down and pull up forcefully. Your ability to power a large gear on hills will improve dramatically. So will your uphill sprint.

- **FINISH THE HILL.** Most attacks on climbs take place near the top when riders are easing from the effort. Use this drill to respond. During most of the climb, stay in the saddle and spin a slightly easier gear than normal. With about 200 yards remaining, shift to a bigger gear, stand and go hard. Don't slow abruptly at the summit. Instead, charge over the top for another 100 yards, or until gravity takes over. This drill builds power and the positive psychology to finish climbs strongly.
- **SURGES.** Good climbers don't ascend at a steady pace. Instead, they throw in surges of faster pedaling in an attempt to drop competitors. Here's how to develop the ability to hang on: Ride at a pace about 5 beats below your LT. Surge for 10-20 seconds by increasing your cadence about 10 rpm. Ease back to your cruising speed for a minute, then throw in another surge. Repeat all the way up, then accelerate over the top.

Uphill Skills

Climbing is a matter of fitness, but technique counts, too.

- **MOVE ON THE SADDLE AS YOU CLIMB.** As the grade wears on, push your hips to the rear and concentrate on smooth, round pedal strokes at a moderate rpm. Then scoot forward to the tip of the saddle and spin at a faster cadence. Next, slide to the middle and pedal normally. Moving and varying your stroke refreshes your legs by relieving muscle tension.

Most riders go too hard at the bottom of a climb and run out of steam. To counter this tendency, use this training technique:

- **SHIFT TO AN EASIER GEAR JUST AS THE GRADE BEGINS.** Don't wait till you begin to bog down. In fact, use a lower gear than you think you need for the first two-thirds of the climb. Keep your cadence up to keep your speed up. With about 100 yards to go, shift to a bigger gear, stand and roll briskly over the top.

WORDS OF WISDOM! *You'll do well to remember these quotes from 2 of America's best coaches:*

- *“Correct climbing is a matter of increasing your gear, not decreasing it.”*
– Eddie Borysewicz
- *“Climb like a carpet unrolling. Get faster as the climb goes on.”*
– Chris Carmichael

On steep climbs when your gear isn't quite low enough, slide back on the saddle for more power. Grip the bar tops. Slow your cadence just enough to feel your legs pulling the pedals around the entire 360 degrees.

- **MONITOR YOUR BREATHING.** If you begin to gasp, you're going too hard. Slow your cadence slightly.

TIP! Try a breathing technique from Alexi Grewal, the former Olympic road race champion. When you're working hard on a climb (or anytime), exhale forcefully and inhale passively. This prevents panting and improves air exchange. Breathe in rhythm with your pedal strokes and you'll feel smoother and in control.

- **WORK YOUR WAY TO THE FRONT** before an ascent if you're riding with a group and aren't the fastest climber. Then go up at the pace you can handle. If riders start passing, let them. You'll still be in contact (or close) at the top. If you avoid blowing up, you won't have a problem rejoining on the descent.
- **KEEP A GOOD MENTAL ATTITUDE.** Sure, hills are hard work. But they're part of riding a bike, and nothing spikes your fitness faster than time spent climbing.

Chapter 6

Sprinting

Sprinting isn't just for racers. The ability to accelerate is helpful for getting out of tight spots in traffic, escaping a charging dog, or getting over short, steep hills (which is why they're known as "sprinter's hills"). And sprinting is fun. Speed thrills!

But many riders never go fast. They aren't comfortable with the bike-handling skills needed to stand, sprint and see the pavement rush by rapidly. Or, they're so locked into the long, steady distance approach to training that abrupt, hard accelerations feel foreign.

Sprints are a little like weight training. The hard efforts recruit lots of fast-twitch muscle fibers in your legs that aren't impacted in slower riding. Sprinting builds strength in your legs, low back and arms, too.

For these reasons, the [chapter 11](#) schedules include one day of sprint training each week. Here's how to do this speedwork safely and effectively.

Sprint Training

- **JUMPS.** Start any sprint workout with 3 jumps—sudden accelerations that last 10-15 seconds.

After warming up, select a clear section of road, shift to a slightly higher gear, get out of the saddle and accelerate. This isn't a full-on sprint. Increase speed forcefully, but don't spit, snarl and violate the speed limit. The idea is to get your heart rate up, grow accustomed to how the bike handles when it's going fast and give your leg muscles some strength-building work. Ride for 5 minutes at RPE 6 between jumps.

When you do these jumps, work on starting smoothly. Grasp the handlebar firmly in the drops, but not with a death grip. When the pedal you prefer nears the top, transfer your weight to that foot, move off the saddle and use body weight to push down. Pull up with the hand on the same side. For example, when you thrust with your right foot, pull up with your right hand to counteract the tendency of the bike to tip to the right side.

- **SPRINTS.** Once you're warm, you can do full-on sprints. Shift to a gear slightly higher than the one you used for jumps. Roll along on a flat, safe road at about 15 mph. Stand and accelerate hard but in control. Keep your head up for safety. Continue to accelerate for 10-20 seconds, then ease off the power but keep pedaling as you return to cruising speed.

Pedal easily for 3-5 minutes between each sprint. In the last 10 minutes of the ride, gradually ease your effort to cool down.

- **TAILWIND SPRINTS.** Here's a variation that builds leg speed. After a good warm up, find a flat road and ride with the wind. Using a moderate gear, get out of the saddle and sprint until your legs are spinning too fast for comfort. Then sit and increase your cadence another 5-10 rpm. Concentrate on smooth pedal strokes. Don't let your hips bounce.
- **SPEED CONTESTS.** You can make a game of sprinting even if you train alone. For instance, see how fast you can go. Glance at your cyclecomputer at the end of the sprint to check speed. Or, let its max speed function tell you. Your fastest effort should be on the third or fourth sprint when you're well warmed up. If speed falls dramatically on the fifth or sixth effort because of fatigue, you're done. Cancel the rest of the scheduled sprints and spin easily home.
- **SPEEDPLAY SPRINTS.** Another way to practice sprinting is called *fartlek* – a Swedish term meaning “speedplay.” It's a fun way to increase intensity during a ride. Simply go faster for 15 seconds to 2 minutes whenever the mood strikes or conditions beckon. Jam up a hill, shift to a bigger gear and crank hard with a tailwind, try to catch a rider up ahead. Keep it loose and unstructured. You'll get the benefits of increased speed without the mental demands of a regimented program.

Sprint Tactics

It isn't the purpose of this eBook to explain all of the tactics that go into winning a sprint. In fact, a whole book could be written about that. But for group rides or recreational racing, it pays to know a few basics. You'll be a safer rider with this information, too.

- **POSITION.** In general, the best place to be is about 5 riders from the front with 500 yards to go. This lets you draft off other riders and come around in the last 100 yards for the victory.

In pro races, the sprint often begins 10 miles from the finish as teams sacrifice their workers to get their sprinter into good position. In recreational races, you're probably safe if you begin moving up about a mile from the finish.

- **LEADOUT.** Two riders working together are a real advantage. One rider (the leadout) starts pouring on the coals about 500 yards from the line. His partner (the sprinter) glues to his wheel. The leadout rider blows up about 200 yards from the line, then the sprinter jumps out of the draft and goes for the victory.
- **GEARING.** Novice sprinters usually overgear. They think it's necessary to sprint in 53x12, but they can't jump fast and quickly get up to speed in such a monstrous gear. It's better to start in a smaller gear for quicker acceleration, then shift up during the sprint. Modern brake/shift levers let you shift under power while standing, so it's not necessary to start a sprint in the ideal finishing gear.
- **BIKE CONTROL.** No sprint victory is worth a crash, at least not for recreational riders. And that goes double for crashes that take down others. Keep your head up and your bike under control. Don't jerk it back and forth excessively in search of more speed. Ride a straight line. Beware of locking your arms and shoulders, which can make your bike shimmy uncontrollably at speed.

The more you sprint in training, the greater control and confidence you'll have in competitive situations.

Chapter 7

Group Rides

Cycling is social because riding with a group is a long-standing tradition in the sport. But cycling alone is fun, too, and many riders live in areas where riding companions are scarce.

Should you ride solo, in a group or with a training partner? Each has its advantages.

- **SOLO RIDES.** You can set your own pace and don't have to wait for companions who are slower or have punctured. The ride starts when you want it to, not when the last member of the group finally shows up. You build strength riding in the wind by yourself. You develop the self-reliance skills of bike repair and route finding. And solo riding can be safer because one cyclist takes up less room on the road and is less likely to irritate motorists.
- **GROUP RIDES.** Friends can encourage you to get out, even if the weather is harsh or your motivation has waned. Group riding teaches you to be comfortable in pacelines and when bumping elbows. You can ride faster than when alone. If you have an accident or serious mechanical problem, friends are right there to help.

One popular approach: Ride alone on weekdays when you're pressed for time and need things to happen on your schedule. On weekends, ride with a group.

What if you live where there are no other cyclists? You can still meet most training objectives when riding solo. You won't hone pack skills or sprint tactics, but power, speed and climbing ability can still be developed.

- **ONE-PARTNER RIDES.** If you don't have a full-fledged pack to ride with, there may be another like-minded rider in your area.

Training with a buddy is extremely effective, and it makes rides more fun. You can take turns pulling for a natural interval session. Trade the front every 1-3 minutes. You each go hard against the wind, then recover in the draft. Such training makes the miles fly by.

Look for training partners at work or ask at your local bike shop or cycling club. Don't forget your significant other! Riding with someone you care for can make the quest for fitness even more meaningful.

Can you get a decent workout when riding with a slower cyclist? You bet. Use your beater bike or even a knobby-tire mountain bike. You'll exert more effort at lower speeds. Or, use a low gear the whole ride regardless of terrain and work on your spin. On climbs, ride to the top, then circle back to join your friend and ride up again at his (or her) pace.

TIP! Get a tandem. Nothing beats a twicer if you want to get good workouts and still ride often with a person that's slower or less fit. On the front, you can push as hard as you want. On the back, your partner only has to keep his (or her) legs going around. He doesn't have to exert to keep up, yet he can't be dropped. Tandem riding is a fun change of pace besides being a great workout. It helps keep cycling varied and interesting.

If you ride with a friend, maybe you've wondered when it's OK to ride side-by-side. Generally, it's safe and legal if you aren't obstructing traffic. On a road without a wide shoulder, switch to single file when an overtaking vehicle gets within 300 feet or so.

Paceline Rules

Be predictable and safe by riding a straight line. If you tend to wobble and wander, practice this skill on a low-traffic road by riding with your wheels on the white line along the edge. You'll find that it's easier if you look ahead 30 feet rather than directly in front of your wheel. You need to keep your eyes up in a paceline, too.

When you're leading the line, remember that you're the eyes and ears of the whole group. It's your responsibility to warn of obstacles in the road as well as turns and stops. Watch for vehicles at intersections.

Beware of a common mistake—getting excited and going too fast because you're pulling the group. Check your cyclecomputer while you're in second place. As you take the front, maintain the speed. The former leader should slow to drop back so you don't have to accelerate.

Limit your time at the front to the group's average, or less. Pull off and let someone else share the work.

When dropping back, stay close to the line. This enhances the group's draft. Don't wander dangerously into the middle of the lane. Accelerate smoothly as the last rider in line comes alongside so you can move behind his wheel without a gap opening.

The last rider in a paceline is responsible for calling out "car back!" when there's an overtaking vehicle. This is especially important on narrow roads when the group is in a double paceline (2 abreast). Riders need time to single out and reduce the effect on traffic.

Never make an abrupt or abnormal move in a paceline. Smooth, steady and predictable are the bywords. Ride relaxed, especially in arms and shoulders. Elbows will get bumped. If they're relaxed, they'll absorb nudges without affecting bike control.

EXAMPLE! *John Allis, a national road champion in the 1970s, was a stickler for relaxed arms. On training rides, he'd unexpectedly grab a newcomer's elbow and shake it, holding on to keep the rider from losing control. The victims of this not-so-subtle tactic weren't likely to forget the importance of relaxed arms—once their hearts stopped pounding.*

Finally, don't let your front wheel overlap a rear wheel. If that bike swerves, the contact will usually knock you down. Drop back a bit more on climbs. The rider just ahead might stand and decelerate slightly—in effect, moving backward toward your wheel.

CAUTION! *If you have aero bars on your bike for comfort and speed on long rides, remember that they aren't to be used in pacelines. It's dangerous to ride close to others when stretched out on aero bars. Your steering precision isn't as great and your hands are far from the brake levers. Either remove aero bars for group rides or promise not to use them.*

Solo Training Objectives in a Group

Groups go at a certain speed—and it may not be the speed that meets your training objectives.

If you scheduled an easy spin and the guys blast out of the parking lot in the big ring, you'll be unable to keep your intensity down if you want to stick with them. But when you're ready for a hard ride and everyone else is spinning to the coffee shop, it's easy to become frustrated.

For this reason, you may need different companions on different days. It depends on what you want to accomplish. If you ride with the local hammers twice a week and spin with the social cyclists on other days that might be the right mix.

But even if you end up in a group with objectives far different from yours, you can still come close to meeting your goals. Let's look at 3 situations.

1. The group is going too hard.

- **SIT IN.** Stay at the back of the pack and let cyclists who rotate off the front drop in ahead of you. Leave just enough gap to let the rider slide in while you keep the draft. Tell the others what you're doing so there won't be any mix-ups and crashes.
- **DROP OUT.** Ride in the shelter of the pack during the warm up miles and on the flats when it's easy to keep up. When the group turns toward the hills and the intensity rises, drop off and ride solo at your own pace.
- **GET HELP.** Let stronger riders push you up hills. A helping hand on the small of the back or the rear of the saddle makes a hill much easier. And pushing you helps stronger riders get a better workout.

2. The group is going too slow.

TIP! *Before using some of these tactics, tell the group what you're doing. Otherwise, it could be confusing and annoying. You won't be welcome if it looks like you're merely showboating.*

- **BE THE MOTOR.** Stay at the front and tow the group. The others will be doing about 15-20% less work than you—a big equalizer.
- **TAKE LONGER PULLS.** If you aren't appreciably stronger than everyone but simply want a hard workout, take pulls that are 2-3 times longer. You'll get more work and less recuperation.
- **PUSH WILLING RIDERS.** Not everyone appreciates being pushed up hills. But if you find a willing pushee, it's a great way to build some strength on an otherwise easy ride.
- **RIDE A HEAVY BIKE.** If everyone else is on their sub-20-pound superbikes and you show up on a 30-pound beater with fenders and wide tires, you'll have to work significantly harder to match their speed, especially up hills.
- **FLEE AND COME BACK.** Sprint out of a slow group, then wait for them to catch up as you recover. Or work a hill hard, ride several hundred yards down the other side, U-turn and ride back to the top to meet the group coming over.
- **PLAY GAMES.** In a paceline moving at moderate speed, attack from the rear and get as much lead as possible in about 20 seconds. When this time elapses, the first person in the paceline gives the signal and everyone works together to reel you in. Even if you're much stronger than others in the group, they'll make it hard for you to stay away by sharing the chase.
- **ATTACK.** When the group gets to a longer hill, attack in a small gear with a very high cadence. When you've gained about 200 yards, shift to a bigger gear, stand and pedal at 50 rpm to work on strength. When you're caught, attack again in a small gear.

Chapter 8

Overtraining

Overtraining is especially prevalent in the spring. As the weather improves, riders let their eagerness to get back on the road overcome good judgment. Mileage is increased too much too soon.

Spring also means increases in training intensity. There's nothing wrong with training hard. It's the surest way to improve. But done wrong, it's also the fastest way to get fried. As the saying goes, speed kills.

Hard training doesn't guarantee better performance. Coupled with other stresses and demands on your time, it can make you worse.

Don't be misled when you read about the training volume of pro cyclists. They rarely overtrain. Although pros ride 400-600 miles per week and race 100 times a year, they have plenty of time for rest and recuperation. All they do is ride, eat and sleep.

On the other hand, many recreational riders do well to get on the bike 8 hours a week, but their workweeks stretch to 40-hours plus. After tacking on home responsibilities, the average recreational cyclist probably has a lower miles-to-rest ratio than a pro.

Stress is cumulative. If the boss is hinting that you should update your resume and your significant other is becoming less significant, it drains even more energy from training. Overtraining can easily be the result. In this chapter, I show you how to recognize it and prevent it. But if you fall victim anyway, we'll see how to recover and know when you're ready to resume a regular schedule.

The training plans in [chapter 11](#) are structured to help you avoid doing too much. But everyone's tolerance for hard work is different. As a result, you shouldn't blindly follow my schedules (or anyone else's). Here's how to recognize when you're getting into dangerous territory.

Symptoms

Check for these signs of overtraining every day. Be honest with yourself and don't ignore them. Remember, spring is a dangerous season because you're so enthusiastic about increasing your training load.

- **LOWERED PERFORMANCE.** If you seem to be getting slower even though you're training hard, suspect overtraining. Inability to get your heart rate up to normal levels is one sign. So is struggling to stick with a group in which you're normally comfortable. Here's the classic principle: If you're getting worse *despite* hard training, you're probably getting worse *because* of hard training.

- **APATHY.** If you have to pry yourself out of bed every morning, you may be suffering from chronic fatigue. Skipping rides is another danger signal. When you've lost your normal enthusiasm for getting on the bike, it's a clear signal that you aren't fully recovered and your body is crying for rest. It's not a sign of personal weakness.
- **DESIRE TO QUIT.** This could be in races or just strenuous training rides. In severe cases, overtrained riders can't even complete moderate climbs on solo rides without packing it in. Challenges should make you eager to ride hard. If you're lethargic, tired and feel like giving up when the going gets tough, suspect overtraining.
- **INCREASED IRRITABILITY.** William Morgan, Ph.D., a psychologist who studied overtraining 30 years ago, argues that overtrained athletes are also clinically depressed. And with depression often comes a monumental case of grumpiness. Your family can provide the best independent warning of overtraining. They'll tell you when your normally sunny personality turns sour (often in no uncertain terms).
- **DISRUPTED SLEEP.** Overly tired cyclists often fall asleep easily in the evening. In fact, they may nod off quickly in front of the TV or while reading a book. But they awake at 3 or 4 a.m., feeling wired and unable to relax. A pattern of "inappropriate fatigue" is a sure sign that you've crossed the line.

Prevention

First, learn to ride slowly. Most cyclists feel guilty when they aren't hammering, but a fairly large percentage of each week's training should be spent at heart rates around 65-75% of maximum (RPE of 6 and 7).

Why ride slowly if you're training to get faster? Easy rides promote recovery because they stimulate blood flow to the muscles without stressing them. They're psychologically beneficial, too, because they provide the fun of cycling without the stress of training. And some authorities argue that riding at low intensity helps capillary development and thus increases endurance.

If you have trouble restraining yourself and easy rides have a way of becoming fast and hard, try these tricks:

- **WEAR A HEART MONITOR.** Set the upper limit alarm at 75% of your max heart rate. When it beeps, back off.
- **RIDE WITH SLOWER PEOPLE.** Easy days are great opportunities to ride with friends who couldn't normally keep up with you.
- **DON'T "TRAIN."** Just ride to the coffee shop or do errands on your bike.
- **RIDE A SLOW BIKE.** You associate your fast road bike with speed and intensity, so use your town bike or beater to give you an easy-ride attitude.

- **RIDE ON BIKE PATHS OR DIRT ROADS.** Take a leisurely “walk on the bike” on routes that naturally inhibit speed.
- **AVOID HILLS.** Stay in terrain that doesn’t present a challenge or force you to work at higher heart rates.
- **RIDE INDOORS.** It’s easy to control your intensity while riding on rollers or a trainer. Simply limit your gears. Watch TV or read a book.
- **SCHEDULE DOWN TIME.** It’s appropriate to designate every fourth week a rest week, cutting volume and intensity about 30%. It’s far better to plan a rest week than be forced into one by fatigue. Rest before you’re tired, not when you’re cooked.

Studies show that significant gains in fitness come, not *during* the hard efforts of training, but during rest and recovery *after* training. That’s when your muscles repair themselves and grow stronger.

To ensure sufficient recovery:

- **EVALUATE YOUR TOTAL STRESS LOAD.** When non-cycling demands are unusually high, cut back on scheduled training. If you’re building a new house or starting a new and challenging job, training may have to go to the back burner and be reduced to simmer. That’s OK.
- **EAT AND DRINK ENOUGH.** Be sure you’re adequately hydrated and eating enough carbohydrate to replace the muscle fuel (glycogen) that training consumes. Consider a post-ride carbo replacement drink. Many cases of overtraining have roots in insufficient calories and inadequate hydration.
- **MONITOR YOUR BODY.** Learn the overtraining symptoms above and be keenly aware of how you feel. If you’re experiencing symptoms, reduce training *now*. Don’t make the mistake of thinking you can ride through fatigue and come out stronger. You’ll only sink deeper.

You Overtrained. Now What?

Rest! It’s a sad truth, but rest is the best remedy. Nap instead of training. Eat high-carbohydrate meals. Pump the fluids. When you’re feeling better in several days, resume normal training but avoid the excessively hard work and insufficient recovery that got you in trouble.

Are you really recovered? It’s often difficult to be sure. Sean Kelly, the great Irish pro, said he knew he had lively legs when he could power over small hills without standing.

A general rule: If you feel eager to ride, you’re rested. If warming up is a chore and you still feel tired and flat 30 minutes into the ride, you need more rest, not training.

Chapter 9

Spring Injuries

With spring's greater training volume, the risk of injury and illness increases. Hard training can suppress the immune system, making you more susceptible to colds and other respiratory infections.

Below is quick primer on common injuries and health problems that plague riders as they begin their seasons in earnest.

Your best reference on this topic is *Andy Pruitt's Medical Guide for Cyclists* by Andrew L. Pruitt, Ed.D., director of the Boulder Center for Sports Medicine in Colorado. He's an expert on medical problems associated with our sport. Check his book if you need more information or have questions on topics not covered here. For instance, Andy covers 8 knee injuries in depth as well as many other maladies from head to toe, literally. His book is available at RoadBikeRider.com.

Colds and Flu

Nearly everyone catches a cold now and then. It's especially frustrating in the spring when you're eager to boost training. Follow these rules if you start getting the sniffles.

- **REST.** Couch time gives your body extra energy to fight infection. Cut back on work hours, take a sick day or procrastinate on home chores to buy more down time.
- **PUMP FLUIDS.** Use them to wash down a few hundred extra milligrams of vitamin C at each meal.
- **USE COLD REMEDIES WITH CAUTION.** Many contain ingredients to treat all possible cold symptoms, several of which you may not have. Alka Seltzer Plus cold medicine is a basic formula that seems to work well for standard head colds. If you're a racer, beware of over-the-counter cold remedies that contain pseudoephedrine (most do). This is a stimulant and a banned substance. You'll probably test positive for drug use. For the rest of us, a cold medicine makes the activities of daily life considerably more comfortable.

Some riders pride themselves on "training through" a cold. I know—it's hard to stop training just when the weather is improving and you're making real progress toward your goals.

But don't force it, especially in the first couple of days when you don't know the extent of the illness. A hard ride could turn an average cold into something worse. Or instead of a cold it could be the flu, a severe illness you can't afford to play with.

Certainly, if you don't feel like riding, stay home. You'll be farther ahead if you devote several days to recovery. If you try to train through, you could lengthen the cold, slow your recovery and take much longer to return to form.

TIP! Use the above-the-neck rule. When cold symptoms are from the neck up (sneezing, stuffy nose), it's usually OK to exercise lightly. But when symptoms are also below the neck (coughing, chest congestion, muscle aches), don't train. Once you're feeling better again, do at least one week easy for each week you were off the bike.

Don't forget to get a flu shot each fall. It can prevent lots of physical misery as well as the mental anguish of seeing a month of your season go to waste.

Knee Pain

Spring is the season for sore knees. In fact, one common version of inflamed knee tendons (tendinitis) is known as "spring knee."

When your hinges start hurting, here's a general rule from Andy Pruitt:

If the pain is in the front of the knee, your saddle may be too low. If the pain is in the back of the knee, the saddle is probably too high.

In spring, however, the cause of bum knees is often overuse rather than improper saddle height. If you're still in the weight room doing squats or leg presses, your knees may protest when you add longer or harder rides. Another cause is using big gears before your tendons and ligaments are ready for the 53-tooth chainring. Not covering your knees when it's cooler than 65F degrees can inflame tendons, too.

Knee tendinitis usually takes one of 2 forms.

- **PATELLAR TENDINITIS.** Pain develops in the front of the knee, below the kneecap (*photo*). It hurts while riding, perhaps when you walk up stairs, or merely when you touch the tendon. There may be swelling. Your knee might squeak when bent, indicating that the tendon's lubrication is lacking.
- **SPRING KNEE.** This is marked by sharp pain at the top of the kneecap. The kneecap is triangle-shaped with one point at the bottom. The pain of spring knee is usually felt on the right or left points on top.



Treatment

1. APPLY ICE (in a plastic food storage bag) 1-3 times a day for 15-20 minutes each time. Protect your skin with a washcloth. Place the ice bag on the injured area and hold it in place with an elastic bandage. Remove the ice for at least 30 minutes before another session.

2. TAKE A NSAID (non-steroidal anti-inflammatory drug) with food. Ibuprofen works well for many riders.

CAUTION! NSAIDs can be dangerous. Excessive doses combined with dehydration can cause kidney problems. Never exceed the manufacturer's recommended dose. This is especially important on a tour or during periods of heavy training when you might become dehydrated.

3. APPLY A COUNTER-IRRITANT. When you get back on the bike, consider using a heat rub that encourages more blood flow to the area. Check with a pharmacist to see what's available over the counter. Then shield the injured knee from cool wind with a light coating of petroleum jelly. Always wear knee-protecting knickers, leg warmers or tights if the temperature is below 65F degrees. You'd be wise to raise this to 70 if you're already hurting. Use low gears and a high cadence. It often helps to raise your saddle 3-4 mm.

If you're still having problems, revise your training plan to increase mileage more gradually. Get a professional bike fit from a USA Cycling coach, reputable bike shop or a sports medicine facility with knowledge of cycling. Make sure this includes cleat positioning. As a last resort, see a physical therapist.

ILIO-TIBIAL BAND FRICTION SYNDROME. This knee injury is named after the wide sheath of fibrous material that extends along the outside the thigh from the crest of the hip bone to slightly below the knee. The lower end crosses a bony protuberance on the side of the knee (*photo*). This is the area that's irritated.



Symptoms are a sharp, stabbing pain around the bony bump. It can feel like someone is stabbing you with an ice pick, especially at the top of the pedal stroke.

IT band problems are usually caused by an overly narrow stance on the bike, badly adjusted cleats or a saddle set too high. Bowlegged riders and those with flat feet are susceptible too.

To treat this injury, apply ice and take NSAIDs as mentioned above. Widen your stance on the bike by moving your cleats as far to the inside of the shoe soles as possible. Pedals that allow feet some free rotation usually help. Lower your saddle about 6 mm. (IT band friction syndrome is one of the few knee problems where the saddle should be lowered rather than raised.) Over-the-counter arch supports or custom orthotics usually help.

If these fixes don't relieve the pain in one day, stop riding. Once this injury gets established, it's hard to correct.

While you're off the bike, see a physical therapist for instruction on stretches designed to treat the problem. In advanced cases, surgery may be necessary.

Upper-Body Discomfort

Soreness between the shoulder blades, low-back pain, neck strain and aching triceps often accompany hard, hilly or long rides in spring. Remedies:

1. CHECK BIKE FIT. Your reach to the handlebar is a crucial dimension. Stretch out too far and your triceps and low back will ache. So will your neck as you strain to see up the road. As you lean far forward, the saddle nose can press into you uncomfortably.

Conversely, a reach that's too short causes you to hunch, putting stress on upper-back and shoulders. You sit excessively upright, putting too much weight on your crotch.

The rule for reach: When you're riding comfortably with hands on the brake lever hood and elbows slightly bent, the handlebar should block your view of the front hub.

This is a guideline, of course, and doesn't work for all riders. If in doubt, get a professional bike fit or consult *Andy Pruitt's Medical Guide for Cyclists* for additional self-help information. Andy goes into great detail on bike fit and riding position.

2. STRENGTHEN MUSCLES. A basic upper-body weight training program, such as the one in [chapter 3](#), will help prevent muscle soreness on long rides.

3. MOVE AROUND. Locking your body into one position for long periods is a sure way to make muscles seize. Stand up, sit down, move forward and back on the saddle. Change hand positions frequently.

Saddle Sores

It rarely fails. Just when spring training is going well, your crotch becomes tender, abraded or even invaded by an open wound or boil. Suddenly you're riding in pain—or not riding at all.

Most medical experts think that boils are caused by skin bacteria that invade surface abrasions. Remedies have come a long way since riders put a slab of raw steak in their shorts to cushion the abraded area. Of course, avoiding saddle sores is better than curing them. Here's how:

- **CHECK BIKE FIT.** If your saddle is too high, your hips will rock and rub soft tissue on each pedal stroke. If the saddle is too far to the rear, you'll slide forward onto the narrow nose where your crotch bears the weight that your sit bones should be supporting. If you suffer from chronic saddle sores, have your position checked by a USA Cycling-certified coach or knowledgeable bike shop personnel.
- **CHANGE POSITION.** When sitting, slide to a different part of the saddle every few minutes. Stand as frequently to take pressure off your crotch. Get out of the saddle on short hills or while accelerating away from stop signs. At the back of the peline, stand and stretch. If the saddle isn't touching your crotch, it can't irritate it.

- **WEAR HIGH-QUALITY SHORTS.** The liner should be large, soft, lightly padded and have no seams or at least flat ones. You'll probably need to buy different brands to find that one that your anatomy really likes. Women often do better with shorts cut for the female anatomy. If the liner isn't one piece, it should be sewn with a curved "baseball" pattern to avoid a center seam.
- **FIND A SUPPORTIVE SADDLE.** Saddle choice is crucial, of course. Don't be fooled by large, cushy seats. Excessive width will rub your inner thighs. Too much padding lets your sit bones sink deep, putting pressure in the center where you don't want it. Depending on your anatomy, some narrow saddles won't support you on your sit bones. They put too much weight on soft tissue that soon becomes irritated. Trying different saddles can become expensive, so trade with other riders or find a bike shop that has a demo program.
- **LUBE YOUR CHAMOIS.** To reduce friction between the shorts liner and your skin, use Chamois Butt'r or a similar lubricant. Rub a dab into your crotch before you put on the shorts.

Water washes away most lubes, so break out the petroleum jelly on a rainy day. It's greasy and stays on your skin and shorts in soggy conditions.

- **CLEAN UP.** Always ride in clean shorts. If you're prone to problems, wash your crotch with mild soap and warm water, then dry well and lube up before donning your shorts.

CAUTION! *Avoid hanging around in sweaty shorts after a ride. Bacteria love a damp and dirty environment. Shower as soon as possible after riding and put on loose, well-ventilated clothing. If you're at an event and can't wash, at least change out of your shorts and wipe down. Moist towelettes that pop out like tissues work well. Get an antibacterial brand.*

TIP! *Ask your physician about a prescription for a topical antibiotic called erythromycin (Emgel). After each ride, rub a dab on any irritated "hot" spots. Ed Pavelka turned me on to this medicine before our transcontinental PAC Tour. We rode 3,400 miles in 24 days and neither of us developed a saddle sore.*

Sometimes you will, despite your best preventative efforts. A couple of days off the bike will help it heal. But if you're in a situation where you must continue riding, try these fixes:

- **SWITCH SHORTS OR SADDLES.** Your problems are probably isolated to one small area—a boil or abrasion—so changing your saddle or shorts can change the pressure. Some people on sagged multi-day tours take a spare saddle mounted on a seatpost. They switch every couple of days to avoid concentrated irritation.
- **USE A HEAVIER LUBRICANT.** If you're getting abraded, try a more viscous lube. A favorite of long-distance riders is Bag Balm, designed for sore cow udders but available in most pharmacies. It has healing properties, too.

Chapter 10

Spring Weather

Spring is synonymous with lousy weather. If it isn't rain, it's sleet, hail, wind and the occasional snowstorm. Warm, sunny skies usually show up just when you've scheduled a rest day.

If you're serious about training and building your fitness, you'll have to ride in the rain occasionally. That's not necessarily bad. As the old saying goes, "You'd better train in the rain because someday you'll find yourself racing in the rain." Or riding a century in the rain, or touring in the rain.

You won't have the confidence and know-how to deal with downpours and wet roads unless you experience them. The trick is dressing right and developing certain bike-handling skills. After that, getting wet and riding through puddles can be as fun as when you were a kid.

Rainwear

- **JACKET.** Light windbreakers work fine in relatively warm rain. They don't keep you dry, but they do hold in body heat. But for cold spring rain (or sleet) you need a waterproof jacket. Beware of overspending for one made of a high-tech fabric advertised as "waterproof and breathable." Those 2 terms don't go together.

Instead, look for a jacket with completely waterproof fabric and plenty of ventilation (pit zips, full-length front zipper, back vent, cuffs that can be opened). You need airflow to reduce overheating. A poorly ventilated jacket will keep the air so stuffy inside that you get as wet from sweat as you would from the rain. Also, be sure there's a long tail that lets down to cover yours.

Perhaps the most important feature for any cycling jacket is high visibility. Go for neon yellow or orange so you'll glow as you ride. If there are reflective stripes or panels, so much the better. Boycott manufacturers who produce only dark-colored outerwear. That's like wearing camouflage.

- **SHOE COVERS.** Neoprene booties hold in heat, up to a point. But they eventually soak through, letting your feet get wet and cold. Neoprene doesn't breathe, so even when it's cold but dry your feet will get damp from condensation. A better choice is booties made from a water-repellent fabric. They're lighter and roll up into a much smaller bundle when you want to stuff them in a jersey pocket.

For spring temps above 45F degrees, consider toe covers that pull over the front of your shoes. They're enough to cut the chill, but they're not much help in rain.

- **BASE LAYERS.** Your wardrobe should contain several short-sleeve or sleeveless base layers made of a synthetic material (“polypro”) designed to transport moisture. This stuff works, wicking sweat from your skin so it stays drier and warmer. Add a long-sleeve turtleneck for cold and wet conditions. Wool is another good material against the skin. Old problems with itching and shrinking have been solved.
- **EYE PROTECTION.** You can’t ride safely if you can’t see. In dark, gloomy conditions, clear or yellow lenses give you the best chance of spotting road hazards obscured by rain and mist.

If it’s raining hard, a billed cycling cap under your helmet shields your eyes. Mountain bike-style helmet visors are increasingly being worn by roadies in wet weather.

- **HEAD COVER.** Your scalp has a rich network of blood vessels. That’s why you bleed so copiously from head injuries. It’s also why you lose substantial amounts of heat from your head. Anytime it’s cold or wet, wear a thin polypro helmet liner “skullcap” or balaclava (also covers your neck and ears) under your helmet.
- **GLOVES.** Cold hands create bike-handling problems. It’s hard to work the brakes or shift with numb fingers. Most winter-weight gloves soak through in heavy or prolonged rain, but they’ll keep your hands warm for a while by virtue of their insulation. Neoprene gloves don’t work any better than neoprene booties.

For warmer temperatures, wear polypro gloves with gripper dots over short-finger cycling gloves. The dots in the palm and fingers are made of a tacky material that won’t slide on wet handlebar tape.

- **TIGHTS OR LEG WARMERS.** You can buy waterproof nylon rain pants, but most cyclists find them floppy, noisy and unnecessary. Your legs are shielded somewhat by your upper body, and they’re also working hard. If they do get wet, you may not even notice.

Wool-blend tights with nylon panels over the knees and upper thighs work well when rain and cold combine. Regular polypro tights or leg warmers are fine for most wet spring conditions.

Riding Techniques

Comfort is only part of the battle. You also need to stay upright. Nothing frightens inexperienced riders more than pavement and brake pads slickened by rain. It’s tough to judge traction and easy to feel panicky when tires slip a little. When brakes are applied, nothing happens. You need to know that it takes numerous revolutions before water is wiped off and brake pads begin to grip.

With the following basic knowledge and practice, you can expand your comfort zone when it’s slippery.

- **REDUCE TIRE PRESSURE.** Inflate tires to about 95 psi rear and 85 psi front if you weigh around 150 pounds. Run a bit more pressure if you're heavier. Less pressure lets tires flatten more where they touch the road. A larger contact patch mean better traction.
- **RELAX.** If your arms are tense and you begin to lose traction, you could slide out and crash. If you're loose and relaxed, you can ride through minor skids.
- **GO EASY IN CORNERS.** Slow down for turns on wet roads. Aggressive cornering will likely result in a crash. Don't make any abrupt moves. Even pros often crawl through corners when racing in the rain.
- **BEWARE OF BOOBY TRAPS.** Lines painted on the road are especially slick when wet. So are metal manhole covers, railroad tracks, steel bridge decks and fallen leaves. Slow down and cross these things when your bike is vertical, not angled over.
- **BE EXTRA CAUTIOUS EARLY.** Roads are slickest just after it starts to rain. After a few minutes, oil and dust are washed away and traction improves. In fact, it may be nearly as secure as on a dry surface—except on the booby traps just mentioned.
- **PRACTICE.** Ride in the rain. Consider it part of your cycling education. Only be experiencing braking, cornering and the limits of traction will you gain skill and confidence in wet weather. Don't take risks, but get a feel for how your bike responds.

Wet-Road Cornering

Brake to a safe speed *before* you reach the turn. If you grab the brakes when the bike is leaned over, crashing is almost certain. Remember that wet rims mean much less initial stopping power. Apply the brakes far enough in advance to squeegee water from the rims. Take care to lighten your grip as soon as you feel the pads begin to grab. Otherwise, you could lock a wheel and skid down.

In a turn, put even more weight on the outside pedal than you normally do, but don't lean over as much. The tires will be less likely to slip out.

Take a smooth, rounded line. Use as much of the lane as traffic permits. The sharper your angle, the more likely you are to lose traction.

Wet Group Rides

When you're following someone on wet roads, it's easy to get blinded by the rooster tail of spray thrown up from the rear wheel. It gets into your mouth, too—not real tasty or sanitary. Here are 2 ways to avoid this spray:

1. RIDE SLIGHTLY TO EITHER SIDE. This lets the spray go just past your shoulder. The problem is that you get less draft this way, and it might put you too close to the road edge or too far into the traffic lane.

2. RIDE CLOSER. This way, the rider's spray will go into your wheel instead of up onto you. Or course, this isn't a safe solution unless you and the other guy have good wet-weather riding skills.

Remember, fenders all but eliminate spray. Put them on your bad-weather beater bike. Your riding companions will thank you, and you'll stay cleaner, if not drier.

Headwinds

Tailwinds help you zip along effortlessly. But crosswinds and headwinds more than make up for easy breezes. A wind from the side blows you off a steady line. A headwind is just plain tough, physically and mentally.

First, the mental part. Don't fight headwinds. You'll just get frustrated. After all, a force of nature that can power huge sailing ships isn't something you can overcome with muscle power alone. Simply accept the wind and keep pedaling.

Don't overgear. Some riders try to fight headwinds with brute force in the same gear they'd use in calm conditions. They're soon laboring to turn the crank, suffering like a dog and hating the bike.

The best tactic is to treat headwinds like hills. You'd shift to the small ring and spin up a hill, right? So do the same against the wind. You'll go faster and suffer less.

Get aerodynamic. If you're facing a long haul into the wind, pretend you're time trialing. Get low. Hold the handlebar in the drops or stretch out along the top tube with your hands on the brake lever and your forearms horizontal. With less frontal area exposed to the gale, you'll go faster for a given amount of effort.

CAUTION! *Don't stay too long in an extreme aero position. Your back and neck will stiffen, and it's hard on a crotch, too. Sit up periodically. Move your hands on the bar and your sit bones' position on the saddle. Stand for at least 1 minute in every 5, just as you would when climbing a hill out of the saddle.*

Crosswinds

Strong, gusty crosswinds pose a bike-handling challenge. Use a secure-but-not-tight grip on the bar. Keep your elbows relaxed and slightly bent. Using your arms as shock absorbers will go a long way toward keeping the bike on line when gusts hit.

CAUTION! *Avoid using deep, V-section rims in crosswind conditions, especially up front. The wider rim will catch the wind and make handling dicey. Combine this with the speed of a descent and it's possible to lose control entirely. The same goes for composite wheels with 3, 4 or 5 wide "spokes."*

TIP! *The best way to handle a windy day is with a little help from your friends. Riding with just one other person means you'll be at the front only half the time. A group of 5 or 6 can make steady progress into tough headwinds. It's a natural form of interval training as you push hard for a minute, then sit in the paceline for 5.*

Part 2

Training Schedules

Chapter 11

Three Training Plans

Now that we've covered all the fundamentals of spring training, let's start riding. This key chapter contains 8-week training plans for 3 levels of riders, each having different objectives.

Level 1

FOR FITNESS RIDERS who want to get in shape to ride 50 miles at a good pace, improve their climbing and do moderately paced group rides.

This is the right program for cyclists who didn't ride much in winter. If in doubt, start here. You'll improve while avoiding the risk of overtraining.

Level 2

FOR FAST RECREATIONAL RIDERS whose goals include sprightly group rides, centuries and multiday tours.

I'm assuming that you're coming out of winter with good fitness, hopefully from following my advice in *Off-Season Training for Roadies*.

Level 3

FOR COMPETITIVE CYCLISTS. This doesn't mean you need a racing license. You could key on competitive group rides, club time trials or club criteriums.

This program works best if you established a solid base of endurance and strength during the off-season. You did if you used my program in *Off-Season Training for Roadies*.

Workout Notes

- Daily rides are based on time rather than distance. The reason is simple: Distance traveled with a headwind vs. a tailwind, or when climbing compared to descending, can vary enormously. As a result, the number of miles you cover isn't a good measure of effort expended.
- Use the [rating of perceived exertion \(RPE\)](#) scale to judge how hard you're working. My program is based on RPE. Of course, you're welcome to use a heart monitor and/or a watt meter if you have them.
- Whenever I suggest a specific workout (sprints, training time trials, hill repeats and so on), there's a [blue](#) link to the page where the technique is explained. Simply click on these links to review instructions.
- When you click on a link, you'll often see similar workouts on adjacent pages. For instance, I talk about "jumps" on page 56 and "tailwind sprints" on page 57. You're welcome to substitute workouts based on your terrain, weather conditions, desire for variety or the shortcoming you're trying to remedy.
- What if you miss a workout—or several? Don't worry when you can't ride for 1-5 days. Simply pick up the schedule where you left off. If you miss more than a week, begin where you were, but cut both distance and intensity by about a third until you're back into the rhythm of training. That may take several days.

If you miss significant time with an illness or injury, go extremely easy for at least a week when you return. Reduce mileage and intensity by half, then rebuild slowly. Carefully monitor your performance and your feeling of well-being as your comeback progresses. Don't rush it! There's plenty of time. It's a long season.

TIP! Remember that these schedules are suggestions. They represent one good way that the disparate elements of training (chapters 1-10) can be blended into an 8-week program. There are other good ways. Consider your goals, time for training, energy, motivation and other key factors in your personal situation. Please feel free to modify my recommendations to more exactly fit your needs.

CAUTION! Always get your physician's permission before engaging in strenuous athletic training.

Level 1

Welcome to your 8-week cycling foundation program. By the end of 2 months, you'll be able to comfortably ride 50 miles or about 3 hours.

This program works great for general fitness. If that's your goal, do the 8-week program and then repeat the final 4-week schedule to maintain your fitness. At that point, you can decide whether to continue to repeat this program or advance to the next level.

If your goal is to ride longer—say a 62-mile metric century or 100-mile standard century—this program will give you a solid base from which to build your endurance.

LEVEL 1, WEEK 1

Monday

Rest day or [weight training](#).

Tuesday

1:00 at RPE 6-7. Include 3 [jumps](#).

Wednesday

1:00 at RPE 6.

Thursday

1:00 at RPE 6-8. Include 10 min. of [grinder No. 2](#).

Friday

Rest day or [weight training](#).

Saturday

1:00 at RPE 6.

Sunday

1:30 at RPE 6-8. Consider joining a [group ride](#).

LEVEL 1, WEEK 2

Monday

Rest day or [weight training](#).

Tuesday

1:00 at RPE 6-7. Include 4 [jumps](#).

Wednesday

1:15 at RPE 6.

Thursday

1:00 at RPE 6-8. Include 10 min. of [grinder No. 2](#).

Friday

Rest day or [weight training](#).

Saturday

- 1:00 at RPE 6.

Sunday

- 1:30 at RPE 6-8. Consider joining a [group ride](#).

LEVEL 1, WEEK 3

Monday

- Rest day or [weight training](#).

Tuesday

- 1:20 at RPE 6-7. Include 5 [jumps](#).

Wednesday

- 1:00 at RPE 6.

Thursday

- 1:20 at RPE 6-8. Include three 8-min. [time trials](#).

Friday

- Rest day or [weight training](#).

Saturday

- 1:00 at RPE 6.

Sunday

- 1:45 at RPE 6-8. Consider joining a [group ride](#).

LEVEL 1, WEEK 4

Monday

- Rest day or [weight training](#).

Tuesday

- 1:20 at RPE 6-7. Include 3 [sprints](#).

Wednesday

- 1:00 at RPE 6.

Thursday

- 1:20 at RPE 6-8. Include a [time trial test](#) to measure improvement.

Friday

- Rest day or [weight training](#).

Saturday

- 1:00 at RPE 6.

Sunday

- 2:00 at RPE 6-8. Consider joining a [group ride](#).

LEVEL 1, WEEK 5

Monday

- Rest day or [weight training](#).

Tuesday

- 1:30 at RPE 6-7. Include 5 [sprints](#).

Wednesday

- 1:00 at RPE 6-7.

Thursday

- 1:30 at RPE 6-8. Do 8 [intervals](#) of 30 seconds on, 30 seconds off.

Friday

- Rest day or [weight training](#).

Saturday

- 1:00 at RPE 6.

Sunday

- 2:15 at RPE 6-8. Consider joining a [group ride](#).

LEVEL 1, WEEK 6

Monday

- Rest day or [weight training](#).

Tuesday

- 1:30 at RPE 6-8. Include 4 [power accelerations](#).

Wednesday

- 1:15 at RPE 6-7.

Thursday

- 1:30 at RPE 6-8. Do 10 [intervals](#) of 30 seconds on, 30 seconds off.

Friday

- Rest day or [weight training](#).

Saturday

- 1:00 at RPE 6.

Sunday

- 2:30 at RPE 6-8. Consider joining a [group ride](#).

LEVEL 1, WEEK 7

Monday

- Rest day or [weight training](#).

Tuesday

- 1:30 at RPE 6-8 with 4 short [climbs](#).

Wednesday

- 1:15 at RPE 6-7.

Thursday

- 1:30 at RPE 6-8 with 3 [climbs](#) about 10 min. each.

Friday

- Rest day or [weight training](#).

Saturday

- 1:00 at RPE 6.

Sunday

- 2:45 at RPE 6-8. Consider joining a [group ride](#).

LEVEL 1, WEEK 8

Monday

- Rest day or [weight training](#).

Tuesday

- 1:30 at RPE 6-8 with 2 [climbs](#) of about 10 min. each.

Wednesday

- 1:15 at RPE 6-7.

Thursday

- 1:30 at RPE 6-8. Include a [time trial test](#) to measure improvement.

Friday

- Rest day or [weight training](#).

Saturday

- ☐ 1:00 at RPE 6.

Sunday

- ☐ 3:00 at RPE 6-8. Consider joining a [group ride](#).

Level 2

For fast recreational roadies who want to perform well on group rides and in centuries.

You can easily modify this program to get fit for a multiday tour. Every other Saturday, substitute a 2-4-hour ride at RPE 6-8 for the scheduled easy ride. High-mileage weekends will give you the stamina to ride several consecutive days.

LEVEL 2, WEEK 1

Monday

- ☐ Rest day or [weight training](#).

Tuesday

- ☐ 1:00 at RPE 6-7. Include 3 [jumps](#).

Wednesday

- ☐ 1:00 at RPE 6-8 with [one-leg training](#).

Thursday

- ☐ 1:00 at RPE 6-8 with 3 [grinder No.1](#).

Friday

- ☐ Rest day or [weight training](#).

Saturday

- ☐ 1:00 at RPE 6.

Sunday

- ☐ 2:30 at RPE 6-8. Consider joining a [group ride](#).

LEVEL 2, WEEK 2

Monday

- ☐ Rest day or [weight training](#).

Tuesday

- 1:00 at RPE 6-7. Include 4 jumps.

Wednesday

- 1:15 at RPE 6-8 with one-leg training.

Thursday

- 1:00 at RPE 6-8 with 3 grinder No. 1.

Friday

- Rest day or weight training.

Saturday

- 1:00 at RPE 6.

Sunday

- 3:00 at RPE 6-8. Consider joining a group ride.

LEVEL 2, WEEK 3

Monday

- Rest day or weight training.

Tuesday

- 1:00 at RPE 6-7. Include 5 jumps.

Wednesday

- 1:30 at RPE 6-8 with one-leg training.

Thursday

- 1:00 at RPE 6-8 with 2 grinder No. 2.

Friday

- Rest day or weight training.

Saturday

- 1:00 at RPE 6.

Sunday

- 3:15 at RPE 6-8. Consider joining a group ride.

LEVEL 2, WEEK 4

Monday

- Rest day or weight training.

Tuesday

- 1:00 at RPE 6-7. Include 3 [sprints](#).

Wednesday

- 1:00 at RPE 6-8 with [one-leg training](#).

Thursday

- 1:00 at RPE 6-8. Include a 5-mile [time trial test](#).

Friday

- Rest day or [weight training](#).

Saturday

- 1:00 at RPE 6.

Sunday

- 3:45 at RPE 6-8. Consider joining a [group ride](#).

LEVEL 2, WEEK 5

Monday

- Rest day or [weight training](#).

Tuesday

- 1:00 at RPE 6-7. Include 5 [sprints](#).

Wednesday

- 1:45 at RPE 6-8 with [one-leg training](#).

Thursday

- 1:30 at RPE 6. Include three 8-min. [time trials](#) at RPE 8-9.

Friday

- Rest day or [weight training](#).

Saturday

- 1:00 at RPE 6.

Sunday

- 4:00 at RPE 6-8. Consider joining a [group ride](#).

LEVEL 2, WEEK 6

Monday

- Rest day or [weight training](#).

Tuesday

- 1:00 at RPE 6-7. Include 4 [tailwind sprints](#).

Wednesday

- 1:45 at RPE 6-8 with [one-leg training](#).

Thursday

- 1:30 at RPE 6. Include two 10-min. [climbs](#) or [time trials](#) into the wind at RPE 8-9.

Friday

- Rest day or [weight training](#).

Saturday

- 1:00 at RPE 6.

Sunday

- 4:15 at RPE 6-8. Consider joining a [group ride](#).

LEVEL 2, WEEK 7

Monday

- Rest day or [weight training](#).

Tuesday

- 1:00 at RPE 6-7. Include 5 [tailwind sprints](#).

Wednesday

- 2:00 at RPE 6-8 with [one-leg training](#).

Thursday

- 1:30 at RPE 6. Include three 10-min. [time trials](#) at RPE 8-9.

Friday

- Rest day or [weight training](#).

Saturday

- 1:00 at RPE 6.

Sunday

- 4:30 at RPE 6-8. Consider joining a [group ride](#).

LEVEL 2, WEEK 8

Monday

- Rest day or [weight training](#).

Tuesday

- ☐ 1:00 at RPE 6-7. Include 3 [speed contest sprints](#).

Wednesday

- ☐ 1:00 at RPE 6-8 with [one-leg training](#).

Thursday

- ☐ 1:30 at RPE 6-8. Include a 5-mile [time trial test](#).

Friday

- ☐ Rest day or [weight training](#).

Saturday

- ☐ 1:00 at RPE 6.

Sunday

- ☐ 5:00 at RPE 6-8. Consider joining a [group ride](#).

Level 3

For racers and those seeking higher levels of stamina, speed and power for group rides or recreational events.

This 8-week program will help you reach your performance goals on an average of 7-10 training hours per week. There's even time for twice-weekly resistance training.

I'm assuming that you can already ride 50-75 miles comfortably and want to compete at distances up to 75 miles. The emphasis is on intense training and enough rest for your body to rebuild after hard efforts.

LEVEL 3, WEEK 1

Monday

- ☐ Rest day or [weight training](#).

Tuesday

- ☐ 1:15 at RPE 6-7 with 3 [jumps](#).

Wednesday

- ☐ 1:30 at RPE 6-7 with [one-leg training](#).

Thursday

- ☐ 1:15 at RPE 6-9 with 4 [grinder No. 1](#).

Friday

- Rest day or [weight training](#).

Saturday

- 1:00 at RPE 6.

Sunday

- 2:00-2:30 at RPE 6-8. Consider joining a [group ride](#).

LEVEL 3, WEEK 2

Monday

- Rest day or [weight training](#).

Tuesday

- 1:15 at RPE 6-7 with 4 [jumps](#).

Wednesday

- 1:30 at RPE 6-7 with [one-leg training](#).

Thursday

- 1:15 at RPE 6-9 with 5 [grinder No. 2](#).

Friday

- Rest day or [weight training](#).

Saturday

- 1:00 at RPE 6.

Sunday

- 2:00-2:30 at RPE 6-8. Consider joining a [group ride](#).

LEVEL 3, WEEK 3

Monday

- Rest day or [weight training](#).

Tuesday

- 1:15 at RPE 6-7 with 4 [sprints](#).

Wednesday

- 1:45 at RPE 6-7 with [one-leg training](#).

Thursday

- 1:15 at RPE 6-9 with 6 [grinder No. 1](#).

Friday

- Rest day or [weight training](#).

Saturday

- 1:00 at RPE 6.

Sunday

- 2:30-3:00 at RPE 6-8. Consider joining a [group ride](#).

LEVEL 3, WEEK 4

Monday

- Rest day or [weight training](#).

Tuesday

- 1:15 at RPE 6-7 with 5 [sprints](#).

Wednesday

- 1:15 at RPE 6-7 with [one-leg training](#).

Thursday

- 1:15 at RPE 6-7. Include 5-mile [time trial test](#).

Friday

- Rest day or [weight training](#).

Saturday

- 1:00 at RPE 6.

Sunday

- 2:30-3:00 at RPE 6-8. Consider joining a [group ride](#).

LEVEL 3, WEEK 5

Monday

- Rest day or [weight training](#).

Tuesday

- 1:15 at RPE 6-7 with 4 [tailwind sprints](#).

Wednesday

- 1:30 at RPE 6-7 with [one-leg training](#).

Thursday

- 1:15 at RPE 6-9 with 3x10-min. training [time trials](#).

Friday

- Rest day or [weight training](#).

Saturday

- 1:00 at RPE 6.

Sunday

- 3:00 to 3:30 at RPE 6-8. Consider joining a [group ride](#).

LEVEL 3, WEEK 6

Monday

- Rest day or [weight training](#).

Tuesday

- 1:15 at RPE 6-7 with 4 [speed contest sprints](#).

Wednesday

- 1:45 at RPE 6-7 with [one-leg training](#).

Thursday

- 1:15 at RPE 6-9 with 4x10-min. training [time trials](#).

Friday

- Rest day or [weight training](#).

Saturday

- 1:00 at RPE 6.

Sunday

- 3:00-3:30 at RPE 6-8. Consider joining a [group ride](#).

LEVEL 3, WEEK 7

Monday

- Rest day or [weight training](#).

Tuesday

- 1:15 at RPE 6-7 with 5 [sprints](#).

Wednesday

- 2:00 at RPE 6-7 with [one-leg training](#).

Thursday

- 1:15 at RPE 6-9. Include 10 [intervals](#) of 30 seconds on, 30 seconds off.

Friday

- Rest day or [weight training](#).

Saturday

- 1:00 at RPE 6.

Sunday

- 3:30-4:00 at RPE 6-8. Consider joining a [group ride](#).

LEVEL 3, WEEK 8

Monday

- Rest day or [weight training](#).

Tuesday

- 1:15 at RPE 6-7 with 6 [sprints](#).

Wednesday

- 1:30 at RPE 6-7 with [one-leg training](#).

Thursday

- 1:15 at RPE 6-7. Include a 5-mile [time trial test](#).

Friday

- Rest day or [weight training](#).

Saturday

- 1:00 at RPE 6.

Sunday

- 3:30 to 4:00 at RPE 6-8. Consider joining a [group ride](#).

We hope you enjoyed this eBook from RBR Publishing Company. We're in business because we love cycling and helping other riders come closer to their potential. **If you have received this eBook without proper payment**, we ask that you keep it, use it to your benefit, and send a check for \$14.95 to RBR Publishing Company, 3255 Embury Hills Dr., Suite A, Atlanta, GA 30341 USA. Thank you! It's because of the support of riders who purchase our eBooks that our business can continue.

— **John Marsh**
— **Fred Matheny**
