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The Best of RBR

FOR
ROADIES



By Ed Pavelka
& Fred Matheny

RoadBikeRider.com



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Introduction

This eBook celebrates the first 25 issues of the *RoadBikeRider.com Newsletter*, published every Thursday by RBR Publishing Company.

Issue No. 1 was e-mailed to our initial 343 subscribers in July, 2001. Since then, our sub list has grown past 63,000 at this update in 2011. Many roadies have joined us along the way and missed the helpful "how to" advice that got RBR started. We admit we used a lot of our very best stuff first!

The Best of RBR puts all that early material together. And it's searchable so you can quickly find all the topics that interest you most.

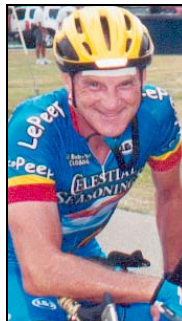
RBR Founders Ed Pavelka and Fred Matheny

We have helped cyclists perform better and enjoy the sport more for three decades, and were owner/operators of www.RoadBikeRider.com during 2001-2010.

We first teamed up in the late 1970s at *VeloNews*, where Ed was editor-in-chief and Fred wrote the "Ready to Race" training column. We eventually transformed the columns into a bestselling book, *Beginning Bicycling Racing*, now considered a classic. Later, with Ed the executive editor at *Bicycling*, Fred joined the staff as Training/Fitness Editor. By then, we'd written 20 cycling books. The total has now passed three dozen. You'll find several in eBook format in the [eBookstore](#) at *RoadBikeRider.com*, where you can read excerpts.



Ed Pavelka



Fred Matheny

At *Bicycling*, Fred organized and operated the magazine's Fitness Advisory Board. It included two dozen of cycling's leading medical experts. Over the years, the FAB members answered hundreds of reader questions on every facet of cycling-related human performance. This work increased Fred's expertise, as did his attendance at sports medicine conferences and cycling camps.

Now, the student has become the teacher. His "Ask Coach Fred" column in the newsletter helps cyclists every week with advice on a myriad of topics. This eBook contains 108 ques-

tions and answers—an unbeatable source of far-ranging expert advice. And there are hundreds more on RBR's PREMIUM SITE.

We hope you enjoy this eBook and get lots of useful info from it. Thanks for supporting RBR. Have a great ride today!

Table of Contents

For **easy navigation**, click open the "Bookmarks" tab at the left. Also, use Acrobat Reader's "find" function (binocular icon) to scour this eBook for all of the information it contains on a specific word or term.

BEST OF: ED & FRED

Lance's Coach at BikeFest 2001
Saturn Cycling Classic
RAGBRAI
World Mountain Bike Championships

BEST OF: RBR INTERVIEWS

1. **Injury/Bike-Fit Expert Andy Pruitt**
2. **Coach Chris Carmichael**
3. **Coach Joe Friel**
4. **Coach Dean Golich**
5. **Endurance Coach John Hughes**
6. **Streaker Jim Langley**
7. **Masters Champion Scott Tucker**
8. **Endurance Legend Pete Penseyres**
9. **Irish Hard Man Paul McQuaid**
10. **Pro Racer Scott Moninger**
11. **Ex-Pro Alex Stieda**
12. **Ex-Pro Ron Kiefel**
13. **Ex-Pro Andy Hampsten**

BEST OF: FAST FIX

1. **Reservoir Gunk**
2. **Bike Shimmy**
3. **Sticky Fingers**
4. **Insufficient Training for a Century**

5. Hot Feet
6. Gash in Tire
7. Faulty Frame Pump
8. Squeaky Cleats
9. Hollow Stomach
10. Leg Cramps
11. Jacket Pulls Up When You Zip Up
12. Plastic Bottle Flavor
13. Foggy Glasses
14. Frozen Drinks
15. Concussion
16. Too Much Cornering Speed
17. Bugs on Rooftop Bikes
18. Finding a Puncture Producer
19. Filthy Bike
20. Gappy Handlebar Tape
21. Tire Won't Seat
22. Bad Memory
23. Frozen Feet
24. One-Hand Veers

BEST OF: TRY THIS ON YOUR NEXT RIDE

1. Finish the Hill
2. Shift the Chain Back On
3. Move on the Saddle to Make Seated Climbing Easier
4. Shift Up to Smooth Out Rough Roads
5. Brush Your Tires to Prevent Flats
6. Apply Brakes Early When Rims Are Wet
7. Start Up Hills In a Lower Gear Than You Need
8. Scan Ahead to Improve Your Cornering
9. Let Your Eyes Steer Your Bike
10. Steer Right to Go Left (And Vice Versa)
11. Pedal on Descents
12. Start Winter Rides Into the Wind
13. On Climbs, Reduce Pedal Pressure as You Downshift
14. "Float" Your Legs When Pedaling Hard
15. Watch Your Shadow
16. Descend With a Knee Against the Top Tube
17. Pedal Low Gears Down Hills
18. Push Your Bike Forward When You Sit
19. Push Your Bike Forward When You Stand
20. Breathe Out Hard, Breathe In Easy
21. Learn to Panic Stop
22. Learn to Jump Your Bike
23. Scoot on the Saddle
24. Center Yourself on Standing Climbs

BEST OF: ASK COACH FRED

EQUIPMENT

1. What's Gearing Nomenclature All About?
2. Why Not a Triple Crankset?
3. Who Needs a Triple?
4. What Gearing Should I Install for Hills?
5. Do I Really Need a Fixed-Gear Bike?
6. Should I Ditch My BioPace Chainrings?
7. Is It Better to Inflate Tires to the Max?
8. Is It Smart to Race on Tires at 150 psi?
9. Which Tires Are Better, Clinchers or Tubulars?
10. Are Treadless Tires Better for Wet Roads?
11. How Can Pinch Flats Be Avoided?
12. Aero Wheels or Traditional Wheels?
13. Are Aero Wheels Worth the Expense?
14. Which New Bike is Right?
15. How Do I Set Up My Mountain Bike Like My Road Bike?
16. How Can I Install Fenders Without Eyelets?
17. On the Roof or in the Trunk?
18. How Should I Apply Chain Lube?
19. Where Should I Carry a Frame Pump?
20. Can Indoor Trainers Harm Headsets?
21. What Should Be in a Seat Bag?
22. How Can I Tell When Parts Are Worn Out?
23. How Can I Prevent Stinky Base Layers?

INJURIES

24. When Should I Cover My Legs?
25. What Climbing Cadence is Best for Knees?
26. How Can I Cure Ilio-tibial Knee Pain?
27. Why Are Hills Hurting My Knee?
28. Where Can I Find a Good Knee Doc?
29. Why Do I Have Achilles Pain?
30. How Should I Treat Achilles Tendinitis?
31. Do Floating Pedals Really Reduce Leg Injuries?
32. How Can I Prevent Hot Foot?
33. Why Does My Foot Go Numb?
34. How Can I Cure Cramps on Long Rides?
35. How Can I Prevent Side Stitches?
36. How Should I Treat a Persistent Saddle Sore?
37. Why Do Leg Presses Make Me So Sore?
38. Why Should I Shave My Legs?
39. How Can Penile Frostbite Be Prevented?
40. How Can Trainer Numbness Be Prevented?

41. How Can I Keep Bees Out of My Helmet?
42. Men, Do You Get Prostate Exams?

NUTRITION

43. Water or Sports Drink?
44. Which Sports Drink is Best?
45. Do Sports Drinks Really Work?
46. Why Won't Fluids Digest?
47. How Should I Drink in the Heat?
48. How Much Should I Drink on Winter Rides?
49. How Should I Eat Before Long Rides?
50. Can a Low-Carb Diet Work for Cycling?
51. What If I Don't Like Energy Bars?
52. What's the Best Method for Recovery?
53. Is Creatine Good for Recovery?

RIDING POSITION

54. Can I Believe a Bike-Fit System?
55. Can a Long Reach Cause Numb Hands?
56. How Can I Shorten My Reach to the Handlebar?
57. How is Position Determined with a Threadless Headset?
58. What Length Crankarms Should I Use?
59. Does Toes-Down Pedaling Hurt Bike Control?
60. What Should I Do About Toe/Wheel Overlap?
61. What's the Best Position Against Headwinds?

TECHNIQUE

62. How Can I Cope With Getting Older?
63. How Can I Survive Scary, Twisty Descents?
64. How Should I Warm Up for Group Rides?
65. How Can I Judge Riding Intensity?
66. How Do I Determine My Lactate Threshold?
67. How Can I Find My Max Heart Rate?
68. How Should I Adjust to High Altitude?
69. How Can a Big Guy Climb Better?
70. How Can I Improve Seated Power?
71. How Can I Recover Faster?
72. How Can I Overcome Indoor Trainer Boredom?
73. How Can I Learn to Ride *Slower*?
74. How Can I *Reduce* My Climbing Speed?

TRAINING

75. What's a Watt?
76. Can I Use a Mountain Bike for Road Training?
77. Lose Body Weight, or Lose Bike Weight?
78. How Can I Reduce Fat Thighs?
79. Why Can Power Drop While Heart Rate Rises?
80. What's the Right Balance of Hills and Flats?
81. How Can I Get Stronger on Hills?
82. What's the Right Training Pace?
83. How Much Should a Hard Workout Hurt?
84. What's the Best Time Trial Training?
85. What's the Best Interval Training for Time Trials?
86. How Should I Train for Criteriums?
87. How Can I Improve My Finishing Speed?
88. How Can a Fast Rider Develop Endurance?
89. Can I Survive 200 Miles on Minimal Training?
90. Why Am I So Tired in August?
91. Why Do My Legs Feel Empty?
92. Can Morning Heart Rate Foretell Overtraining?
93. Why Is It Hard to Sleep After a Workout?
94. Does Cold Weather Affect Heart Rate?
95. Are Hard Winter Rides Counterproductive?
96. How Does Snowshoeing Help Cycling?
97. How Should I Combine Cross-Country Skiing With Cycling?
98. Will Running Help My Riding?
99. Are You *Sure* That Running Doesn't Help Cycling?
100. How Long Should Indoor Trainer Rides Last?
101. How Do Headwinds Help Me?
102. Does High-Altitude Simulation Work?

WEIGHT TRAINING

103. Is Arm Muscle Dead Weight?
104. Why Do Upper-Body Weight Exercises?
105. Should I Ride and Lift on the Same Day?
106. Are Squats Better Than Hills?
107. How Should I Begin Off-Season Leg Presses?
108. Should I Do Leg Presses Year Round?

BEST OF ED & FRED

In this section, we wax eloquent about several of our trips to cycling events in 2001.

A couple of these short stories merely make for interesting reading (we hope), while others contain tips and techniques that you can put to use in your riding.

LANCE'S COACH AT BIKEFEST 2001

By Ed Pavelka

Chris Carmichael, the president of Carmichael Training Systems is a former U.S. national and Olympic team coach. But his main claim to fame is his professional relationship with Lance Armstrong.

Chris has coached Lance for nearly his whole pro career. He's credited with masterminding Lance's miracle comeback from cancer to become a multi-time Tour de France champion.

I attended Chris's talk at the League of American Bicyclists' BikeFest 2001 in Altoona, PA. More than 500 riders were there, enthralled by hearing America's hottest coach talk about his star athlete. Here are the highlights.

- The turning point in Lance's comeback occurred on Beech Mountain near Boone, NC, during the spring of 1998. Lance, still doubting his desire and ability to return to pro racing after beating cancer, was training on a cold, rainy, foggy day near the end of a miserable wet week.

Chris followed in a car as the mountain began. Suddenly Lance began attacking the climb with surge after surge. He was in a zone that Chris had never seen. Chris got into it and started yelling encouragement. Lance kept attacking, attacking—right to the top—but his concentration was so intense that he never even glanced over at Chris.

Finally finishing this astounding effort, Lance turned and said, "Give me my rain jacket. I'm riding back to camp." It was 40 miles away.

"On that day, Lance made his choice," says Chris, obviously still in awe. "That ride not only changed Lance's life, it changed mine."

- What separates a grand champion like Lance from an elite rider?

1. Tremendous physical attributes

2. Ability to endure more physical suffering
3. Knowing exactly when to deliver the knockout punch
4. Optimistic thinking ("hope") based on having the will and determination always to find a way

- The essence of Lance's training is putting the load on his aerobic system. It begins with low-intensity, high-volume riding. Next comes steady-state work at lactate threshold. Finally, training that targets the VO₂ system—raising the amount of oxygen delivered to muscles.
- Is Lance dead set on a record six Tour de France victories? Chris says Lance will certainly ride the 2002 event, and "my gut feeling is that six is definitely a motivating factor. But Lance has never told me that six is his goal. He respects that no one has ever won six, so he will not say that he can do it."
- Just days after winning his third Tour in 2001, Lance was already talking with Chris about training changes that will make him stronger for 2002.
- Chris says Lance will "absolutely shoot for the hour record. We're not sure where or when, but Lance wants it to happen on U.S. soil, maybe on a portable velodrome at altitude in the western states. Most likely it'll happen after the 2002 Tour."
- What will it take for eternal-second Jan Ullrich to beat Lance in the Tour? According to Chris, "Lance is a 356-day, 24/7 athlete. That's what Ullrich needs to become. Lance wins the Tour in November, December and January. If Ullrich trains like that, he will give Lance a run for his money."
- So what was Lance thinking after he dropped Ullrich on pivotal stage 10 in the 2001 Tour, as he climbed to victory up l'Alpe d'Huez?

Gearing? Effort? Strategy?

According to Chris, Lance confessed he was thinking about a pair of light blue shoes Chris was wearing as he stood beside the road to give a time check.

"Lance hates those shoes," laughs Chris. "He told me that after he saw them on me, he spent the rest of the climb thinking, 'Why does he wear those ugly blue shoes?'"

SATURN CYCLING CLASSIC

By Fred Matheny

I filled my notebook with juicy road riding tips at the Saturn Cycling Classic, a 140-mile race from Boulder to Breckenridge, CO, in August.

This is arguably the toughest road race in the U.S. It includes 14,000 feet of climbing. More than 90 percent is above 9,000 feet.

Part of the course is unpaved, including a bone-rattling 2,000-foot descent on the aptly named Oh My God Road into Idaho Springs. Guanella Pass, at 11,671 feet, is mostly dirt going up and down.

Can you say brutal?

The 2000 winner, Scott Moninger (Mercury) took 7 hours and 20 minutes to finish in a driving mountain rainstorm. In 2001, in sunny but cool conditions, Denver native Jonathan Vaughters (Credit Agricole) beat Chris Horner (Mercury) in a sprint. They broke away from a lead group of five riders at the foot of Hoosier Pass, the final climb.

What can recreational riders and amateur racers learn from this cycling marathon? I rode in the pace car with race director Michael Aisner, kept my eyes and ears open, and came back with these useful tips.

• CLIMBING CADENCE

Keep your pedal revolutions high. Lance Armstrong's fast climbing cadence (95-100 rpm) is all the rage now, but the top climbers at the Saturn race varied enormously.

Horner broke away and climbed 12-mile Guanella Pass alone at a relatively fast cadence of around 90 rpm. He maintained it even on the switchback dirt sections with grades over 15%.

Vaughters, meanwhile, used a slightly less-rapid cadence. Other riders stood and struggled to get up the harder sections.

It all depends on your inherited muscle fiber type and how you've trained. But none of the top riders climbed at less than about 80 rpm.

Climb at your own pace. If you try to stay with faster riders, you'll blow up and lose enormous amounts of time on a long climb.

Sprinter Kirk O'Bee (Navigators) won an \$8,000 prime along the route, but there was a little catch. He had to finish the race within the time limit to collect the money.

He did it by being careful not to blow up on the climbs. "I tried to ride within myself and not go with a group I couldn't stay with," he said.

• DESCENDING ON SLIPPERY ROADS

"Be conservative," said pro mountain biker Carl Swenson. "Always keep a little in reserve on corners because you'll slide around in the dirt." The same goes for wet pavement.

Look ahead to plan your line. Your concentration should be at least a hundred feet in front of your bike. If you stare down in front of your wheel, ruts, potholes and gravel patches will come up on you so fast you won't be able to respond.

Get off the saddle for rough patches. Absorb shock with your knees, not your butt. Relax your upper body. Use your arms as shock absorbers, too.

Jump at your own risk. Skilled riders can fly their bikes over potholes, but this is hard on wheels and causes pinch flats. Jumping is a technique recommended only for experienced and athletic riders (who have team-issue equipment!).

Watch out for washboard. These corrugations can chatter your bike to the outside of a turn so quickly that you'll go over the edge.

Cyclocross helps. So does riding a mountain bike. Yes, we're roadies here at RBR. But for learning how to handle nasty surfaces, nothing beats playing in the dirt. It's the best way to learn to stay cool when the rear wheel skids around.

Here are a couple of examples. On the final descent into Breckenridge, Horner skidded in a switchback and went off the road. But he relaxed, didn't panic, and stayed upright.

Last year, Swenson made up more than a minute on the final 4-mile descent of Hoosier Pass in torrential rain. He cornered so aggressively that he was sliding through the switchbacked corners. Don't try this at home!

A mountain bike doesn't make tricky descents any easier if you haven't practiced. Last year only one rider, Moninger, switched to a mountain bike for the gnarly descent of Guanella. But this year nearly every contender got on fat tires for the washboardly freefall.

Vaughters wasn't too happy: "They stuck this mountain bike under me and told me to go fast. I was scared as hell."

Unclip, maybe. Should you unclip the inside foot to use as an outrigger on gravelly downhill corners? According to Swenson, "It's mostly mental. Unclipping makes you feel better, but if you start to slide out at road bike speeds, it won't help you much."

On the gravelly washboard of the Oh My God Road, about 30 percent of the pack unclipped. But staying clipped in while taking a good line and using solid road descending skills worked just as well.

• TRAINING

Intensity or distance? The Saturn race is a unique confrontation between mountain bikers accustomed to short races and roadies used to long ones. But it's quality of training, not sheer volume, that makes the difference.

As Travis Brown, the pro mountain biker, said, "There's not as much difference between road racing and mountain bike racing as usually perceived. Mountain bike races are usually only about two-and-a-half hours long, but the pace is flat out the whole way. This race is longer, but because we go so hard off-road, we mountain bikers can usually do well."

To go the distance you need to eat. Saturn racers began snacking and drinking in the first hour. The course is mostly up and down, which makes it hard for riders to take their hands off the handlebar to eat. So any time the road leveled, everyone sat up and took on food and fluids. It was a matter of survival.

RAGBRAI

By Ed Pavelka

I went to Iowa with my tandem partner, Joleen Randels, to ride the 29th RAGBRAI, the granddaddy of cross-state rides. We and about 10,000 other riders choked Iowa's country roads, traveling west to east from Sioux City on the Nebraska border.

It'd be easy for me to rag on RAGBRAI (the Register's Annual Great Bicycle Ride Across Iowa). But then people would probably call me an elitist roadie snob who takes cycling way too seriously. They might be right.

RAGBRAI's final day (of seven) told me a lot. It was a short ride, only 49 miles from Coralville to Muscatine on the mighty Mississippi. We finished early. The only way to get the tandem back to base camp was to ride the route in reverse. This gave us the chance to see thousands of people streaming east like lemmings to the river.

The range of riders was amazing. Maybe 80 percent looked like they had no business riding a bike 505 miles in a week. They didn't have the clothing or equipment, let alone the skills or conditioning. They seemed as uniformly overweight and out of shape as Americans at large.

Roadside signs warned: "Drafting is Dangerous." In this group it clearly was.

There were riders wearing thongs, loincloths, sawed-off jeans. They wore sandals, hiking boots, street shoes, knee socks. Some guys were shirtless. Some women might as well have been. If you didn't have something like a plastic porpoise or cobra sticking out of your helmet, you were in the minority.

One guy's jersey said IOWA stands for "Idiots Out Wheeling Around."

Plenty of decent road bikes and riders were in the surging mass, but they were outnumbered by people on rickety old 10-speeds, mountain bikes (many running knobby tires), hybrids, and so-called "comfort" bikes. Comfortable for a ride across town, maybe, but not clear across Iowa.

A guy named Gene swapped his sleek Bianchi road machine for a relative's comfort bike on the final day. He found out real fast how much harder it is to ride bolt upright in a short cockpit.

Particularly through Iowa's incessant hills. Iowa isn't flat, and contrary to the popular putdown it isn't all cornfields. There are plenty of soybean fields, too. Small towns are linked by a rolling ribbon of road that looks the same no matter where you're going.

Sound a tad monotonous? Now add an easterly headwind to slow the pace every single day. Why, it blew so hard at times, it made the trees bend low. Oh, those were cornstalks?

It wasn't exactly my definition of a ride worth driving 2,500 miles to spend a week doing. But it's just as apparent that many people love RAGBRAI and do it for reasons besides the actual pedaling. RAGBRAI means vacations, reunions, socializing, eating, drinking, partying, and tradition. For many people it's probably also their life's greatest physical accomplishment.

Perhaps the sign on the side of a bus summed it up best: "If you're not having fun, lower your standards."

Next year, I'll have to try that.

WORLD MOUNTAIN BIKE CHAMPIONSHIPS

By Fred Matheny

I attended the World Mountain Bike Championships in Vail, CO, the week after Sept. 11. Some events were postponed several days, but all were eventually run without a hitch.

Can roadies learn something from mountain bikers? You bet!

• THE IMPORTANCE OF A STEADY PACE

Mountain bike races require about two hours of steady effort right at a rider's limit (lactate threshold). Go too fast early and you blow up. Go too slow and you'll be so far behind you'll never get into contention.

Example: American Alison Dunlap parceled her energy on early laps, saving just enough to mount a last-lap charge for the gold medal. This is the right tactic for road time trials or hammering your way to a century PR.

- **SUPERNATURAL BIKE-HANDLING SKILLS**

Mountain bikers push the limits of traction and control because they're less afraid of falling than roadies. Off road, speeds are slower and dirt landing places usually are softer than pavement.

Example: American Walker Ferguson, just 19, won the bronze medal in the Under-23 race even though he suffered an early crash.

"I got a little excited, fell into some bushes 15 feet below the trail and lost about 20 places," he said. Then he settled down and worked his way back. He didn't let an early calamity destroy the rest of the ride—a good lesson for us roadies, too.

- **A FAST AND SUPPLE PEDAL STROKE**

Riding on slippery surfaces requires smooth action all the way around. If mountain bikers push too hard on the downstroke, they break rear-wheel traction and lose valuable time.

Example: On the steep climbs at Vail, it was fascinating to see top riders smoothly pedal up the rocky chutes. In fact, a study has shown that pro mountain bikers have a pedal stroke that's even smoother and more efficient than fast-spinning pursuit riders on a velodrome. You can never put too much time and effort into improving your pedaling.

- **HOW TO LOVE A DIRTY BIKE**

Most roadies hate to get their bikes messy, so they don't ride in rain or on roads made muddy by farm machinery. You can't ride off-road without getting your steed dusty, muddy or both, but so what? Mountain bikers know that it's easy to make a bike as clean as new. The same goes for your much-loved road bike, too.

Example: At Vail, mechanics hosed down dirty bikes and re-lubed them, taking only 10 minutes for each. The cleaned machines looked like they'd just come off the showroom floor. Your road bike won't get nearly as dirty even on the sloppiest days, so get out there!

BEST OF RBR INTERVIEWS

We're fortunate to have worked in cycling journalism since the 1970s. One of the best benefits is meeting so many great riders and coaches.

In our newsletter, we frequently call on these folks for focused, four-question interviews. They often tell us things that can help you ride better, too.

1. INJURY/BIKE-FIT EXPERT ANDY PRUITT

Andy Pruitt, Ed.D., is director of the renowned Boulder Center for Sports Medicine in Boulder, CO. He served as chief medical officer for the 1996 U.S. Olympic Cycling Team, and has helped numerous world-class cyclists overcome injuries to regain championship form. His eBook, [Andy Pruitt's Medical Guide for Cyclists](#), is available from RBR Publishing Company.

- ***What's the biggest mistake new riders make?***

AP: They make two mistakes. First, they buy a used bike and assume the position of the previous owner. They buy the bike and the position. The second mistake is "spring knee." A nice spring day comes along, they get the fever and they go for a long ride. Pretty soon, they have patellar tendinitis.

- ***What is the biggest mistake experienced riders make?***

AP: Coming back too quickly from time off the bike, either a planned break or an injury. They assume they can tolerate the workload and do too much, too soon. Also, even experienced riders have poor bike fit. With the new threadless headsets, they're cutting off the steerer tubes and leaving no adjustability. People buy new bikes with fancy forks but can't raise the stem enough for proper fit.

- ***What's the most important thing a rider can do to prevent knee injuries?***

AP: Train systematically, protect against cold temperatures, and have a perfect anatomical fit to the bike.

- ***What's the key to foot comfort on long rides?***

AP: Have a footbed in your shoes that reflects the contours of your feet.

2. COACH CHRIS CARMICHAEL

Chris Carmichael is hot, no doubt about it. The star of his coaching stable is a guy named Lance Armstrong, who likes to ride his bike around France each summer. You may have heard about that. And as Lance goes, so go the accolades for Chris. Well deserved!

Fred Matheny talked with Chris, the president of Carmichael Training Systems, during research for his RBR books and articles.

Chris is a firm believer in the importance of the off-season to every rider's training program. As he's fond of saying, "Lance wins the Tour in November, December and January."

- ***First, what about rest? Should riders take some time off the bike?***

CC: Yes. I recommend that recreational riders take two breaks of two weeks each. One break should come right at the end of their riding season. The other can be over the Christmas holidays. Don't take all four weeks at once—you'll lose too much fitness.

- ***What about diet during the off-season?***

CC: Periodize your nutritional program just like you periodize your training. You aren't doing the long rides in winter that you do in summer. You don't burn as much glycogen, so you don't need to eat as much carbohydrate.

In the summer when you're training long and hard, 60 to 70 percent of your diet [*your daily calorie intake*] should come from carbohydrate. But in the winter, you can safely reduce this figure to 50 to 60 percent carbohydrate. This allows you to eat more protein, around 30 percent, to help rebuild muscle tissue and increase strength.

- ***How can cyclists merge both riding and weight training in the winter?***

CC: Lifting and cycling are like oil and water. They don't mix well.

When you're lifting heavy weights, you have to reduce cycling volume and intensity. And when you're riding hard, you can't do much in the weight room. You must find a balance in the off-season.

Make your strength gains over the winter. Then convert that strength to cycling-specific power in the spring.

- ***We've heard that Lance rides a single-speed, fixed-gear (no coasting) bike for winter training. How does that work?***

CC: After a break from training, Lance uses a fixed gear during the first four weeks of off-season workouts. During this time he's lifting fairly heavily, so the fixed gear acts as a kind of governor.

On a fixed gear, you have to pedal the whole way. It's quality training. You're forced to keep your cadence high, so you're more aerobically active.

3. COACH JOE FRIEL

Joe Friel is one of America's top cycling coaches. He has written several books, including *The Cyclist's Training Bible* and *Cycling Past 50*. Through his coaching business, UltraFit Associates, he works with cyclists as well as triathletes.

We've known Joe for many years and have always been impressed with his systematic, careful approach to coaching.

- ***Why are structured training plans better than a "ride like you feel" approach?***

JF: The purpose of training is to reach peak form and fitness for certain key events, the "A-priority" events. Training haphazardly is less likely to produce this peak than structured, periodized training that is based on your unique limiters, lifestyle and event schedule.

I've found that training "how you feel" usually means you don't know what you want to accomplish. It's just "playing on a bike," not training.

- ***You've written that "an athlete should do the least amount of specific training that brings continual improvement." That's great news for roadies who don't have much time to train, but it sounds too good to be true. Can you explain?***

JF: There are three major variables that comprise what we call "training"—duration, frequency and intensity. When combined, we call these first two "volume."

Many studies in several sports have shown that intensity, not duration or frequency, is the key to peak performance. This doesn't mean that volume is unimportant. It's just less important than intensity.

- ***Are riders doing it wrong if their main focus is logging miles?***

JF: Riders who gauge their training progress only on how many miles they put in weekly (volume) are missing out on the real key to success—intensity. And it doesn't take a lot of intensity to produce peak fitness. Until a rider begins to focus on intensity, he or she won't realize full potential in the sport.

- ***Can you give your best three tips for masters cyclists?***

JF: In their order of importance, the keys to success when past age 50 are:

1. Allow for adequate recovery. You can do fewer high-quality workouts in a week than a young rider. Make sure you choose the right workouts so time isn't wasted.
2. Continue weight training year round. Older athletes seem to have more trouble gaining and maintaining muscle strength.

3. Be careful with your diet. At 25, you could make dietary mistakes and get away with them. By age 50 you need to know what is best to eat and when. Your body is no longer able to fake it. The diet should be focused on vegetables, fruits, lean meats, fish and poultry—not starch, sugar, processed foods and diet pop.

4. COACH DEAN GOLICH

We first met Dean Golich in the early 1990s at the Olympic Training Center in Colorado Springs. He was working with resident cyclists, including a diamond in the rough named Lance Armstrong.

For many years, Dean has coached Mari Holden, winner of a world time trial championship and a 2000 Olympics silver medal. He's presently a coach with Carmichael Training Systems.

- ***When you worked with the young Lance, could you tell that he was destined for greatness?***

DG: I remember that we tested him about 10 days after he won the world road championship in 1993. His results were excellent and verified the talent that the coaches suspected. But his biomechanical data was below normal. We were happy because it meant there was room to make him even faster.

- ***You've advocated riding intervals "as hard as you can" rather than monitoring effort by heart rate or wattage output. Do you still advocate this method?***

DG: Yes. We call these hard intervals PowerIntervals at CTS. I like to prescribe them on several consecutive days to provide an overload, followed by complete recovery for a couple of days. Many athletes can produce more power the second or third day of intervals even though they feel worse than the first day.

- ***If riders want to be at their best in May and June, what should they be doing in January?***

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DG: I believe in increasing overall general fitness, then working on specific techniques. January is normally for lactate threshold, time-trial work. Intensity increases monthly and also from year to year. If the athlete did a certain amount of work in January last year, I would increase it in January this year.

- ***Any advice for a cyclist who doesn't race often but wants to peak for a big recreational event?***

DG: I think you have to learn to tolerate a certain amount of intensity. But if you don't race often, you aren't getting the intensity of those who do. You'll have to work harder in training.

That's not a disadvantage because training can be monitored much more effectively than racing. You can rest when you're fatigued, as opposed to racing where you must continue.

5. ENDURANCE COACH JOHN HUGHES

John Hughes is managing director of the UltraMarathon Cycling Association. A Race Across America finisher in 1996, John coaches endurance cyclists and leads high-mileage tours from his home in Boulder, CO. He also coaches frequently at Lon Haldeman's Endurance Training Camps held each March near Tucson, AZ.

We interviewed John in August, 2001. With September and October being the two biggest months for century rides nationwide, we asked him for his best tips for successful 100-milers.

- ***What's the most important thing in preparing for a century ride?***

JH: Ride consistently for at least eight weeks before the event. For novice cyclists, riding frequently yields the most improvement. Ride four or five days a week, for a weekly total of at least six hours. Build up to 10 or 12 hours. Experienced riders can ride only three or four days a week, if that's all the time they have.

- ***What's the second-most important thing?***

JH: Build up to a long ride that is at least two-thirds the duration (in hours) of the target century. If you expect the century to take eight hours, then your longest training ride should be at least five hours. Do your long training rides in similar terrain and conditions to the century. Each week, your long ride should be about half of your weekly volume.

- ***What's the most important thing during the century to ensure success?***

JH: Eat and drink enough! In an endurance ride, fuel—not training—is the factor that limits performance. Drink at least 24 ounces of sports drink (one big bottle) every hour. Eat at least 200 calories of carbohydrate (one energy bar) every hour. Consistent consumption is the key. It's also the reason why some of us ride!

- ***What's the biggest mistake to avoid?***

JH: Riding with the rabbits. Ride your own ride, at your own pace. If you try to keep up with riders who are going too fast, you'll be a fried rabbit in the afternoon. Wily old riders like me love to catch fried rabbits!

6. STREAKER JIM LANGLEY

When's the last time you took a day off from riding?

For Jim Langley, it was December 29, 1993—more than 2,900 daily rides ago as this is being written. Before then, Jim had a streak of just over 1,000 rides that ended with a crash on black ice that fractured his hip. That kept him off the bike for six days. Since then, he hasn't missed riding at least one hour per day (outdoors or in), still with three screws in his hip.

Fans of *Bicycling* magazine in its glory days will recognize Jim as its ace technical editor. He's now the content manager of SmartEtailing.com, living in Santa Cruz, CA, with his wife Deb and two daughters. Just for fun, he runs a nifty website that centers on his love for antique bikes and cycling lore (www.jimlangley.net).

We started by asking Jim, 48, a question about his streak that you're bound to have, too.

- ***Why?***

JL: It seems like a lot of riders have something they're really good at, like racing or distance riding. I'd heard about some runners with consecutive-day steaks and thought about how every time I took a day off, I felt awful when I rode again. I figured that if I rode every day, I'd feel good all the time.

At around this same time in 1990, my dad died of a massive heart attack. So that influenced me. I thought that riding every day might be a magic elixir.

- ***What happens when you get sick?***

JL: I think daily riding keeps me healthier than a lot of people. When I do get sick it's a struggle, but I haven't been sick enough to miss a ride. I always feel better once I get out the door and I'm spinning along. It's a comfortable feeling. I'm more comfortable on a bike than in my office chair.

- ***What's the closest you've come to having the current streak snapped?***

JL: In April, 1998, I flew to England to tour the Alex Moulton bike factory. After the long flight from California and the huge time change, I had about two hours left in my 24-hour day. It was raining and I had no bike. It was so tempting to crawl into bed by the fire. But I had to make it happen. It helps to be incredibly stubborn.

I asked Alex for a bike and set out. I felt terribly disoriented. I couldn't remember to stay on the left side of the road. It was nip and tuck, but I got my hour in.

- ***What do you fear will end the streak?***

JL: I want to ride for 10 years straight. That was the goal I'd set before I broke my hip. I think the only thing that could stop me is a mental breakdown—malaise. At times, I feel down and

out of sorts like everyone, but I've found that if I put on my shorts and shoes and do the first 20 pedal strokes, I won't turn back.

Right now, I'm depressed like everyone about what happened last week (*Sept. 11*). I have two kids and wonder what kind of world they will grow up in. Last week would have been a time to miss a ride, but what would that have accomplished? Riding always makes me feel better, so I rode.

7. MASTERS CHAMPION SCOTT TUCKER

Scott Tucker, 62, began cycling by touring with his son and riding classic Colorado events like the Elephant Rock Century and the Triple Bypass.

His time trial career began inauspiciously when he put aero bars on his road bike and clocked 64 minutes for 40K (24.7 miles). It culminated in 1997 on the fast TT course at Moriarty, NM, when he blazed a 51:56 to set a national 40K record for age 55-59. How's that for improvement?

One reason for Scott's success: His strength base is enormous. He weight trains during each off-season, working up to one rep with 1,000 pounds in the leg press. No bad for a 160-pound senior citizen.

- ***You started cycling as a tourist and then took up road racing. Why?***

ST: I enjoyed the camaraderie and the challenge. It was tough at first, but what encouraged me was that I could stay with the pack in road races. I couldn't sprint but I was just happy to be there.

- ***You attribute much of your success to a winter weight program. What exercises help your cycling?***

ST: I carefully build strength with weights then convert that strength to cycling-specific power. Leg presses are my primary cycling exercise. I set the machine so the maximum bend in the knee duplicates its angle at the top of the pedal stroke. I do some one-leg presses because cycling is a one-leg-at-a-time sport. I also include a variety of upper-body exercises all year for general fitness, especially for my low back and abdominals.

- ***What about sets and reps?***

ST: I warm up, then gradually increase weight and decrease repetitions on each subsequent set for a total of five or six sets. Later in the winter, I add high-rep leg presses to build power—up to 50 reps with about 225 pounds. A hard leg press workout is like a hard interval day on the bike, so I stop lifting for the legs after March.

- ***How much do you ride?***

ST: Only about 5,000 miles a year. Riding time is limited by my job, family and because I'm a ski patroller one day each weekend from October to May. I try to make up for modest mileage with high intensity.

8. ENDURANCE LEGEND PETE PENSEYRES

California's Pete Penseyres, 58, is a living legend. As an engineer, he fabricated handlebar armrests in the mid 1980s. His idea spawned aero bars, now de rigueur for long events and any race against the clock.

As a rider, Pete twice won the Race Across America and still holds the record for fastest average speed (15.4 mph, including sleep breaks).

Along with Ed Pavelka, Fred Matheny and Skip Hamilton, Pete was a member of the *Bicycling* magazine team that set a still-standing senior world record in the 1996 RAAM, covering 2,905 miles in 5 days, 11 hours (22.1-mph average). Plus, he has won more than a dozen national road championships.

When Pete was in his 40s and concentrating on ultra-distance events, his secret for success was speedwork. Speed for endurance? We asked Pete how that works.

- ***Why is speedwork important for riders who don't race?***

PP: It raises your cruising speed so that you ride faster at the same heart rate and perceived effort. This may allow you to keep up with more people in recreational rides. If you commute, speedwork will reduce your time to the office.

- ***How does speedwork help long-distance riders?***

PP: Even endurance riders should be able to increase their pace in strong headwinds or up steep hills. Speedwork widens the margin between a rider's normal cruising speed and the point where they would otherwise hit their redline.

Speed training provides more reserve power when conditions or terrain are difficult. Since the best scenery and least traffic are in hilly areas, speedwork allows riders to enjoy this kind of terrain at a more comfortable effort level.

- ***What's the most time-efficient way to include speedwork in training?***

PP: My favorite method is riding in fast paelines. This type of speedwork is so much fun that I don't even consider it training.

Before I retired, I combined a weekly team time trial with my commute. This was my most effective and time-efficient speedwork. Doing intervals on a trainer is also very efficient—but not nearly as much fun.

- ***What about riding hills? Does climbing with intense effort work as well as speedwork on the flat?***

PP: Both types of training are helpful for increasing the ability to ride faster and more efficiently.

Repeated hard climbing will increase your power at relatively low cadences. It can improve your efficiency and technique while standing. Speedwork on the flat can increase your power level at higher cadences and in a more aerodynamic position.

Using both hills and flats, you'll develop a wide range of cadence over which you can comfortably produce greater power.

9. IRISH HARD MAN PAUL McQUAID

The McQuaids are Ireland's "first family" of cycling. Paul is one of 10 children, all of who are involved in the sport. Paul won the Tour of Ireland in 1995 and has represented his country in two world championships.

Fred Matheny met Paul in 1996 on a ride around western Ireland hosted by his touring company, Celtic Trails. Fred loved cycling through the spectacular Irish countryside—even though it rained each day!

While Fred was bundled in a rain jacket and warmers, Paul often rode in shorts and a short-sleeve jersey. We asked this Irish hard man for rain-riding tips to help us Yanks stay on the road in all kinds of weather.

- ***How do you survive rides in cold rain?***

PM: It's true, Ireland does have a reputation for occasional light mists. And sure, isn't it good for your complexion!

Wear all the rain gear you have. But if you ride 50 miles in the rain, you're going to get wet no matter what. Keep stops to a minimum.

When you get home, take off wet clothes, have a hot drink and a shower. Don't stay long in the shower, and finish by turning the knob to "cold" for a few minutes. Then put on dry clothes and you're set.

- ***Do you recommend fenders in wet weather?***

PM: Yes, they keep your bike in top condition by reducing wear and tear on brakes, headset and bottom bracket. And people riding behind will thank you because fenders reduce the splash hugely. They can win you more friends!

- ***How do you keep fenders from rattling?***

PM: Put a tiny dollop of grease on the threads of all bolts and screws that attach the fenders to the bike. They won't loosen so they'll stay quiet.

- ***What rainy-day safety tips can you give us?***

PM: The most important rule is go easy on the front brake. Because 75 percent of all braking power comes from the front brake, using it can get you in trouble on corners. So, use the back brake to slow for turns, and keep your center of gravity as low as you can.

One other trick: I rode a rainy criterium in Milan once after the Giro d'Italia. Our mechanic bought a bag of lemons, cut them in half and rubbed the half-lemon around the tires. It definitely increased the grip—but I still didn't win!

10. PRO RACER SCOTT MONINGER

Scott Moninger, 34, is one of America's most experienced and successful professional road racers with 10 years in the cash ranks. He has some 200 career wins, and his 19 victories in 2001 for Team Mercury show he's getting better with age.

Climbing is Scott's forte. He's a three-time winner of the Mt. Evans Hill Climb and the Nevada City Classic. In 2000, he won Colorado's Zinger Classic, a 140-mile race with a whopping 14,000 feet of vertical gain.

- ***What are your best tips for strong climbing?***

SM: Climbing is based on fitness, unlike sprinting which is just a natural gift. A good example is Marco Pantani in the 2001 Tour of Italy. He wasn't fit, so he did badly even though he is probably the most natural climber on the planet.

Always stay within your limits on climbs. Blowing up leads to big losses because it's difficult to recover while going uphill.

It helps to be familiar with a climb. Most climbs have brief spots where the grade eases up for a bit. These sections can be very useful for recovery, if you're nearing your red zone. Sometimes just being able to back off the pace for a few seconds allows your heart rate to drop so you can tackle the remainder of the climb within your limits.

- ***In the 2000 Zinger, you put in a fast descent in wet, technical conditions to get the win. What should riders keep in mind when descending, especially on wet roads?***

SM: Again, being familiar with the road is important. I had ridden the descent a few days earlier, so I knew which corners could be taken at full speed, and which would require braking.

The same basic rules apply, wet or dry. Adjust your speed before you enter the apex of the turn because if the bike is leaned over on wet roads and you need to hit the brakes, you'll probably slide out. It's better to come into the corner a little too slow and then accelerate, rather than come in too fast, scrub off a lot of speed and potentially crash.

- ***What's the secret to your longevity in the sport?***

SM: I just don't think the body gives up very much, physically, after the age of 30. I've learned through many years of trial and error what diet works best for me, which type of training is most effective and which events I should focus on. If your mind is still in the game, your body will be, too.

11. EX-PRO ALEX STIEDA

Canadian rider and former 7-Eleven team member Alex Stieda is the answer to a real tricky question:

Who was the first North American to wear the yellow jersey in the Tour de France?

Most people would guess Greg LeMond, but in fact, Alex donned the *maillot jaune* in 1986 to make history. He finished that year's Tour in "about 120th place" and never rode the great race again. But his was a breakthrough performance for North America.

- ***What was it like to wear the yellow jersey?***

AS: I'm a Canadian, so I guess it was like holding the Stanley Cup over your head. They take you to the podium right after the stage when you're exhausted. I threw the jersey on, they said things in French that I didn't understand, and then I was off the podium. It happened so quickly!

But wearing it gave me instant acceptance in the peloton. Experienced Dutch rider Gerrie Knetemann came up to me during the next stage and said, "It is great just to get the jersey. But you need to honor it by finishing the whole Tour." He had been world champion but never wore the yellow jersey.

- ***How hard is the Tour de France?***

AS: It's much harder than other races because it's three weeks long, and in 1986 there was only one rest day.

The Alps and the Pyrenees were hard, but the team time trial was brutal. It wouldn't have been so bad on the open road, but it went through all these little towns with corners and narrow lanes. That's where Eric Heiden crashed. And it was unbelievably hot.

- ***What was the worst part of the Tour for you?***

AS: The finishes. There were too many people, so we couldn't ride easily for 10 minutes to cool down, even by riding back to the hotel. We were maxed out for hours, and then we just stopped and our legs would lock up.

- ***What's your best memory?***

AS: It wasn't wearing the yellow jersey. My best memory was just finishing the Tour—riding down the Champs-Élysées with all the people cheering.

12. EX-PRO RON KIEFEL

Ron Kiefel was a pro road racer for 11 years. But as a selfless lead-out man for sprinter Davis Phinney, he was rarely in the spotlight.

Still, Ron's list of victories is impressive, including stage wins in the Giro d'Italia, the Tour of Tuscany, and the Criterium Internationale (where he also wore the leader's jersey for a time). He also won the U.S. pro championship.

Ron now manages Wheat Ridge Cyclery, a family-owned Denver-area bike shop started by his father.

- ***You're using noticeably lower gears now than in your racing days. Why?***

RK: I'm fatter—I'm on the Eddy Merckx retirement plan! (*Ed note: Don't take Ron's joke seriously. He's still relatively svelte and goes very fast when he wants to.*) I think Lance Armstrong is correct that a high cadence produces more power. It's hard to take a diesel and turn it into a high-revving sports car. I use a lower gear now so I can spin faster on the climbs.

- ***How did you develop your legendary smooth pedal stroke?***

RK: I worked on it with specific drills. I concentrated on spinning while keeping my butt steady on the saddle and moving my knees up and down like pistons.

I also liked training with a fixed gear in the winter.

Finally, I divided the mechanics of the pedal stroke into three parts: powering the pedal down, pulling through at the bottom like you're scraping mud off your shoe, and kicking the knee forward at the top of the stroke. Then I worked on each part separately.

- ***We hear your shop is selling lots of road bikes. What's behind their renewed popularity?***

RK: Lance's Tour de France wins have helped. Also, a lot of people who started on mountain bikes realized that top mountain bike racers train most of the time on the road.

All riders need both road and off-road skill sets—and they found out that road riding is a lot of fun. Also, there are some really cool road bikes now with triple cranksets.

Finally, we're careful how we fit new roadies. We use the Serotta fit program so they can be as comfortable on the road bike as they were in their more upright mountain bike position.

- ***The Denver/Boulder area is getting infamous for rider-driver incidents. How can road riders co-exist with motorists?***

RK: It all comes down to people and personalities. Some riders get road rage and flip off motorists. But some motorists are jerks, too.

Many elite riders get aggressive when dealing with cars. But a rider will always lose in a battle with a one-ton vehicle.

It's important to be polite, follow traffic rules, and smile while you're out there.

TIP: Here's how to improve your pedal stroke like Ron mentions above. Work on each part separately, concentrating on one motion every three strokes.

To improve your downstroke, give the pedal a little kick as the crankarm goes forward from the top. Do this with the right leg, pedal normally for three strokes, then repeat with the left leg.

Do that routine for a couple of minutes. Then add the little kick when you pull the pedal across the bottom. Finally, do it when you pull the pedal over the top. Before long, you'll notice a difference in the power of your whole stroke.

13. EX-PRO ANDY HAMPSTEN

Andy was one of America's greatest road racers in the 1980s early '90s. He won the Tour of Switzerland twice. He won the Giro d'Italia in an epic stage over the Gavia Pass in a snow-

storm. And he was twice fourth in the Tour de France, where he also won the climbers' jewel, the ascent of l'Alpe d'Huez.

Now retired from racing, Andy lives in Italy with his family and runs a cycling touring company.

We caught up with the ex-pro in Boulder, CO, where Andy was a guest of honor at the 2001 Saturn Cycling Classic.

- ***How hard is l'Alpe d'Huez?***

AH: It isn't the hardest climb in Europe by any means. The first part, just after you turn left off the main road, is a steep ramp. But then it calms down. What makes it so difficult is that it's at the end of a day when you've already climbed three or four other passes. And it's a race that every climber wants to win, so the pace is fierce.

- ***Is it true you now have a line of bikes?***

AH: Yes! We aren't marketing them much so they're cult bikes (*laughs*), but they have loyal fans. They're steel, quite light and have traditional geometry that's influenced by Eddy Merckx, whose ideas I respect. We also offer a titanium bike built by Kent Erickson at Moots in Steamboat Springs, CO.

- ***What about your cycling tours?***

AH: We do seven tours a year in Tuscany. We ride classic Italian roads and sample the food and drink of the area. We get mostly Americans, along with riders from New Zealand, Canada, Australia and the UK. Many people come back year after year, so we're happy about that.

- ***What do you think of the Saturn Cycling Classic with its high-altitude climbs and dirt roads?***

AH: I wish this race had existed when I was competing. I'd have loved it! I enjoyed riding dirt on my road bike. This race compares with a stage of the Tour de France or Giro, but of course in those events you'd have done 10 days of hard racing before you tackled it.

BEST OF FAST FIX

If it's worth fixing, it's worth fixing fast! That's the point of this section. Here's a potpourri of cycling problems with streamlined solutions.

1. RESERVOIR GUNK



You carry sports drinks in your backpack-style hydration system, and the sugary stuff gunks up the reservoir.

FAST FIX: First, think about carrying plain water in the hydration pack and sports drink in the bottles on your frame. That'll make the pack a lot easier to clean.

Mix the sports drink so it's a bit more concentrated than the manufacturer recommends. When you ride, take a swig of the sports drink followed by a water "chaser" from the hydration pack. The water will dilute the drink and you'll end up with the suggested six percent solution in your stomach.

But some riders would rather carry sports drink in their hydration pack instead of their bottles, which inevitably leak and drip sticky stuff onto the frame.

If that's you, it's easy to de-gunk the reservoir after a ride by rinsing it out with hot tap water at the kitchen sink. Slosh it good inside and out, shake out the excess water, and blow through the hose to clear it. This only takes a minute.

Then here's the trick: Toss the reservoir into the freezer. In there, it can't become an incubator for mold or fungus between uses.

2. BIKE SHIMMY



Your bike shimmy and shakes on fast descents, making it tough to control and scaring you to death.

FAST FIX: The best thing to do—*immediately*—when shimmy begins is clamp the top tube between your knees.

Usually this will damp the shimmy (also called "speed wobble") and keep the bike under control. It also helps to take your weight off the saddle and brake firmly to a lower speed.

Shimmy can be frightening and even cause a crash. Try to find and eliminate the source. Trouble is, several factors can play a role singly or in combination.

Shimmy is defined as the lateral oscillation of the head tube. The prime suspect is frame design. Large bikes, especially those with a light or small-diameter down tube, are more prone to shimmy. It's even more likely in combination with an undersize top tube.

Things like a faulty headset, loose front hub or out-of-true front wheel can make shimmy worse. We've even felt a wobbly rear wheel make a bike shake. A crosswind can catch the

front wheel (especially when deep V-section rims are used) and make it start twitching. Stay low on descents so your chest doesn't catch wind like a sail, buffeting you and shaking the bike.

Some mechanical remedies require a knowledgeable mechanic. Your safety is worth the trouble and expense. But some frames will shimmy simply because of the way they're built. Remember to clamp with your knees to keep the shaking at bay.

3. STICKY FINGERS



You like to fuel your rides with energy gels, sports drinks and Moon Pies, but then how do you get that sticky stuff off your fingers?

FAST FIX: Every rider has two moist, inconspicuous places that are ideal for cleaning fingers--armpits!

Don't gag, it works great. Assuming your jersey is clean to start the ride (and has sleeves), this spot isn't unsanitary, either. But it's almost always damp, providing just enough moisture to dissolve the stickiness.

Reach over to your left pit with your right hand, then to your right pit with your left hand. Rub your fingers into the damp jersey fabric. Voila! Just as good as having a moist towelette.

Using the pits keeps your clothes looking natty, too. Any smudges from this cleansing action are concealed under your arms. Your jersey still looks spotless.

In fact, your pits are a great place to clean dirty fingers as well as sticky fingers.

4. INSUFFICIENT TRAINING FOR A CENTURY



You've been able to ride just 15 to 20 miles about three times a week, but now you're all fired up to ride a century that's only a month away.

FAST FIX: Here's the rule of thumb for long, one-day rides: You can do your average weekly mileage in one ride if you just want to finish. So, if your weekly average is no more than 60 miles, doing a century will really be pushing it.

We can't offer any sure-fire magic. But we know this probably won't stop you (and others in the same boat) from giving that century a shot.

To make the most of the training time left, it's crucial to do long rides on three consecutive weekends before your target date. The first ride should be about 40 miles, the second around 55, and the third about 70.

Eat and drink well before, during, and after these rides. Go slowly—your only goal is to finish. During the week, do two or three easy rides of about an hour each.

This isn't optimum preparation, but it will give you a fighting chance to finish the century. Should you fail to finish the long training rides, this will tell you that you shouldn't expect to finish 100 miles. Choose a century later in the year or next season to give yourself time to build a better base.

5. HOT FEET



Late during a long ride, your feet start feeling like they're on fire!

FAST FIX: The sensation of heat is caused by poor circulation. Blood vessels and nerves get compressed when feet swell, as they will after two or three hours of riding. You begin in blissful comfort, but later you feel like dousing your dogs with your water bottle.

Assuming your shoes aren't too tight to begin with, this fix is easy. At the first sign of foot discomfort, slightly loosen your shoelaces and/or hook-and-loop straps.

There's a trick, though. Let's say your shoes close with three hook-and-loop straps. If you loosen all of them, your feet may move in the shoes as you pedal—a bothersome, insecure feeling.

So, loosen the strap at the front of the shoe the most. It has little to do with security but plenty to do with tightness around the ball of the foot where discomfort is usually the worst.

Loosen the second strap, the one across your instep, a bit less. You want to improve circulation but not encourage foot movement.

The top strap, nearest your ankle, is the one that gives your foot and shoe a firm connection—like a toe strap in days of yore. As long as the other straps are right, you can tighten this one as much as you like without great effect on circulation.

As the ride wears on and feet swell, stop or reach down occasionally to fine-tune these adjustments. Your pups will thank you!

6. GASH IN TIRE



You punctured bigtime on a chunk of glass, put in a new tube, but it pooched through a slice in the tire when you pumped it up. Boom! It blew out again.

FAST FIX: Boot that bad boy!

If a hole in the sidewall or tread is big enough to bulge when the new tube is being inflated, stop.

Before you finish and try to ride, you need to cover the damage on the inside of the tire. Use the piece of tough material that you carry in your patch kit. (You have added this to your kit, haven't you?) Good choices are a piece of canvas, old tire casing or Tyvek, the indestructible material used for shipping envelopes.

Next, carefully inflate the tube so this "boot" doesn't move. You should be able to safely ride home or to a bike shop where you can replace the tire.

Another trick is to simply apply a tube patch to the inside of the tire. This will work if the hole isn't too big.

Uh, oh—forgot your patch kit?

Get creative. Most energy bar wrappers or gel pouches are tough enough to work as a boot. So is a dollar bill (it's linen, not paper). Maybe pull off a piece of handlebar tape.

Or, simply scout the roadside to find a coated paper cup or other suitable piece of litter. Unfortunately, there'll be lots to choose from.

7. FAULTY FRAME PUMP



Your bike pump doesn't work as well as it used to, and some strokes don't blow any air at all.

FAST FIX: It's very likely that the plunger's washer has dried out. When that's the case, the fix is easy.

Simply unscrew the end of the pump (opposite the end with the air chuck) and pull out the plunger. If the cupped washer on its end is torn or broken, check at your local bike shop for a replacement.

If the washer is merely dry and stiff, massage in some bike grease until it's pliable again.

It's safest to use grease that doesn't contain petroleum, which can degrade inner tube rubber if it gets inside. For the same reason, avoid using oil.

Wipe off excess grease, then slide the washer and plunger into the pump. Screw the end cap firmly. Also, check the tightness of the chuck on the other end.

Now go add air to a tire. The pump should work as good as new again. This fix works for floor pumps and mini pumps, too.

8. SQUEAKY CLEATS



You're getting really annoyed by that chirping on every pedal stroke.

FAST FIX: Silicon spray is the best fast fix we've found.

Check that your cleats are on tight and not terribly worn. Make sure there's no mud or gravel stuck in them. Check the pedals, too.

Everything look OK? Spritz silicone around the edges of the cleats and on the pedal surface. Think about where there's contact and make it wet.

Why silicone? Because it's slippery but not sticky. There's no gunky buildup. Unlike other types of lubes, it won't pick up stuff that you walk on after you apply it.

This fix will stop the squeaks—for a while. Silicone is light and not long lasting, so keep a can where you park your bike. You'll need to use it every few rides.

Think about replacing your cleats. Squeaking usually means they're getting pretty worn.

9. HOLLOW STOMACH



You need to start your weekday rides quickly after work. But you're hungry. If you eat, the food will still be in your gut on the first climb and that's not good.

FAST FIX:

Drink your pre-ride snack.

Solid food in your stomach just before riding will make you feel like the human equivalent of a flat tire. Instead, use a commercial drink that contains a calorie-rich mix of carbohydrate and protein. You'll find several brands at GNCs, health-food stores, and bike and sports shops.

Scoop the powder into your blender with some skim milk and a banana. Then pour yourself a healthful and satisfying liquid meal.

This takes less than five minutes and digests nearly as fast. It gives you plenty of energy and good nutrition, too.

10. LEG CRAMPS



You're well into a long ride in tough terrain, and suddenly you feel the telltale twinges of an oncoming cramp.

FAST FIX: Take two or three Tums.

No, this isn't to settle your nervous stomach about the pain that's just around the corner. Many riders find that Tums, or any antacid high in calcium, can prevent muscle twinges from turning into knots.

Ed Pavelka learned this fix on a 100-mile ride in the hills of Arizona's high desert. On one climb, he felt both calves starting to bundle up. He announced this to Fred Matheny and their partner that day, Dan McGehee, hoping they'd ease the pace for him. Instead, Dan reached into his pocket on the descent and handed Ed two Tums. The rest of the ride was cramp-free—and just as fast.

Now Ed always packs a roll in his seat bag for long rides. The antacid benefits also can combat the indigestion that sometimes results after hours of eating while exerting.

Consider Tums an emergency fix. It's better to thwart cramps from the start by being well trained and well hydrated. Every hour, drink 1-2 bottles of sports drink containing sodium and other electrolytes.

11. JACKET PULLS UP WHEN YOU ZIP UP



It's nippy, so you're riding in a jacket (or vest). But it pulls up when you use the zipper to adjust airflow, making you use both hands—one to work the zipper and one to hold down the jacket.

FAST FIX: Wear a small fanny pack.

To stay comfortable on a cold ride, you need to control airflow. Zip up to hold in body heat when descending or riding into the wind. Zip down to reduce overheating and sweating when climbing or sailing with a tailwind.

It's a nuisance (and potentially dangerous) to ride no-hands in order to pull the zipper up every time you need to. A fanny pack worn around the jacket holds it down so that one-hand zipping is never a problem.

There are three additional advantages.

- First, a fanny pack holds your jacket down in back to prevent air leaks when you bend forward to the handlebar
- Second, it traps body heat on your low back, reducing stiffness in cold temps.
- Third, it gives you an easily accessible way to carry things instead of burying them in rear pockets under your jacket.

To help a zipper work more smoothly, apply silicone. Spray it on a rag, then run the rag along the zipper teeth. Paraffin works, too.

12. PLASTIC BOTTLE FLAVOR



You got a nice new water bottle. It makes your drink taste like plastic. Yech!

FAST FIX: Here are four ways to get rid of that nasty flavor and clean the bottle, too.

- Fill it with hot water, then add several drops of bleach. The next morning, rinse with hot and cold water. This will get rid of any flavor and disinfect the bottle, too.
- Clorox isn't your cup of tea? Take that lime out of your Corona and squeeze it into the bottle instead. Fill with water and let stand overnight.
- Baking soda works, too. Put in a teaspoonful with warm water.
- The quickest and easiest way is to use the dishwasher. No flavor can survive in that hot water and detergent. Put your bottle in there once a week to get it really clean. But be sure to turn off the high-heat drying option!

Between real washings, rinse your bottle after rides and put it back in the cage upside down with the cap open. Then it can drain dry instead of incubating stuff that has a Latin name.

13. FOGGY GLASSES



In misty or foggy weather, your glasses get covered with fine droplets and start streaking. You can't see squat!

FAST FIX: Here are several fixes that work:

- Check at your local eyeglass store. There are optical products made to prevent lens fogging.

- Check at your local dive shop. There are de-fog products made for facemasks that work on glasses, too.
- If you have a bottle of Rain-X for your car windshield, apply some to your glasses. This stuff sheds water so well that you can drive through rainstorms without using wipers. Test first to make sure that it's compatible with your plastic lenses.
- Cut a potato in half, rub the juice on your lenses, then rinse in cold water and dry.
- Apply a drop of liquid detergent or hand soap to both sides of each lens, rub in well, then buff with a clean cloth.
- Coat both sides of the lenses with gel (not paste) toothpaste, rinse in cold water, then dry. Your glasses will fog less and smell minty fresh, too!
- Licking the lenses works in a pinch and may be the best option if you forgot to pack your potato and toothpaste.

14. FROZEN DRINKS



Winter's setting in, and now it's cold enough to freeze your water bottles or hydration pack.

FAST FIX: Here are four fixes we learned while riding in the frozen tundra of Vermont, Pennsylvania and Colorado. Use one because dehydration is a real threat in cold, dry winter air. You gotta keep drinking.

- Use a sports drink. The sugar and other additives lower the freezing point into the 20s. Then the drink gets slushy instead of icy hard, so it can still flow though the bottle's nozzle, at least for a while.
- Put your hydration pack under your jacket where body heat can warm it. The same goes for all bottles but the one you're drinking from. Tuck your pack's hose inside, too, and cover it with pipe insulation.
- Start with drinks that are just below plastic-melting temperature. Carried in rear jersey pockets under your jacket, they'll warm you like little hot-water bottles.
- Use insulated bottles. But these can be pricey and may not hold very much.

Or, plan your route for a Mini Mart stop every 45 minutes for a hot chocolate!

15. CONCUSSION



Your riding partner skidded on wet leaves in a curve and fell hard. She cracked her helmet and felt dizzy and disoriented. This scared you because you didn't know what to do.

FAST FIX: When you or a friend suffers a concussion, it's vital to determine the seriousness and act quickly. For recommendations, we asked Mike Matheny, a cyclist and head of the Athletic Training Department at Ithaca College in upstate NY.

Head trauma can be frightening, says Mike, because symptoms may change rapidly. Look for any of the following indicators of a serious injury:

- blood or cerebro-spinal fluid (it's straw-colored) coming from the nose or ears
- uneven pupil size
- nausea and/or vomiting
- loss of consciousness

If any of these are present, immediately call for medical help. Use your cell phone, run to a nearby house or flag down a motorist. Keep your friend quiet and warm as best you can. Don't move an unconscious person because there's also the chance of neck or spinal injury.

Sometimes symptoms are less pronounced but they can be just as serious. These include inability to maintain balance, a severe or worsening headache, and confused or inappropriate responses to what's happening at the scene.

Even if none of these conditions are initially present, keep an eye on the person for several hours after the fall. If it was you who got conked, tell someone at home what happened in case you start having a problem.

16. TOO MUCH CORNERING SPEED



Uh oh, you misjudged a turn and realize you're going too fast!

FAST FIX: This could be bad. If it's a right turn, your speed could carry you into the opposite traffic lane. If it's a left turn, you could sail off the road or into a curb or guardrail.

The first instinct, of course, is to grab the brakes. Usually, this only makes things worse. Braking will straighten the bike's line and may send you directly into those things you'd prefer not to see up close and personal. Or, it could skid your wheels and cause them to slide out from under you.

Instead, stay off the brakes and carve a tighter turn. The key is to stand real hard on your outside pedal (which is at the bottom of the pedal circle) and push the handlebar down with your inside arm. As the bike angles over, keep your body low and fairly vertical.

Using this technique, you're likely to make it. But if you don't, your crash will be a sliding one. That's no fun—but it's better than sailing across the road and hitting something head-on.

Now go practice in a large empty parking lot. Turn left and right, using lines and other markings as make-believe corners. You don't need to ride fast to work on this technique. You could also practice on a smooth grassy field (soccer is good for something)—more forgiving if you should slip down.

17. BUGS ON ROOFTOP BIKES



You carry your bike on your vehicle's roof and it gets blasted with insects and other airborne junk.

FAST FIX: We would never resort to crass commercial hype (other than for RBR books, of course), but here are two nearly identical products that work great: the Performance XPORT Transport Cover and the Colorado Cyclist Bike Bra.

We made a 1,100-mile high-speed run from North Carolina to Florida and back. Our Co-Motion tandem was on the roof. There were enough bugs to require windshield washings at every pit stop.

The Co-Mo remained pristine, however. This proved how well the black spandex shield protects the front of a bike. It blocks bugs during long summer drives and keeps the bike clean in rain showers. It helps fend off the fine gray spray from wet winter roads, too.

A cover takes just seconds to put on, take off, and brush clean. We think it looks sharp on a bike/vehicle, too. The price is \$30-\$40.

18. FINDING A PUNCTURE PRODUCER



Nuts, you got a flat. But once the tire is off and the tube is out, you can't see anything that caused the puncture.

FAST FIX: This is worrisome because if something sharp is hidden in the tire tread, it'll quickly pop the new tube. You need to find it or make sure it's not there.

First, gingerly feel around the inner circumference of the tire. Don't like prickly surprises? Then wipe with a rag. It should snag on something sticking through, but your fingers do a better job.

Find something? Get all of it out. You might need to dig with the screwdriver tip on your multi-tool.

Can't find anything? This is why it's smart to mount tires with the label centered over the valve stem. (It looks pro, too.)

Pump air into the tube and listen for a hiss on its outer circumference. See where the hole is in relation to the valve, then look the same distance from the tire label. Check in both directions if you can't recall which way the tube was installed. This pinpoints the suspect areas. If a close inspection still doesn't find anything, you can safely assume that whatever popped the tube didn't stay in the tire.

If the hole is on the tube's inner circumference, it came from something the rim strip wasn't covering. Find the flaw and correct it before installing the new tube.

If you find two little parallel slits, your flat was caused by riding into something hard enough to cut the tube between the rim and tire. This is called a pinch flat or snakebite flat. It's rare if you keep your tires inflated to their full recommended pressure.

19. FILTHY BIKE



You rode on a wet day that turned your bike into a mess. It's a pain to get out the hose, bucket, brush, sponge and detergent to wash it.

FAST FIX: Don't wash it, dry it! No matter how dirty your road bike gets, as long as it's still wet after the ride, you can clean it simply by drying it.

Use an old towel. Start at the top of the bike and work down, wiping each tube and component. Save the drivetrain area and rims for last because they're always the dirtiest.

This method is quick and easy. But if you get lazy and let the grime dry, then you'll have to break out the bike-wash implements. Wiping won't be as effective and will probably scratch the paint.

After drying the bike, spritz WD-40 into the derailleur pivots and everywhere a cable enters housing. Wipe the chain by spinning it through a rag, then apply lube.

Voila! In five minutes, your bike will be as clean as if you actually washed it. When you ride frequently on wet roads (as in winter), this wipe-down saves lots of time and tedium.

To keep your winter bike cleaner during rides on sloppy roads, install fenders.

20. GAPPY HANDLEBAR TAPE



Your handlebar tape loosens and shows gaps, especially on the top curves just behind the brake levers.

FAST FIX: Re-wrap the tape starting at the bar end and finishing near the stem.

When tape is wrapped the other way, from the center to the end, your hands push against the overlap along the top curves. This rolls the tape's edges and eventually opens gaps.

Buy new tape or reuse what you have if it unwraps without tearing. Start at the very end of the bar. Pull firmly and overlap uniformly about one-third of the tape's width. Wind clockwise so that the tape goes forward over the top of the bar. The curl of your fingers will be in the direction the tape tightens.

Beware of gaps on the front side as you wrap around the big bend. Roll back the rubber hood and do a figure 8 around the brake lever. For a pro job, first put a piece of the tape around the lever's metal band. Then no gap will show when the hood is put back.

Continue wrapping snugly to about one inch from the stem (or to the edge of the bar's raised center section, if it has one). Cut the end and secure it with a piece of electrical tape. You get bonus points for using a color that coordinates with your bike.

Voila! Another nuisance negated. The tape should stay perfectly in place. Your hands can't push it apart.

Don't forget to put in bar plugs. These little things are actually a safety item. An unplugged handlebar could take a core sample from your leg if it were to hit you in a crash.

21. TIRE WON'T SEAT



You install a tire, pump it up, and a section bulges or dips.

FAST FIX: Bulging is urgent. Quick, let out some air! A section of tube is under the tire bead (the inner edge around each side). If you continue to add air or try to ride, chances are real good that the tube will pooch between the tire and rim and blow out.

Once the tube is deflated, work on the problem area. Lift, squeeze and massage the tire until the tube no longer appears under the bead. If the bulge is around the valve area, push the stem up into the tire, then pull it down. Cautiously add air, watching to make sure all is well.

In a properly seated tire, the bead line—the thin line molded low on each sidewall—will be just above the rim all the way around on both sides.

If the bead line dips below the rim, the tire will feel lumpy as you ride. To correct this when you have a high-pressure floor pump, keep adding air beyond maximum inflation. This extra pressure may pop the bead into place with a snap you can hear (then let out the excess air).

No? Deflate the tire and massage the dippy section. Put it in the same position on the rim as the rest of the tire. Inflate and all should be well.

No again? Deflate again and rub something slippery on that bad bead. Lots of things can work, but don't use bike grease, which could harm the rubber and get on the rim. Try a little liquid soap, bar soap or saddle soap. Good old spit can work, too, and might be the only choice if this is happening during a flat repair out on the road.

Pump up the tire again. OK? Good! Now skip today's upper-body workout because you just had it.

22. BAD MEMORY



You can't remember all those rides you thought you'd never forget.

FAST FIX: Start a daily cycling diary. It'll become the best book you own (next to RBR books, of course!).

Ed Pavelka is in his 21st year of recording every ride. But Fred Matheny has him beat. It'll be his 27th year. Our well-thumbed volumes take up a whole shelf in our bookcases.

We can tell you the route, mileage, dogs evaded, intervals suffered through and the weather for more than two decades of rides.

Here's why we encourage you to keep a diary, too:

- It reveals what works. When you ride a PR, look back in your diary to see what training got you to peak fitness.
- It reveals what doesn't work. Tired and dragged out? Your diary entries will divulge, in graphic detail, your training mistakes.
- It's the key to yearly progress. You can't improve your annual training plan if you don't remember what you did before and after events last year. The diary never forgets.
- It's a record of your life. For example, Fred knows how long it took to drive to a 1978 race in Boulder, what he ate at the bakery stop in Cedaredge during a 103-mile ride on March 10, 1984, and his weeks of preparation for the 1993 transcontinental PAC Tour. It's in the book.

Your training diary can be as simple or elaborate as you like. Here are some things you might want to record each day:

- Morning body weight and heart rate.
- Type of workout, weather, route, distance, total time, average speed.

- A subjective rating of how you felt: "F" is terrible and "A" means Lance couldn't have kept up.
- Equipment or position changes so you can trace the source of physical improvement or problems.
- A short narrative. Sample: "Big ring on Menoken hill, time-trial pace across Franklin Mesa. Legs were strong, but left knee is twinging a bit."

23. FROZEN FEET



No matter what you wear on your feet, your toes still become painfully cold and numb on winter rides.

FAST FIX: First, think about those thick socks you're wearing. If they make your shoes fit tight, the pressure reduces circulation and makes feet feel cold faster. Same goes for too-tight shoe straps or overly snug booties.

Consider buying shoes one size larger than those you wear in summer. Dedicate them to winter cycling. Then you can wear thick socks or even two pairs without needing a shoehorn to get in.

If you're torn between two sizes of booties, go larger. A little extra room ensures that there's no added pressure. It also makes booties easier to pull on and take off.

Still freezing? Then do what cyclocrossers and mountain bikers do on their rides—get off occasionally to walk or jog with your bike. Just one minute out of every 20-30 can revive frigid feet.

Hoofing relieves pedal pressure, stops the windchill, flexes your feet, and restores circulation. It won't exactly make your toes toasty, but it may thwart that painful numbness.

24. ONE-HAND VEERS



Your bike veers and feels unsteady when you take a hand from the bar to reach down for your bottle, reach back to your pockets, zip your jacket, and so on.

FAST FIX: Before reaching, move your other hand to the bar top next to the stem.

This puts your grip on the bike's centerline where steering leverage is minimized. Then, inadvertent movement while you're reaching around won't cause an unwanted change in direction.

Experiment in a safe place and you'll see.

First, grip the drops or brake lever hoods. Then reach down for your bottle. Notice some instability?

Next, move one hand next to the stem, bend that arm's elbow, and reach down. Ah, much better.

Bonus! When you're using this grip, your front wheel is less likely to be knocked off course if it should hit a rock, bump or road damage while you're riding one-handed.

BEST OF TRY THIS **ON YOUR NEXT RIDE**

Cycling is the coolest sport because, well, we do it on a bicycle! There are tons of little tricks to riding a bike better. Many are quickly learned and result in instant improvement—on your very ride!

1. FINISH THE HILL

“Finish the hill” is a term coaches use to remind riders that a climb doesn't end till gravity starts pulling you down the other side.

Many riders, however, start easing up when the top comes into view. It's understandable. You've been working hard. Your legs are burning, your lungs are heaving...but now you risk losing lots of time.

Backing off when you see the top will make the final meters last much longer. Instead, beginning with the next hill you ride, train yourself to ignore the physical and mental temptations. Don't let up during those final few strokes.

Finish the hill and you'll gain distance on everyone who's doing it the “normal” way. You'll even be increasing your fitness. Once you make finishing hills a habit, your climbing confidence will grow. So will your climbing reputation.

2. SHIFT THE CHAIN BACK ON

When Ed Pavelka shifted the front derailleur on a recent tandem ride, the chain fell off the outside of the big chainring. His stoker, Joleen Randels, could barely call a warning before Ed shifted the chain right back into place.

Jo was amazed. She'd never seen this trick even though she's an experienced rider. She is one of many who would have stopped to put the chain back on by hand, wasting time and getting greasy.

The next time your chain goes over the big ring or falls off the small one and onto the frame, keep pedaling. Gently! Shift the front derailleur in the appropriate direction. The chain is very likely to catch the teeth and climb back on.

Don't force it and jam or bend something. If the chain won't catch, then you'll have to stop. Look for a twig or the like to lift the chain so you won't get too greasy.

Of course, this trick is no substitute for a properly adjusted front derailleur! If your chain is coming off more often than Mario Cipollini stays home on Saturday nights, get your bike checked.

3. MOVE ON THE SADDLE TO MAKE SEATED CLIMBING EASIER

If you sit in one spot on a long grade, your muscles will fatigue faster than if you shift locations.

Here's why this works: When you slide to the rear of the seat, you put greater emphasis on the gluteus muscles in your butt while taking some stress off the quadriceps in your thighs.

When you start feeling the strain, slide forward to do the opposite—relieve your glutes while calling your quads into play.

By moving like this, you'll also combat upper-body rigor mortis. The overall result is more comfort, efficiency and an easier time on extended grades.

4. SHIFT UP TO SMOOTH OUT ROUGH ROADS

You'll see the pros do this on cobblestone sections in events such as Paris-Roubaix.

Let's say you're cruising along in a 53x19-tooth gear. Spinning and grinning. But uh-oh, here comes a gnarly stretch of bumpy, patched pavement.

Just before your wheels start rumbling, shift to the 17 cog. This higher gear increases pedaling resistance and slows your cadence, in effect putting more weight on your feet and less on your seat. You bounce less and your butt doesn't get as hammered.

The higher gear gives your feet a more stable platform, reducing bike chatter and increasing your control. Pedaling doesn't feel as choppy. Yet you go just as fast.

Also, you won't spin out your gear if you need to stand for part of the rough section.

When you regain smooth pavement, shift back to your spinning gear and carry on.

This is a good technique, too, when you come upon a loose or slippery surface. A lower cadence in a higher gear gives you more traction and control.

5. BRUSH YOUR TIRES TO PREVENT FLATS

Once upon a time, nearly all roadies used tubular (sew-up) tires that punctured easily and were a major pain to repair. So, we got in the habit of reaching down to brush our tires, knocking off potential puncture producers that were stuck to the tread and working their way through to the tube.

That's how most flats happen—not because of something that instantly pops the tube, but because of something that pushes through during numerous wheel revolutions. Nowadays, we ride on clincher tires that are more puncture resistant. And much easier to repair. Frequent tire brushing isn't a habit for many riders anymore.

Still, it's a useful skill that comes in handy when you ride through a patch of glass or actually see or hear something stuck to the tread.

It's easy to brush the front tire. Just reach down in front of the brake and lightly rest the palm of your gloved hand on the spinning tread for a couple of seconds. Don't bear down too hard or you'll damage the glove.

The rear tire is harder to brush off safely. *Be very careful.* Your hand has to contact the tire in the triangle formed by the seatstays' conjunction with the seat tube. Because the wheel is spinning forward, it's easy for it to pull your hand down and wedge it between the tire and frame. The resulting crash is about as nasty as you can imagine.

To eliminate this risk, don't use your palm like on the front tire. Instead, extend two fingers (index and middle) from a closed hand. Touch the top of the tire lightly for two or three seconds. That's enough to knock off anything without risk of getting your hand trapped.

Don't worry—we've never had a finger injury during years of doing it this way.

Until you get the hang of knowing where the tire is without looking, hook your thumb around the seatstay and then slide your hand down. This also keeps your hand from being pulled forward.

6. APPLY BRAKES EARLY WHEN RIMS ARE WET

Has this happened to you? It starts raining, and the next time you come to a stop sign your brakes don't work. You roll through the intersection and thank your lucky stars no cars were coming.

Caliper brakes and water don't mix. When the rims and brake pads get wet, almost zero bike-stopping friction is created no matter how hard you squeeze the levers. At least for the initial dozen or so wheel revolutions.

The trick is to anticipate the need to slow or stop. Apply the brakes much earlier than normal so water is wiped from the rims and pads. Don't squeeze too hard. Just hold the rubber against the metal like a squeegee.

As the water is displaced, be ready for suddenly stronger braking power. Back off your lever pressure as you sense this or you could lock a wheel and skid. At this point braking action is nearly the same as it is in dry conditions.

Ride defensively in the wet. Stay aware of everything going on around you. When you think there could be the need to brake, hold the pads to the rim lightly even as you pedal along. This won't be enough to slow you, but it will wipe away water so actual braking is much quicker when it's time.

7. START UP HILLS IN A LOWER GEAR THAN YOU NEED

Let's say you come to a hill that you usually begin in your 39x19-tooth gear. On a good day you make it to the top in this gear, but sometimes you don't. You have to shift to the 21 cog or even the 23—and you really slow down.

Today, start up in the 21. Yeah, it'll seem too easy. But raise your pedaling rpm and you'll keep your speed. You'll also get a feel for the high-cadence climbing technique that Lance Armstrong is popularizing.

In the 21, your legs will feel fresher longer. It's not likely you'll need to shift lower. In fact, as the crest comes into view, you may be able to click into the 19, give it some of the juice you conserved, and reach the top with much more speed.

The famed Coach Eddie B says it this way in his classic book, *Bicycle Road Racing: Correct climbing is a matter of increasing your gear, not decreasing it.*

It can't happen unless you start in an easier gear than you can handle. Try it and you'll like it. It works for racers and for anyone who simply wants to struggle less when riding uphill.

8. SCAN AHEAD TO IMPROVE YOUR CORNERING

The main cornering mistake most riders make is not using their eyes. Instead of looking at the turn carefully, well in advance of approaching it, they stare too near their front wheel. Scanning the corner early helps you choose the correct speed and best line. Then:

- Approach the corner as wide as traffic and other conditions allow.
- Cut through the corner on nearly a straight line.
- Exit wide, again using as much of the road as you can safely inhabit.

Keep an eye out for potholes, gravel, oil slicks, and errant pedestrians. These obstacles are easy to avoid by adjusting your line slightly. But you can do so safely only if you see them well in advance.

Whenever you ride, and especially when coming to a turn, remember the advice from your old linebacker coach: "Keep your head on a swivel!"

9. LET YOUR EYES STEER YOUR BIKE

This is a corollary to the previous tip—scanning corners before making turns.

One of the mysterious truths about cycling is that your bike will go right where you look. Often times, this is the reason riders crash—they look fearfully at the thing they don't want to hit, or the place they don't want to go.

Ask any singletrack mountain biker. When the focus is on the notch between two rocks, the wheels have a much better chance of finding it. When the focus is on the rocks, that's where the rider soon is.

Try it on your next ride. When traffic is clear and you can safely play around, try rolling your wheels over or between fallen leaves or lines or spots on the road. Leaves are fun because they crunch to tell you the result.

For example, focus on the space between two leaves that are six inches apart. Good, no crunch! Now try to go through another pair but this time shift your eyes to look at one you're trying to miss. See?

It's hard not to look at a dangerous thing you want to miss. But once you've developed the self-control, you'll be able to put your skinny tires through very narrow places.

10. STEER RIGHT TO GO LEFT (AND VICE VERSA)

Here's a cool tip -- but you need to be careful when you try it!

To explain, imagine this situation (we've all been in it). You're cruising along, riding as usual about a foot from the white line on the edge of the road. Something catches your attention to make you turn your head or look down for a moment.

Whoa! The next thing you realize is that you've drifted to the right. Your wheels are about to drop off the edge of the pavement. You need to move left—*quickly!*

To make this instant correction, override your natural instinct to turn the front wheel to the left. Instead, twitch your handlebar to the right. Yes, that's correct—in the direction you don't really want to go.

A physicist can tell you about gyroscopic forces created by this twitch, but what it does (in effect) is offset your body to the left of the bike. This makes your bike "fall" to the left and away from the road edge.

Try it on your next ride. But be careful—it takes only a slight twitch of the bar to make it happen. Experiment in an empty parking lot till you get the feel. You want your bike to move several inches, not veer several feet.

Practice to the left and the right. Once you've got the knack, do it several times on every ride when conditions allow. The idea is to ingrain this technique to get rid of the instinct to turn the handlebar away from danger. As you now see, doing that can actually move you closer to it.

11. PEDAL ON DESCENTS

Many riders stop pedaling when going down hill, coasting all the way. But for three important reasons it's better to shift into a higher gear and keep your legs turning even if slowly against no resistance.

It gives you the ability to instantly accelerate. This might be necessary if, for instance, a dog comes after you or the light ahead is about to change. If you aren't already in a higher gear with your legs revolving, you'll lose precious seconds.

It makes your bike more stable. You don't need to be pushing hard. "Soft pedaling" against a mild resistance or simply turning your legs creates this effect.

It prevents your pistons from petrifying. Suddenly coasting after working hard on a climb, then descending in cool air, will quickly stiffen your leg muscles. Even a slow rotation against no resistance will keep them loose. You'll feel the benefit when the road flattens and you resume normal pedaling.

12. START WINTER RIDES INTO THE WIND

This becomes increasingly important as the temperature falls. Why? Wind chill.

The wind-chill effect is why air feels colder than the actual temperature. Here's an example. If it's 50 degrees and calm, it feels like, well, 50 degrees. But if it's 50 degrees and a 15-mph wind is blowing, wind-chill charts tell us that it feels like 36 degrees. Big difference.

Now let's say you're riding into that 15-mph wind at 15 mph. This produces a 30-mph headwind and an effective temperature of 28 degrees. *Brrrr!*

So, be smart and face the icy blast when you're fresh and dry. Battle the wind for the first half of the ride. Then when you're getting tired and damp, you can turn and let it blow you back home. Suddenly it'll feel a lot warmer.

The colder it is, the more essential this tactic. On a 30-degree day, the windchill created by riding into a 15-mph headwind is a frigid 2 below zero. Holy frostbite! If you encounter that kind of cold on the homeward leg of a ride after you've worked up a sweat, they'll be undressing you with an ice pick.

Remember, even on a calm day the speed of cycling creates a windchill. Make sure your jacket has a full-length zipper that you can run up and down to control airflow and limit sweating. You never know when a cold wind will start to blow.

13. ON CLIMBS, REDUCE PEDAL PRESSURE AS YOU DOWNSHIFT

Doing this helps the chain move quickly and smoothly to the larger cog (rear shift) or smaller chainring (front shift).

Modern drivetrains do a great job of shifting under load, but you can give them a hand with this technique. Simply reduce pedaling force on the stroke during which the shift takes place, then immediately pour on the coals again.

This is especially helpful for a front shift. If you're caught in the big or middle chainring on a climb and begin bogging down, there's a huge load on the chain. It may be so tight that the derailleur can't pull it over to the small ring to give you a lower gear.

Coordinate your left hand with your legs. As you move the gear lever, soft pedal for one stroke. Keep the crank turning but with much less force. The chain will drop cleanly down. Then resume mashing.

Ideally, you'll anticipate shifts and make them before putting the chain under a heavy load. But when you goof, this technique will bail you out.

14. "FLOAT" YOUR LEGS WHEN PEDALING HARD

This neat technique dates to Jacques Anquetil, the great French time trialist and five-time Tour de France winner. It's also recommended by a legendary coach, Eddie B.

Use it when you're pushing a big gear or going against a tough resistance such as a strong headwind or long, steady climb. In these situations, the constant force of pedaling makes your leg muscles tight and fatigued.

Here's how to relax them without losing speed.

As you're grinding along, "float" your right leg for one stroke. Another term for this is "soft pedal." Just let your leg come around without any force. Four strokes later, do it with your left leg. Then your right leg again four strokes after that, and so on.

It takes practice to learn how to do this. Begin at times when you're pedaling at a relatively slow cadence. Once you've got the knack, you'll feel less leg muscle fatigue as tough rides wear on, but amazingly you won't lose speed. The trick is to ingrain this technique and use it whenever you have to push hard for a while.

15. WATCH YOUR SHADOW

The sun is lower in the sky early or late in the season. Your shadow is usually around you rather than under you, as in summer. This is a great opportunity to see yourself ride.

Fighters shadow box to check their form. They look for flaws in their stance, movement and technique. You can do the same while riding on a sunny day.

Your shadow knows if you're balanced on the bike with your back at about a 45-degree angle. It knows if your elbows are flexed or locked straight. It knows if your head is steady or bobbing. It knows if your shoulders are relaxed or hunched toward your ears. It knows if you still have knee bend at the bottom of your pedal strokes. It knows if you look as stylish on the bike as you think you do.

Your shadow gives great feedback while climbing, too. Watch your form going in and out of the saddle. Check for a balanced position and a quiet upper body. Work on your smoothness if you see yourself bobbing much while sitting or standing. See if you look as fluid as you feel.

Just don't get so distracted (or enamored) that you fail to keep an eye up the road. Glance at your shadow, don't stare at it. Watch where you're going.

For extra effect, whistle the old soft-shoe tune, "Me and My Shadow."

On a foul-weather day when you're riding inside, get similar form checks by having a mirror near your trainer.

16. DESCEND WITH A KNEE AGAINST THE TOP TUBE

In a *Fast Fix*, we discussed the frightening tendency of some bikes to shake on fast downhills. This condition, known as shimmy or speed wobble, can quickly escalate from a twitch to a violent vibration that makes it hard to control the bike.

Probably the most effective way to fight shimmy is to clamp the top tube between your knees. This damps the shaking so you can brake and keep things under control.

To possibly stop shimmy from beginning at all, get in the habit of descending with one knee touching the top tube whenever you're coasting. Simply let your knee fall over and rest against the tube. This contact also sends you an early warning if the bike wants to wobble.

There's no one cause of shimmy. It usually stems from poor frame design exacerbated by things like a loose headset, a faulty front hub, rim or tire, or even carrying a load. If your bike shimmies and you can't find or remedy the reason, at least get the upper hand by using your knee.

17. PEDAL LOW GEARS DOWN HILLS

Hilly rides are ideal for working on technique—like turning a choppy, bouncy pedal stroke into a smooth, round one.

Practice on descents by staying in your small chainring as you gain speed. Spin your legs faster and faster. Think circles! The more you can relax your legs, the quicker you can turn them.

Don't shift to higher gears until you're bouncing on the saddle. After just a few descents like this, your pedaling rpm will be noticeably faster before your strokes get ragged. You'll feel the extra smoothness whenever you're spinning at 90-plus rpm.

This is a nice drill in cold weather because pedaling fast helps you stay warm. It limits your descending speed and the resulting wind chill.

18. PUSH YOUR BIKE FORWARD WHEN YOU SIT

When you're standing and pedaling, don't just plop onto the saddle when it's time to sit again.

Instead, as you lower your butt, extend your arms to push the bike forward. This simple trick gains a few inches every time you use it.

Prove it to yourself by doing it next to an unknowing rider. Watch your front wheel move ahead. Also, by pushing your bike forward, it puts the saddle under your sit bones so you're perched in the right place.

Another benefit: It keeps your rear wheel away from the front wheel of a rider who may be close behind. No contact, no crash.

This slick little move will mark you as a skilled rider. The idea is to do it automatically while continuing to pedal smoothly. Why not? It's free ground.

19. PUSH YOUR BIKE FORWARD WHEN YOU STAND

This is very important when you're riding in a paceline or group. When you stand, your bike tends to decelerate slightly. This has the effect of moving it backward in relation to the bikes around you.

If another rider is directly behind, your rear wheel and his (or her) front wheel could touch. You'll feel only a bump, but that rider will probably feel the pavement.

To prevent this, extend your arms to push your bike forward just as you rise from the saddle. Do it when a pedal is coming around in position to apply power. Don't lunge. By smoothly pushing, rising and powering, the gap between your wheel and the following wheel will not decrease.

It's hard to tell if you're getting the right result when riding alone. So practice with a friend. Leave at least a two-foot safety margin till you both get the hang of it.

When riding with others, remember that not many cyclists stand correctly. They simply pop out of the saddle, oblivious to the risk to the person behind. It's smart to drift back a bit from a rider you're following up a hill, or move several inches to either side of his rear wheel.

20. BREATHE OUT HARD, BREATHE IN EASY

Here's a technique we learned from 1984 Olympic road champion Alexi Grewal. Try it when climbing a long hill.

When you're working hard, it's natural to put the emphasis on inhaling lots of air. Instead, emphasize exhaling. Blow the air out aggressively, then let your lungs refill passively.

Why? Two reasons.

First, it gives you better air exchange. By emptying your lungs on each breath, they can take in more energy-producing oxygen.

Second, long exhales stop you from panting inefficiently.

When climbing, try breathing out fully for two or more counts (pedal strokes). Then let your lungs refill on the same number of counts. This sets up a breathing/pedaling rhythm that puts you in control on long hills.

Exhaling hard, inhaling easy may feel awkward at first. But stick with it. Before long, it'll seem a lot more natural. Then when you start getting gassed on a hill, breath this way and feel your effort become smoother and easier.

21. LEARN TO PANIC STOP

Being able to stop suddenly in a short distance can prevent an accident. Learn this skill with a few minutes of practice on a quiet stretch of pavement. Here's how:

- Pedal up to a decent speed. About 15 mph is good.
- Stop pedaling with your crankarms horizontal.
- Extend your arms to push your body back as you squeeze the brake levers.

- Let your butt go off the rear of the saddle, putting you in a long, low position. But keep your head up.
- Squeeze the front brake harder to stop faster. Maximum stopping power is in the front wheel as your weight shifts forward. Having your body low and rearward prevents tipping over the handlebar.
- Squeeze the rear brake a little less to prevent the tire from skidding. Of course, in a real panic stop this is a low priority.

Be very careful as you practice! This technique is meant to prevent crashes, not cause them. Always keep the bike on a straight like. Trying to stop like this while turning could easily cause you to lose control.

Once you've added panic stopping to your bag of tricks, you'll do the right thing when a car, dog or freight train suddenly appears out of nowhere.

22. LEARN TO JUMP YOUR BIKE

Several of Ed Pavelka's roads take him across overpasses. Each has deep, 4-inch-wide expansion joints. They're a real pain in the chamois if ridden over, and hitting them at speed could cause wheel damage.

So, Ed jumps them. It's a technique you can use, too, to get over various hazards that you can't ride around and don't want to slow for.

Here's how:

Practice in a safe place. And use a non-hazardous obstacle, such as a rolled up jacket or towel.

- Keep your speed. If you hesitate, slow down and then decide to jump, you may not have enough velocity to carry the rear wheel over.
- Square up. Always jump in a straight line, not at some angle that could threaten control when you land.
- Coast with your crankarms horizontal.
- Crouch with elbows and knees well bent. You can be gripping the brake lever hoods or handlebar drops. In fact, you should practice from each position.
- Spring up and pull the bike into your body with your arms and legs. You need clipless pedals or snugged toe straps to do this.

- Extend your arms slightly to lengthen the bike's flight and set the wheels down smoothly. When you're good, you won't thud.

23. SCOOT ON THE SADDLE

Many cyclists sit in one spot all the time. On your next ride, start experimenting with moving around. Scooting helps you increase pedaling cadence or power.

For normal cruising, you should sit back far enough for your sit bones to rest atop the saddle. This provides support while minimizing pressure on the nerves and blood vessels that run through the soft tissue of your crotch.

When you want to increase your cadence for brief periods, scoot forward. Try it and you'll feel now much easier and more natural it feels to pedal at faster rpm.

When you want to increase your power, scoot back. This slightly lengthens your leg extension and puts you in better position to drive the pedals over the top of each stroke. This more-powerful thrust is especially helpful when climbing at slower cadences or turning a big gear.

As a bonus, scooting increases comfort by changing saddle pressure points and upper-body position. Get into the habit!

24. CENTER YOURSELF ON STANDING CLIMBS

We often see riders make a mistake on out-of-saddle climbs. They lean way over the front of the handlebar, much more than necessary for the grade they're on.

The result: Too much weight on the front wheel, which grinds the front tire into the pavement and scuffs off speed. This makes the hill harder.

The trick is to stay back a bit and feel for the balance point. This is where your forward lean keeps your front wheel light while still letting you deliver strong pedal strokes. Being more vertical helps you use body weight to drive the pedals down.

Think about this on climbs when your front tire looks and sounds like it's half flat. It might be unavoidable on super steep hills, but generally you'll go up with less effort if you find the sweet spot between your wheel

BEST OF

ASK COACH FRED

Got questions, concerns or problems with your cycling performance or understanding of the sport? These 108 answers may solve them for you. But if not, check hundreds more *Ask Coach Fred* Q&A on the PREMIUM SITE.

EQUIPMENT

1. What's Gearing Nomenclature All About?

I got my first road bike eight months ago, and I love it. Your newsletter is really useful in helping me improve. But I don't know what you mean when you write things like this: "Lance uses a 39x23 gear (46 inches)." Can you explain? – Jose C.

COACH FRED: Good question! I remember being confused about gear designations, too, when I was a new rider.

It's pretty simple. For example, 39x17 means the 39-tooth chainring combined with the 17-tooth cassette cog. When you see a designation like this, the chainring is always the first number.

A 39x17 gear equals 62 gear inches (rounded off). Gear inches are derived by dividing the chainring teeth by the cog teeth, then multiplying the result by the wheel diameter. So in this case, 39 divided by 17 equals 2.29, multiplied by 27 inches equals 61.94 gear inches.

Why 27 inches? It's a throwback to when a 27-inch wheel was the common size for road bikes. Nowadays the nearly identical 700C wheel is most common, but 27 is still used for gear ratios. If your bike has 26-inch wheels, divide by 26, and so on.

Gear inches give you a way to compare gearing that comes from different combinations of chainrings and cogs. For example, if you are in 39x15, how does that compare with the 53x21 combination that your friend is using? Even though he's in the big chainring, you are actually in a bigger gear—70 gear inches to 68.

Also, if you calculate the gear inches for all the chainring/cog combinations on your bike, you can spot gaps or overlaps. You may want to remedy these things by changing to different cog or chainring sizes. This was more important back in the days when all we had were 10 or 12 gears. Modern 18- and 27-speed drivetrains make it a lot less necessary.

2. Why Not a Triple Crankset?

I've read that pro racers can put out 500 watts for extended periods. Even though I'm 5-foot-10 and 158 pounds just like Lance Armstrong, I probably generate half that wattage, at best. So, I put a triple crankset on my bike when I went to the Dolomites and was glad I did. Why don't more people use a triple? – Jason C.

COACH FRED: You're right about the tremendous disparity between the power of a top pro and average riders like us.

Lance generates about 450 watts on extended climbs. The average age-group racer is closer to 220 watts. So, if Lance uses a 39x23-tooth gear (46 inches), the average recreational rider should use a triple with a 30x30 or 32 (about 25 inches).

But some misguided wannabes insist on climbing in a 39x23 low gear and will put on a 25 only at the risk of looking like a rookie.

I hope that Lance's insistence on climbing with a high cadence makes riders think about their pedal revolutions instead of only their gearing.

Use whatever gear it takes to keep your pedal rpm at 80 or higher on climbs. For many of us, this means using a triple crankset.

3. Who Needs a Triple?

[Ed. Note: The following feedback comes from Chris Kostman, the youngest rider to finish the Race Across America (at age 20 in 1987) and now the director of the Furnace Creek 508-mile race.]

You've suggested that we need a triple crankset because we're not Lance Armstrong and can't keep his fast cadence while climbing with a double crankset's limited gears. That's a load of hooah! Since when do we need to copy the latest hero and buy hundreds of dollars in new equipment to do so?

We shouldn't be trying to spin so fast uphill. Lance can do it because of his high VO₂ max and anaerobic threshold. Let's not forget the relatively slow climbing cadence of five-time Tour de France winners Hinault and Merckx. Why are they wrong and Lance right?

Also, you've mentioned riding some steep climbs in Colorado while in the saddle. Where was your beloved triple crank? – Chris Kostman

COACH FRED: I don't have a triple crankset on any of my road bikes, only on a cyclocross bike and my winter beater bike that I often ride off-road. On the relatively steady grades of Colorado, I'm comfortable with 53/39-tooth chainrings and a 12-27 cassette. But other riders may climb most efficiently in gears either higher or lower than those.

The key is to use appropriate gears for your strength and fitness levels. If that means a triple crankset, fine. The problem arises when riders insist on using inappropriately high gears because of peer pressure. Or, they stick with what came on their bikes because they don't want to spend money to get the lower gearing they really need.

Pro racers might be efficient in a 39x21 gear on a given climb, but most recreational riders should think twice before trying to tackle a similar gradient in 39x23—or even 39x27.

Look at it this way: Pros can be competitive on any climb if they produce 6-7 watts of power per kilogram of body weight. If they weigh 70 kg (154 pounds), they need to churn out 420-490 watts. Lance reportedly averages in excess of 500 watts on a climb of 35-40 minutes.

The typical recreational racer, in contrast, climbs at 250-300 watts. Lance is putting out almost twice as much power on a hill, but many riders (who often weigh more than Lance) try to use a cog only 2 teeth larger.

It's not a question of trying to maintain Lance's 90-100 rpm cadence on climbs. As you point out, that's unrealistic. But with a triple crankset, riders can keep their cadence above 80 rpm, save their knees—and climb faster than they would while slogging away in the same gear that Lance can spin.

Sure, it's expensive to change cassettes or invest in a triple crankset. But it's cheaper than a knee operation.

4. What Gearing Should I Install for Hills?

I'm a recreational rider living near Madison, WI. My road bike has an 8-speed cassette that ranges from 12 to 21 teeth. I've had some knee pain, so I think I may need to spin a higher cadence on hills. Would you recommend increasing my largest cog to a 25 or 26? Or would it be better to replace the entire cassette so the gears will be "matched" better? – Kevin S.

COACH FRED: I rode through the corner of Wisconsin in 1993 on a transcontinental from Everett, WA, to Yorktown, VA, with Lon Haldeman's PAC Tour. I remember that your state had some great rolling hills.

I recommend a new cassette with a wider and more evenly spaced range of cogs. I use a 12-25 here in Colorado and find it adequate for most of the mountain passes, which are usually fairly steady grades. The altitude, however, makes even a 6-percent grade harder than it would be near sea level.

Gearing is a highly individual thing. Some riders prefer higher cadences, some lower. You need to experiment to find the best climbing approach for you.

Ever since Lance Armstrong began climbing with a high cadence, it seems lots of riders have installed lower gears. The thinking is pretty obvious: It's good to do it if Lance does!

In fact, I heard that Lance might be using a 25-tooth cog for training in the hills. If he needs a 25, I sure as heck do, too—or probably a 27!

5. Do I Really Need a Fixed-Gear Bike?

*I just read the section on fixed-gear riding in **Off-Season Training for Roadies**. I know it would benefit my pedal stroke, but couldn't I accomplish the same results on my regular bike by simply selecting a gear and not shifting for the entire ride? – Peter C.*

COACH FRED: Sorry, Peter, it's not the same thing. The advantage of fixed-gear training is that you *must* keep your legs turning all the time while making a full, round pedal stroke. You can't coast and rest. Your legs are forced to pedal circles. These things don't happen with a freewheel.

You don't necessarily need to buy a fixed-gear bike. You can quite easily and inexpensively convert a bike you already have. Your local shop can help.

A fixed-gear bike is great for errands or commuting if you don't have big hills. The simple drivetrain requires minimal maintenance and is less likely to ice up in snow or slush. You'll feel its benefits when you return to pedaling your multi-speed bike.

6. Should I Ditch My BioPace Chainrings?

I have an '87 Peugeot with old Shimano BioPace chainrings. Low gear is 42x24-tooth. My buddies with triples are killing me on climbs! Should I ditch the BioPace and install 53/39-tooth rings? – Byron M.

COACH FRED: Ditching BioPace chainrings is an excellent idea. That out-of-round design was an experiment that failed. No studies that I'm aware of showed any advantage, a conclusion that has been proved empirically because they're no longer manufactured.

Switching to 53/39-tooth chainrings will give you a lower climbing gear, but you might also look into a wider-range set of cogs. I assume that your '87 bike has a 7-speed freewheel. They're still available. A 12-26-tooth freewheel would give you a 39x26 low gear. That should let you spin with your buddies on most climbs.

7. Is it Better to Inflate Tires to the Max?

I just bought new tires. The manufacturer says they can be inflated to 145 psi, but the mechanic at the shop says to run only about 100 psi. Wouldn't higher inflation mean less rolling resistance and therefore more speed? – Randi G.

COACH FRED: Theoretically, you're right. But you also have to consider ride quality.

I agree with your mechanic. I weigh 160 pounds and run about 105 psi in the rear tire and around 100 psi in the front for most conditions. Of course, there's some heinous pavement here in western Colorado. But unless I'm racing on extremely smooth tarmac, I usually don't exceed 110 psi.

Tires pumped to 145 psi are so hard that they ride harshly and are prone to cuts and punctures from gravel and other debris. They also corner badly on rough pavement, chattering on bumps.

8. Is It Smart to Race on Tires at 150 psi?

*I like to time trial and have been told to pump my tires over 150 psi. Is that good advice?
– Manny F.*

COACH FRED: I time trial quite a bit and never pump tires higher than 120 psi. This includes high-quality clinchers and tubulars. If I were racing on perfectly smooth roads, I might use more pressure.

As a tire gets harder, it becomes more unyielding when it hits the small irregularities found in any road surface. The result is a tire that's skittish, reducing ride quality. Some authorities speculate that this slows you down because the tire is, in effect, bouncing off each bump in the road. At any rate, I like to feel some "give" in my tires.

One other point: A rock-hard tire is more likely to get damaged or punctured by gravel and other things it would absorb and kick away at lower psi. When racing, you can't win if you don't finish.

9. Which Tires are Better, Clinchers or Tubulars?

Do clinchers or tubulars work better for long-distance riding? – Rob J.

COACH FRED: I don't think there's any question that clinchers are the superior tire.

A quarter century ago, clinchers were inferior. If you wanted lightness and quality, you had to ride tubulars. But clincher technology has improved so much that even the pros race on them in the Tour de France.

Clinchers have many advantages over tubulars. They tend to be less expensive, and less time and skill are required to mount them. Tubulars (for all of you newcomers) have the tube stitched into the tire, which is then glued to the rim. This construction technique is why tubulars are also called "sew ups."

The biggest disadvantage of clinchers is that when they blow out, they go flat immediately. The air leaves the tire quickly because it escapes out the compromised bead as soon as the tube fails. If this happens to a front tire on a twisting descent, it's nearly impossible to keep the bike upright.

In tubular blowouts, the air often escapes more slowly because the tube is encased by the tire, creating a second barrier against air loss. You usually have time to brake to a safe stop.

I think the biggest advantage of clinchers is their reliability after you've changed a flat. If you puncture with a tubular, you have to mount your spare on used glue. It won't stick tight enough to stay on the rim during fast or sharp turns. But when you change the tube in a clincher and pump it to full pressure, the tire is as secure as ever.

10. Are Treadless Tires Better for Wet Roads?

I've heard that when riding on wet roads, treadless tires are best. This is completely opposite of car tires. Why? – Ed J.

COACH FRED: The theory is that car tires need grooves because they're wide, causing them to hydroplane on thin sheets of water and lose traction. The grooves channel the water to reduce this risk. Bike tires, on the other hand, are so narrow that they won't readily hydroplane. Therefore, they don't need grooves. At least that's the theory.

In practice, I find that whether tires are slick or patterned makes little difference in their wet-weather cornering. More important is lowering tire pressure about 10 psi to increase the size of the contact patch.

Also, tread material is important. Generally, gummier rubber sticks well in the wet while harder tread that wears better in normal conditions may slip sooner on wet pavement.

The key is riding your tires in wet conditions to learn how they grip. Of course, good wet-road cornering technique is vital, too. Don't make any abrupt motions, heel the bike over gently and take the widest, roundest line you can.

11. How Can Pinch Flats Be Avoided?

I'm a big guy (235 pounds) who gets rear tire pinch flats on rough roads. I ride on 700x23 tires at 115 psi. How can I avoid these flats? – Ted C.

COACH FRED: Most rear tire pinch flats are caused by some combination of three factors: not enough air pressure, tires that are too narrow, or poor riding technique.

It sounds like you're running plenty of pressure.

At 235, I suggest you try wider tires—700x25 or even 28. The wider the tire, the greater the air volume and more protection for the rim. If your fork doesn't have enough clearance for wider tires, run the widest one you can on the rear and use a narrower tire up front.

As for technique, pay attention to the road surface. Scan ahead for things with abrupt edges—mainly potholes or cracks. When you spot these potential tire biters, think "light." Level your pedals and lift your hips off the saddle slightly to reduce weight on the rear wheel. Slow way down for railroad tracks and other obvious places where you might pinch-flat.

12. Aero Wheels or Traditional Wheels?

I weigh 210 pounds (aiming for a svelte 200) and am dreaming of a cross-country ride in the next few years. What wheels should I use, aero style or traditional 32 spokes? – Stan M.

COACH FRED: Call me an old foggy, but I like traditional 32-spoke, three-cross wheels built with sturdy rims, especially for training and long-distance tours like the one you're planning. These wheels are easy to maintain. You can touch true them right on the bike, and it's simple to replace a broken spoke.

Some of the exotic machine-built wheels can't be repaired by a small-town bike shop, much less by the side of the road. And if they have deep V-section rims, they require special valve-stem extenders or tubes with extra-long stems. You won't find these tubes in many small-town shops.

Standard 32-spoke wheels aren't as light and aerodynamic, but this doesn't matter on a tour or for daily training. It's great to have a pair of fancy wheels, but save them for special events such as races or fast centuries.

13. Are Aero Wheels Worth the Expense?

I'm thinking about buying a set of aero wheels to help me achieve my goal of averaging over 16 mph for a century. Are they worth the expense? – Janet K.

COACH FRED: I'm not sure that new wheels will increase your century speed very much. There are too many other factors involved during 100 miles.

Compared to standard 32-hole wheels, aero wheels with 16 or so bladed spokes and V-shape rims might be worth a minute every 25 miles (at your speed). That's only about four minutes for the century, not much of an increase in mph.

Of course, there's nothing wrong with buying a set of special wheels for events. Hot hoops may give you a mental boost greater than the physical one. But training is the real key to riding faster.

14. Which New Bike is Right?

I do weekly spinning classes, commute to work, and get in some 40- or 50-mile road rides on weekends. I'm currently riding a Trek hybrid and want an entry-level road bike. Which would be the best one for me? – Gregory D.

COACH FRED: Buying a new bike is such a personal matter that I hesitate to make recommendations. You may hate a bike I'd love, depending on differences in terrain, cycling goals and riding style.

Find a shop you trust and ask for recommendations after explaining your experience and goals. All the major companies make excellent entry-level road bikes. You'll find attractive prices on models with brake/shift levers and triple chainrings.

Join your local cycling club, a great way to find out what sort of bike is popular for your terrain. Ask the riders and you'll get lots of opinions! Local shops may give discounts to club members.

Remember, the key is bike fit. If the bike doesn't fit you correctly, it will be unsatisfactory no matter what style it is or how much it costs.

15. How Do I Set Up My Mountain Bike Like My Road Bike?

I want to ride a mountain bike for winter training. How can I duplicate my road position? – Don P.

COACH FRED: This question is answered in detail in *Andy Pruitt's Medical Guide for Cyclists*, available from RBR as an eBook or paperback.

One suggestion here: Use the same saddle model on both bikes. If you measure the distance from the tip of the saddle to where you hold the handlebar (or brake levers) as Andy suggests, but do it with different saddles, you may end up with a different reach. Saddles vary in length and shape. You may not sit the same distance from the tip on different models.

16. How Can I Install Fenders Without Eyelets?

I live in rainy Washington State and want to put fenders on my winter training bike. But it doesn't have eyelets on the rear dropouts or fork. Any suggestions? – Randy P.

COACH FRED: Use zip ties to attach the fender struts to the dropouts. Wrap some tape to avoid scratching the paint.

You also can use zip ties to attach the fender to the rear brake bridge and chainstay bridge, dispensing with the metal clips that come standard on most fender sets.

17. On the Roof or in the Trunk?

Should I carry my bike on a roof rack or in the trunk of my car? – Jane W.

COACH FRED: Many cyclists put their precious bikes on the roof, either because there's no room inside or because they like to be recognized as cyclists when they drive.

But bikes lead a hard life when they're hitchhiking at 60 or 70 mph. Bugs splatter the finish and grease can actually get blown out of the headset on a hot day. If it rains, water can be forced into all kinds of wrong places.

Worse, many a driver has forgotten that there's a bike on top. They might roll into their garage or under a low overhang with lamentable results for the bike, the rack and the roof of the car.

For these reasons, I recommend carrying your bike inside. Pull both wheels if necessary to fit it in the trunk. If you have an SUV or hatchback, bikes usually fit with only the front wheel removed. In vans, you can often stand them up between seats. Spread out an old sheet, blanket or piece of painter's plastic or canvas to protect the upholstery.

18. How Should I Apply Chain Lube?

My brand of chain lube comes in either a spray can or a drip bottle. Which way of applying lube is better? – Chris D.

COACH FRED: Both spraying and dripping work fine. But spraying is an advantage if the chain has residue you'd like to loosen and remove.

When you spray, direct a thin mist at the chain where it goes over the cassette cog. Rotate the crank backward as you spray. If you use light pressure with your finger, you'll avoid getting lube all over the wheel or frame. Just in case, put a rag on the rim and tire under the cassette and another around the chainstay.

Once the chain is wet, continue turning the crank for a minute to help the lube work in. Then hold a clean rag around the chain to wipe off the external gunk loosened by the lube. Remember, lube belongs inside the links, not on the outside where grit can stick to it.

If you use a drip bottle, squeeze a drop across each roller, one at a time, as you turn the crank backward. Again, put a rag underneath. Dripping is more time-consuming than spraying, but it's the most economical method. Look at it as an exercise in Zen meditation.

19. Where Should I Carry a Frame Pump?

I mount my frame pump under the top tube but it gets in the way when I pick up my bike. I've seen pumps positioned along the left seatstay. Is that safe? – Bert M.

COACH FRED: Yes, if it's done right. That's how I carry a Blackburn FP-1 pump on my Litespeed Vortex. Ed Pavelka does the same on his Vortex and on his Bridgestone RB2 winter bike. We've never had a problem.

First, make sure your frame pump is the correct length. If the spring provides 2 inches of compression, about 1.5 inches should be taken up when the pump is installed along the seatstay. A loose fit may let the pump dislodge on a sharp bump. You sure don't want it catching in the rear wheel.

On most models, the pump's chuck end will wedge into the junction of the bike's seatstay and seat tube. The handle end will fit into the curve of the rear dropout between the seatstay and chainstay. Be sure there's enough clearance where the pump's shaft passes the rear tire. You might want to secure the pump to the seatstay with a thin hook-and-loop strap.

20. Can Indoor Trainers Harm Headsets?

I read that using an indoor trainer will damage a bike's headset. Should I be concerned? – Joe F.

COACH FRED: Yes, to an extent. Riding your bike on an indoor trainer can cause flat spots that ruin the smooth rotation of headset bearings.

On the road, the handlebar is always moving at least a little, so pressure is distributed. But indoors the bar is stationary. As a result, your weight is concentrated on one spot.

For example, my trainer bike, a Gios from the late 1970s, has its original Campy Record headset. After 10 years on the trainer, the handlebar hardly turns.

I don't think that a few trainer sessions will hurt your bike's headset, but a winter of hard workouts might cause problems. If you intend to ride the trainer a lot, you might want to find an old frame to use for a trainer bike.

Here are two ways to reduce the likelihood of headset damage:

1. Position the front wheel so it points a little off center each time you use the trainer. This can be a little disconcerting while riding, however.
2. Swing the handlebar fully from side to side several times before each trainer session. This changes the position of the bearings.

By the way, riding rollers won't cause a headset problem because you continuously turn the front wheel slightly to help maintain balance.

21. What Should Be in a Seat Bag?

Some of my riding partners carry only a spare tube and tire iron for emergencies while others haul a whole bike workshop. What should I have for rides up to 100 miles in rural areas?

– Javier G.

COACH FRED: It depends on your comfort level and the mechanical condition of your bike. Some riders feel fine with the minimalist approach while others have a nearly neurotic need for preparedness. They ride with a sense of impending doom if they don't have a 40-piece multitool, a cell phone and \$20 in cash.

In conditions that you mention, I think you're safe with the following:

- two tubes
- two tire levers
- patch kit
- material for booting a gashed tire
- multitool with allen keys
- a spoke wrench, small screwdriver and chain tool
- \$5 bill and three quarters
- ID with emergency contact information

22. How Can I Tell When Parts Are Worn Out?

How do you determine when saddles, shoes and tires are worn out? – Beth A.

COACH FRED: Seats are shot when they sag in the middle (when viewed from the side), or when the cover has holes from crashes or rubbing by the thighs.

It's time to replace shoes when the sole cracks, the heel counter breaks down and allows excessive pronation, or when the hook-and-loop straps are too worn to stay snug.

Some riders use a tire until the tan cord begins to show through the black tread. But I don't think it's a good idea to wait that long. When the tread is that far gone, the tire is more susceptible to punctures. Never use a worn tire on the front wheel, where a flat is more likely to cause a crash.

23. How Can I Prevent Stinky Base Layers?

After years of riding only in warm weather, I decided to train all winter. So, I bought some base layers made of synthetic material. After one wearing, they smell terrible! The odor goes

away when I wash them, but after 30 minutes on the bike, it's back with a vengeance. Do I have some terrible uncleanliness that causes this? – Mack P.

COACH FRED: Don't worry, Mack, it's not your personal grooming habits that are to blame. Synthetic fabrics tend to harbor the bacteria that cause odor. Some types get gamey quicker than others, and the effect does seem to vary among riders.

One solution is to buy top-quality synthetic base layers. These usually can withstand washing in hot water, which kills the beasties (and the stench) more effectively than cold-water laundering.

Another solution is to wear wool base layers. Wool processed with modern methods doesn't shrink or itch, and it can even be worn several times before it becomes too rank. Check for wool wear at bike shops and outdoor sports shops.

INJURIES

24. When Should I Cover My Legs?

I run with bare legs when it's in the 30s, but all the experienced riders around here wear tights even when it's much warmer. What's the rule for covering up? – Blaise P.

COACH FRED: A cyclist's knees are directly exposed to cold air. The danger is much more pronounced compared to running because the bike's greater speed generates more wind chill.

The standard advice is to wear tights or leg warmers whenever the temperature is below 65 degrees. Covering up protects your knees and keeps your muscles warm. There's no downside—the cool-air seasons are not the time of year to work on your tan, anyway.

Be especially careful during warm spells after early- or late-season snowfalls. The thermometer may say you don't need to cover your legs, but snow on the roadside creates a microclimate of colder air at knee height.

If in doubt around the mid 60s, roll up a pair of knee warmers and carry them in your jersey pocket. Pull them on if the temperature drops or you encounter a long descent where high speed increases the wind chill.

25. What Climbing Cadence is Best for Knees?

I've heard that it's better for knees if you spin a lower gear on climbs rather than mash a big gear. Why is it harder on the knees to pedal at a slower rpm? What about pedaling slowly when out of the saddle? – Jim M.

COACH FRED: The important element here isn't the total time taken to climb the hill, but rather the load on the knee during any given pedal stroke.

If you ride up the hill in three minutes at 80 rpm, you've divided the total work into 240 pieces. It takes the same amount of work to climb the hill in three minutes in a bigger gear at 60 rpm, but the work has been divided by only 180.

So, there's more work being done on each pedal stroke when you have a lower cadence in a bigger gear. There's more stress on the knee on each pedal revolution. Make sense?

Standing up definitely takes stress off most knee problems cyclists are likely to have. It's a good choice when you're climbing with someone who is slower and uses lower gears. It gives you a chance to stretch your legs and take weight off your rear end.

26. How Can I Cure Ilio-tibial Knee Pain?

When I exceed 25 miles, I get a pain along the outside of my knee. I've made no radical position changes, but I do have longer crankarms (175 mm instead 172.5) on my new bike. The orthopedist diagnosed the problem as ilio-tibial tendinitis and prescribed stretching, but it still hasn't improved. What's your advice? – John L.

COACH FRED: According to Andy Pruitt, Ed.D., of the Boulder Center for Sports Medicine, IT band problems are usually caused by a saddle that's too high. Other factors are bowlegs and incorrect cleat placement.

I suspect that when you installed longer crankarms you didn't compensate by lowering the saddle the same amount. In other words, when you change from 172.5 mm to 175 mm you need to lower your saddle 2.5 mm.

Otherwise, you'll reach too far at the bottom of the stroke. That's where the IT band is most in danger of rubbing across the bony protuberance on the outside of your knee and causing pain.

Continue with the stretching and either go back to your original crankarm length or lower your saddle 2.5 mm. You should soon start feeling better.

By the way, there's a detailed discussion of IT band friction syndrome and numerous other knee ailments in ***Andy Pruitt's Medical Guide for Cyclists***. Andy gives his expert remedies for cycling injuries ranging from head to toe (literally). Available in eBook format in the [Road-BikeRider.com eBookstore](http://Road-BikeRider.com).

27. Why Are Hills Hurting My Knee?

I'm a MTB racer who purchased a new road bike last summer and has trained hard on it, especially on short steep hills. This has made a huge performance difference in my MTB riding, but do you think pushing the bigger gears is why my knee hurts? – Paul Y.

COACH FRED: You need to consider the following variables.

First, fit issues:

- Are you sure your position on the mountain bike and road bike is the same? Besides seat height, you need to check setback. Sometimes a saddle that's too far back on the rails, putting you excessively rearward of the bottom bracket, can cause knee problems.
- Are your cleats set with the same amount of toe-out or toe-in on both sets of shoes and pedals? Even if you use the same shoes on both bikes, the narrower bottom bracket of the road machine's double crankset changes your effective foot angle and can cause knee injury.
- Do the pedals on both bikes allow the same amount of float (foot rotation)?

Second, technique.

I bet you're attacking those hills in a bigger gear than you'd use for a similar grade on your mountain bike. Due to the uneven nature of singletrack, you tend to use a lower gear and spin up so you don't lose momentum when you encounter an obstacle. But on a road bike, you can hunker down in a big gear and crank hard. That's a sure cause of knee problems if you aren't accustomed to it.

28. Where Can I Find a Good Knee Doc?

I'm 43, was in my best shape ever a month ago, then I tore a meniscus in my knee. I want the best medical help I can find. Any suggestions? – Bruce O.

COACH FRED: It's important to find medical providers who understand cycling. You live in Wyoming, so the best person in the U.S. isn't far away: Andy Pruitt, Ed.D., at the Colorado's Boulder Center for Sports Medicine.

Andy and his orthopedic colleagues have fixed the knees of countless cyclists, including Olympians Davis Phinney and Connie Carpenter. And mine, too, as a matter of fact. A few years ago, I hurt it skiing. It had also been banged up in college football many years before. Andy fixed it so that I'm riding pain-free and can even run and hike with no problem.

By the way, he and I teamed to write **Andy Pruitt's Medical Guide for Cyclists**, available as an eBook from RBR. It answers many questions about bike fit and cycling injuries, including how to take care of your knees when you return to riding.

29. Why Do I Have Achilles Pain?

I recently developed a bad case of Achilles tendinitis. The real discomfort occurs hours after a ride while walking and climbing stairs. Bicycling is supposed to be low impact. What's going on? – Harris C.

COACH FRED: Many riders think that because cycling is relatively gentle on legs, they're immune from the injuries we associate with sports like running and basketball. It's true that you aren't likely to rupture your Achilles while riding.

Achilles problems in cyclists aren't due to one explosive wrench that injures the tendon. Instead, they're caused by repetitive movement. If the saddle is a bit low or you push too hard on hills at a low cadence, these position or technique errors add up. Pretty soon you're hurting as badly as if you'd tried to dunk from the foul line.

Check these factors:

1. Is your saddle high enough? Your body may compensate for a low saddle by bending the ankle too much at the top of the pedal stroke, which in turn puts strain on the Achilles.
2. Are you concentrating too much on pulling through at the bottom of the stroke? It's good to work on this skill occasionally, but in normal riding it shouldn't be a conscious act. Overemphasis could conceivably cause Achilles strain.
3. Are you doing a lot of climbing? Short, steep hills can bring on a case of Achilles tendinitis if you overgear and push hard.

Once you're sure that your position is good, try easing off your climbing. I bet that the problem will resolve during the off-season. If it doesn't, see a cycling-knowledgeable physician for an evaluation.

30. How Should I Treat Achilles Tendinitis?

I've had Achilles tendinitis for much of the season. My doctor said that I could ride TRAM (300 miles across Minnesota) but then I would have to stop cycling and deal with the problem. Is it possible to continue riding after TRAM? – Pat D.

COACH FRED: Most likely. Here, courtesy of the RBR eBook, **Andy Pruitt's Medical Guide for Cyclists**, is Andy's expert advice for Achilles tendinitis sufferers.

First, here's what usually causes this injury:

- Faulty foot mechanics such as excessive pronation (inward bending of the ankle)
- A tight Achilles tendon
- Having the foot positioned too far forward on the pedal (pedaling "on your toes"), resulting in excessive use of the calf muscle during the pedal stroke
- A pedal system with excessive float, which makes the Achilles tendon work hard to stabilize the foot on the pedal

Custom cycling orthotics often help by correcting rear foot angulation.

Switching to pedals with less float can bring relief.

To reduce strain on the Achilles, move your feet forward on the pedals by moving the cleats toward the rear of the shoes. Lower the saddle an amount equal to the distance you move the cleats.

If these fixes don't help, tape the ankle. Lessening movement during the pedal stroke reduces stress on the tendon.

To tape, point your toe down about 30 degrees and run a pre-stretched strip of three-inch elastic tape from the ball of the foot to the heel, then up the Achilles to the middle of the calf. Then hold this elastic tape in place with adhesive tape applied like you'd normally tape an ankle for stability.

The idea is to immobilize the ankle so much that you can't dorsiflex it (i.e., bring your toes toward your shin) while you pedal. This reduces strain on the Achilles tendon.

31. Do Floating Pedals Really Reduce Leg Injuries?

Is there any evidence to support the assertion that "floating" pedals—those that allow feet to swivel a few degrees—reduce leg injuries? I can tell you, from my anecdotal experience as a cyclist, coach and spinning instructor, that I have seen far more riders with overuse injuries that resulted from their feet being able to float.

Why? Two reasons:

1. *Bike shop employees think they don't need to spend time on proper fit when they install cleats that float, so riders have the wrong position—not only laterally, but fore-and-aft.*
2. *Float allows tendencies to be pigeon-toed or duck-footed to get transferred to the bike, thus causing the knee to track incorrectly and get injured. – Chris K.*

COACH FRED: The assertion about increased injuries refers to ilio-tibial band friction syndrome. There were fewer cases among cyclists reported in the literature before the advent of

step-in pedals. There were more cases after widespread use of the first generation of non-floating step-ins.

Float by itself isn't the problem. Rather, it's an inappropriate amount of float that can cause injuries for the reasons you mention.

Because of individual factors such as biomechanics, pronation, previous knee injuries and pedaling style, different riders need different amounts of float. No one pedal works for all riders. Some need the great amount of float offered by Speedplay pedals, for example, while others need a pedal that allows no float at all.

You're correct when you say that some bike shops (and some riders) install floating cleats incorrectly. Cleats should be positioned so that when the foot is in a neutral position on the pedal, the foot is also in the middle of its arc of float. This way, the foot naturally finds the middle of the flotation arc during normal seated pedaling, but it can swivel in either direction when needed.

32. How Can I Prevent Hot Foot?

When I ride longer than about 40 miles, the soles of my feet fall asleep. It hurts! I can continue riding only by scrunching my toes until the feeling comes back. The balls of my feet are directly over the pedal axle. Any suggestions? – Bob B.

COACH FRED: Your problem is often called "hot foot" because that's how it feels. It's caused by compression of the nerves between the metatarsal bones in the ball of your foot.

Try moving your cleats to the rear about 5 mm. This lessens direct pressure on the metatarsals. Also, try thinner socks or a thinner insole to give the bones room to spread out and not pressure the nerves.

If these fixes don't work, consider custom orthotics with a metatarsal bump built into the fore-foot. This small dome will spread your metatarsal bones to relieve nerve pressure. Specialized Body Geometry shoes have this bump built into their insoles.

33. Why Does My Foot Go Numb?

I had a back operation but my physician says riding is fine. But after 20 miles, my left foot goes numb. If I get off the bike for a few minutes, the numbness goes away but quickly returns. Strangely, if I'm climbing it doesn't seem to bother me as much. What gives? – Byron M.

COACH FRED: It's unusual that your foot goes numb on the flats rather than on hills when you're putting more pressure on the pedals. Here are three ideas based on my riding and coaching experience.

It may be that your numb foot has nothing to do with your back and is simply a case of "hot foot" from a shoe that's too tight, compressing the nerves between your metatarsal bones. Try a wider shoe, thinner insoles and socks, or an insole with a "metatarsal bump" under the forefoot to spread the bones and relieve pressure on the nerves.

Assuming your shoes fasten with three hook-and-loop straps, adjust them this way: Simply lay down the bottom strap (nearest your toes) without pulling it. Pull the middle strap slightly tight. Snug the top strap as firmly as you like. This technique helps your feet feel secure but adds no pressure to the metatarsals.

Standing on hills may be relieving either the nerve compression in your foot or causing your back to adopt a more comfortable position. Try standing periodically on flat roads to see if that helps.

34. How Can I Cure Cramps on Long Rides?

I love weeklong tours, but I tend to cramp near the end of full days in the saddle, especially if we climb extensively. What can I do to avoid cramps? – Alexander M.

COACH FRED: Sports scientists haven't figured out exactly what causes cramps but they are usually the result of some combination of three factors: dehydration, low sodium and insufficient mileage or training intensity. Try these measures:

- **Drink a lot before the ride.** You've succeeded when your urine is clear and copious. If you're not getting up twice in the night to visit the bathroom, you aren't drinking enough. This is especially important in the dry air at high altitude.
- **Drink a lot during the ride.** Down several big swallows every 15 minutes. Don't limit yourself to water, though. As your body loses salt, drinking excessive water can dilute your sodium levels even more, leading to cramps. In severe cases, you could fall victim to *hyponatremia*, a potentially life-threatening condition. The solution is to consume sports drinks with an extra pinch or two of salt per bottle. None of the usual commercial brands contain enough sodium for cramp-prone riders.
- **Don't overexert.** If you're undertrained for your tour, realize your limits and scale back your effort during the ride. Pace yourself. You'll soon get a feel for how much exertion causes cramping.

If you do begin to cramp during a ride, try these fast fixes (not all will work for everyone):

- **Drink half a bottle** of sports drink with added sodium all at once.
- **Pinch your upper lip** for 20 seconds.
- **Eat several Tums.** Some cramp sufferers say the calcium works like magic.

- **Stay seated.** You might be tempted to stand in order to stretch your legs. But when you're on the verge of cramping, standing is likely to push you over the edge. Remain seated and spin easily.
- **Stop riding.** If you climb off when cramps feel imminent, you could save yourself a much bigger problem—like crashing when your quads or hamstrings seize and you're unable to control the bike.

35. How Can I Prevent Side Stitches?

I'm a new rider and have improved rapidly. I raced a criterium last weekend and it felt like my lung and rib were attached when I reached a high exertion level. This made it very hard to breathe. My friends told me it was a "stitch." Can you shed light on this? – Keith H.

COACH FRED: The cause of side stitches is in doubt, but the most compelling explanation I've heard is that they're caused by cramping of the diaphragm muscles. When you breathe hard for long periods, such as when trying to stay with the pack in a crit, the muscles are overworked and go into spasm, causing the cramp-like pain you feel.

The solution is to include high-intensity efforts in your training. You need to accustom your diaphragm muscles to rapid deep breathing. Usually, stitches are more prevalent in early-season races or, as in your case, during first attempts at racing. Once training and racing conditions your body to the exertion, the stitches should go away.

36. How Should I Treat a Persistent Saddle Sore?

I ride 150 miles a week and have had a saddle sore for months. It recedes but it never goes away. The doctor says antibiotics or surgery are the only solutions. I refuse to take antibiotics. Advice? – Daniel S.

COACH FRED: Persistent saddle sores are super frustrating. If you squeeze the original whitehead, you will drive the infection into surrounding tissue. It gets better, lies dormant, then returns when a long ride or a wrinkle in your chamois irritates it.

In your case, I think the doctor is right—unless you're willing to stay off the bike for several months to let healing occur. I understand your hesitation to use antibiotics, but sometimes they're the only thing that works for persistent infection.

Another solution is to find a saddle that doesn't press on the affected area. Sometimes switching to a different model is enough to change the contact point and allow both riding and healing. Consider a saddle that has a cutout in the top to reduce pressure.

37. Why Do Leg Presses Make Me So Sore?

Last winter I rode about 75-100 miles per week, combined with circuit weight training once a week. The leg presses often made me too sore to ride. I was careful to warm up, stretch and limit knee bend to 90 degrees. Any ideas? – Wayne R.

COACH FRED: I suspect that lifting only once a week might be part of the problem. If you lift two or three times per week, the muscles and tendons become accustomed to the load and the soreness goes away. Lifting only once every seven days means that each time is like starting over again.

Another thought: Try bending your knees a bit less just to see if it helps.

Think about your weight-training program, too. Circuit training has been shown ineffective in building strength and not particularly useful for endurance, either. There's nothing wrong with using it for six weeks in the late fall as a way to condition your body for weight training. After that, I recommend a more traditional combination of sets and reps.

38. Why Should I Shave My Legs?

I'm 15 and serious about cycling. All the hardcore racers around here shave their legs. I'm as dedicated to the sport as anyone, but I can't figure out why they do that. – Walter P.

COACH FRED: Racers and other serious cyclists shave their legs for several good reasons—and at least one wrong one. First, the good reasons:

- Shaving your legs makes it easier to clean road rash and other abrasions from falls. Not having hair makes it easier to bandage these wounds, too.
- Leg massage won't pull your hair.
- Your legs stay cleaner and maybe even a little cooler without hair to collect road grime and sweat.
- Leg warmers stay up better. The gripper band at the top sticks to bare skin but slides down on hairy legs.
- Those nice legs you're building look more muscular.

As for bogus reasons to shave, aerodynamics leads the list. Hair on your legs has a negligible affect on your speed—though bare skin might make you think you're faster.

Most cyclists shave because it's traditional. It shows that you're serious about the sport. However, some fast and skilled riders have hairy legs, so it's a personal decision based on your sense of style as well as the practical reasons just mentioned.

39. How Can Penile Frostbite Be Prevented?

Recently I suffered from a frostbitten penis on a long ride in subfreezing temperatures. I wore heavy tights over cycling shorts. The worst part was explaining what happened to the female emergency room doc. What can I do to prevent this misery from happening again? – Dan S.

COACH FRED: It's quite easy for guys to suffer this problem. The solution is extra layers of wind protection and insulation.

- Wear tights with a windproof nylon front panel. Sew on a panel if your tights don't have one.
- Wear winter underwear with a windproof front panel.
- When you dress, tuck your base layer down around your privates.
- Insert a square of fleece material for extra insulation. You could also stuff in a thin knit hat, an old winter glove or a winter-weight sock. Consider wearing a jock strap to hold this insulation.
- Limit your distance in frigid temperatures. Remember, your pedaling speed always creates a penetrating windchill. You can get a decent ride in 90 minutes, but staying out longer makes it that much harder to prevent your feet, hands and other parts from freezing.

40. How Can Trainer Numbness Be Prevented?

I ride an old trainer with fans. After each session, I get a tingling, numbing sensation in my private parts that lasts a few minutes. Is this inherent to wind trainers? Is there something I can do to prevent it? – Dan D.

COACH FRED: I suspect the problem is your riding style on a trainer rather than the type of trainer.

Most cyclists ride trainers predominantly in the saddle.

Indoors, there aren't many reasons to stand—no small hills to sprint over, no stop signs to accelerate away from, no riding partners to beat. So, it's tempting to sit there for an hour, grinding away. The relentless crotch pressure leads to numbness.

The solution is simple: Stand more. One minute out of every five is an absolute minimum. Set your watch's countdown timer to remind you to get out of the saddle if you tend to forget.

Assuming your riding position is correct, the saddle is set level and it's compatible with your anatomy, standing to relieve pressure should make a big difference.

41. How Can I Keep Bees Out of My Helmet?

How do I stop bees from flying into my helmet vents and stinging my head? – Rod N.

COACH FRED: You're right—the airflow through a helmet's large vents seems to suck in bees and other insects. There was once a helmet company that put mesh across each vent to keep out unwanted objects. It seemed like a good idea, but I haven't seen that model in several years.

So, the best solution is to wear a "do rag," a head covering under your helmet. This is like a bandana that ties behind. You can find them in catalogs and bike shops. Any bee that gets inside your helmet won't be able to get at your scalp. It also helps hair-challenged riders avoid sunburned pates!

One other sting-avoidance tip: Keep your jersey zipper up when bees are around. If one flies inside you'll get stung badly before you can get it out.

42. Men, Do You Get Prostate Exams?

Could you please urge men to get regular prostate exams? I'm recovering from prostate surgery. It's one of the most common cancers in men, and if you wait until you have symptoms, you've missed your best opportunity to cure it. Guys should begin PSA blood tests and digital rectal exams in their 40s and certainly by their 50s. There's also evidence that improved diets could prevent the whole affair. – Owen M.

COACH FRED: I agree that this is crucial for men as they age. The most prominent example in cycling is Damon Phinney, father of Davis, the winningest road racer in U.S. history. Damon recently died after a long battle with prostate cancer.

Good luck in your recovery, Owen. I hope you can get back on the bike soon!

NUTRITION

43. Water or Sports Drink?

I like long rides but get tired of nothing but sweet sports drinks. Still, I realize I need the carbohydrate these drinks contain. Is it okay to drink water on long rides? – Ruth M.

COACH FRED: You're right about the need for the carbo in sports drinks. You'd bonk and cramp without these potent energy enhancers.

But there's nothing wrong with water. Simply drink your usual amount of sports drink and chase it with a swallow of water. That will be enough to rinse your mouth but not so much that the water dilutes the sports drink and reduces its effectiveness.

44. Which Sports Drink is Best?

Which sports drink do you recommend for cycling? – Todd S.

COACH FRED: Marketing people will blanch at this answer, but I think that most sports drinks work about the same. With few exceptions, they have similar amounts of carbohydrate supplying similar amounts of energy.

So, the "best drink" is the one you like to drink. Some riders insist on using products that taste bad to them simply because of the marketing hype. As a result, they don't drink enough on rides.

No matter how scientifically formulated a drink may be, it won't do you any good if you can't choke it down. My advice is to find the brands that taste good to you—and buy the one that's on sale!

If you tour or do long, unsupported day rides, get accustomed to commonly available products such as Gatorade and PowerAde. When you're buying drinks in rural convenience stores, you'll probably find only one or two choices. Your system needs to run efficiently on them.

Or, you may be able to buy your favorite drink in powder form. Take it with you in film canisters (one per bottle) or baggies. Then all you need is a source of drinking water.

45. Do Sports Drinks Really Work?

Have there been any independent studies proving that sports drinks increase performance compared to water? – Jeff E.

COACH FRED: There's a solid body of research showing that for rides up to about 90 minutes, plain water works fine. For longer rides, it's important to replenish glycogen from the carbohydrate in sports drinks. This seems to jibe with the personal experience of most riders. Two exceptions:

- If the ride is slow (touring pace), you can wash down carbo-rich solid food such as fig bars or energy bars with water and forgo sports drinks.
- If the ride is very fast (interval training, for instance), studies show that sports drinks help even if the ride lasts only one hour.

46. Why Won't Fluids Digest?

I just went on a hot five-hour ride and suffered in the heat. Even though I drank lots of water and sports drink, I felt crampy, had goose bumps and couldn't complete the last climb. I felt so full from the fluids that I could only eat one banana on the whole ride. But my friends didn't seem to suffer like I did. What did I do wrong? – Jerry P.

COACH FRED: Some people handle heat better than others. That's one reason your riding companions weren't affected. Here are other ideas:

- Although you didn't mention how old you were, age is a factor. As we get older, we don't dissipate heat as efficiently as we did when we were young bucks. We need to pay more attention to proper hydration. Also, as we age we don't sense thirst as well. We need to drink more even if we don't feel like it.
- You may not have been adequately hydrated before the ride. Put a bottle of water on your desk at work and nip at it all day. You should be urinating every couple of hours all day, and your urine should be nearly clear.
- Sports drinks don't have enough sodium content to help you avoid cramps if you perspire heavily. The Gatorade Sports Science Institute suggests adding a pinch of salt to each bottle of Gatorade. I did this on my Team Race Across America world record ride in 1996 and it really helped. Even though I have a tendency to cramp, I didn't have any problems during my 65 half-hour shifts at all-out time trial pace.
- When you alternate sports drinks and water, you're effectively diluting the sports drink concentration in your stomach, making it less than optimum for rehydration and electrolyte replacement. This doesn't mean that you shouldn't drink water, but make sure you get enough sports drink, too.
- It sounds like you drank a lot at one time, so your stomach was full and you couldn't eat. The trick is to drink a couple of big swallows every 10 minutes. Start at the very beginning of the ride, and keep it up throughout the ride. Your stomach has a limited emptying time. If you overload it, the fluid will just sit there instead of being absorbed by the tissues where it can do some good.

47. How Should I Drink in the Heat?

My girlfriend and I had problems with fluid intake at the Hotter'n Hell Hundred in Wichita Falls, TX. We drank lots of water and some sports drink but still hit the wall. The worst problem—we hate the taste of those drinks. What should we do? – Bernie J.

COACH FRED: I've ridden the Hotter'n Hell twice and I agree—fluid intake is crucial in that event.

Because the ride is so hot, the reason some people have trouble finishing, or even get into medical trouble, is a condition called *hyponatremia*, or severe sodium depletion. This can

make you extremely uncomfortable, severely limit performance, and in some cases it's life-threatening.

The solution is to drink enough sports drink that contains sufficient sodium. Downing lots of water along with the drink isn't a good idea. It dilutes the sodium concentration.

Before your next long, hot ride, find a sports drink that tastes good to you. There are many to choose from. If you don't like the flavor, you won't drink enough.

Here's a trick: Add a pinch of salt to each bottle you consume. Most commercial sports drinks don't have enough sodium for taste reasons, so you need to add some.

48. How Much Should I Drink on Winter Rides?

In summer, I needed to drink at least four bottles to ride my favorite hilly 65-mile loop. Now that it's 40 degrees cooler, I do the whole ride with one bottle. Is that OK? – Sam S.

COACH FRED: Probably not. You sweat nearly as much in the winter as when it's hot and humid. But the sweat doesn't show because of all your clothes, or it evaporates in the cold, dry air.

So, you don't notice how much fluid you're losing on winter rides. That's a problem because performance deteriorates markedly when you've lost as little as 2 percent of your body weight as sweat.

Start that long ride with two bottles. Drink them in the first two hours, then reload during a quick stop at a convenience store. I bet your performance (and enjoyment) improves.

49. How Should I Eat Before Long Rides?

I ride long on weekends and want to fuel up correctly. Weekday training is fine because I'm limited to 90-minute rides. How much should I eat and drink before a ride of 50-75 miles, and how much time should I allow between eating and starting the ride? – Jerry K.

COACH FRED: The key is to learn what pre-ride meal works for you and then eat it about two hours before every long ride.

Most nutritionists suggest eating some protein and fat along with the traditional carbohydrate. I like a bowl of cereal with skim milk, a banana, juice and a bagel with cream cheese along with a cup of coffee. Something similar works well for many riders I know. It also works before races and competitive centuries when the pace will be fast from the start.

Longer, slower rides require more food. At the PAC Tour Training Camps, held in the high desert of Arizona each March, we average around 90 miles per day. Riders hit the breakfast buffet hard: scrambled eggs, oatmeal, pancakes, ham, potatoes, fruit, muffins and sweet

rolls. All this food means we can't start fast an hour later, but that's not a problem when touring or riding for fun and speed isn't an issue.

Notice the protein and fat in the meal, courtesy of the ham, eggs and muffins. Carbohydrate is essential to endurance performance, but protein and fat seem to "stick to the ribs" and make the meal last longer into the ride.

Remember that even with a fairly hefty pre-ride meal under your jersey, you need to begin eating and drinking on the bike no later than the end of the first hour. At a burn rate of approximately 40 calories per mile, it's amazing how quickly that cereal (or ham and eggs) gets converted to energy. If you don't eat, you'll be empty in the last third of a four-hour ride.

50. Can a Low-Carb Diet Work for Cycling?

I'm fairly fit and ride about 120 miles a week. Year before last, I lost 45 pounds on a high-protein diet. I ate carbohydrate at only one meal a day. This was the first time I'd been able to lose weight consistently. But I can't sustain a long, strong ride with this diet. I run out of gas between 50 and 70 miles. I also crave carbs and eventually the weight loss stops, then I begin to gain weight. What's happening? – Edward M.

COACH FRED: My RBR eBook, *Off-Season Training for Roadies*, addresses this issue. Here are some things to think about:

High protein diets help you lose weight, but the weight is mostly water and muscle tissue. That's why people who try these diets usually gain back the weight, and more. They've lost some of their muscle tissue, and that's what burns calories.

As you noticed, you need carbohydrate to ride long with intensity. Eating even sugary energy bars and drinks on long rides won't cause you to gain weight. In fact, it will help you lose fat because, as physiologists say, "Fat burns in a flame of glycogen." Sufficient glycogen stores in your muscles come only from eating plenty of carbs.

The trick is to eat enough to fuel your rides without eating so much that you gain weight. It's simple math: Eat more calories than you burn—no matter if they're carbs, fat or protein—and you'll gain weight.

Finally, it's important to accept your own limitations. Some people settle naturally at low percentages of body fat while others have a much higher "set point." They carry more fat at the same levels of exercise and caloric intake. That's why some people are defensive tackles and others are marathon runners or Pantani-like climbers.

51. What If I Don't Like Energy Bars?

I don't care for commercial energy bars. What else can I use for fuel on long rides? – John W.

COACH FRED: If you don't like the taste or texture of bars, you won't eat them. And if you don't eat on a long ride, you'll begin feeling the lack of energy after a couple of hours.

For decades before the mid 1980s, cyclists didn't have energy bars and they still rode long distances. What you need is food that's moist, tasty and easy to chew and swallow. If it can be broken into bite-sized pieces and not turn to crumbs during the ride, so much the better.

Here are just some of many possibilities:

- bananas
- pieces of apple or orange in a plastic bag
- raisins, figs, dates
- fruit bars
- cream-cheese-and-jelly sandwiches with the crust cut off, wrapped in aluminum foil
- soft cookies such as Fig Newtons
- candy bars that taste better to you than energy bars

52. What's the Best Method for Recovery?

Here's a quiz for you, Coach Fred:

I'm on a long, long bike race and we have finally reached Mississippi. But I'm having trouble with recovery and I don't want to let my teammates down. None of the usual remedies (Coke, energy bars, carbo gel) is working. I should:

- A. Take lots of antioxidants
- B. Get an IV for rehydration
- C. Get another massage
- D. Eat some greasy chicken and fries

COACH FRED: I've been there! I'd go for D every time. Turkey sandwiches and potato chips work well, too.

In very long rides like the Race Across America, multiday tours, brevets or double centuries, plain carbohydrate doesn't seem to be as effective as a combination of carbo, fat and protein. And salt, as from potato chips, satisfies a certain craving and helps prevent cramps.

53. Is Creatine Good for Recovery?

I've read that eating the right mix of carbs, protein and fat within 20 minutes after a long ride takes advantage of the "glycogen window." This helps replenish muscle fuel for tomorrow's training. Now, several supplement companies contend that a creatine-and-water solution consumed during this window is best. Which is it? – Blaine B.

COACH FRED: Most mainstream sports nutritionists would argue that you need plentiful carbohydrate during the "glycogen window" period. The window is open from right after a ride to about two hours later.

A bagel and a banana work as well as pricey recovery drinks to replenish glycogen (muscle fuel), although drinks are more convenient and quicker to get into your system. Some recent research indicates that protein should be added to the carbohydrate in a ratio of 4 parts carbo to 1 part protein. Studies continue in this area.

Creatine is a colorless crystalline substance that can be isolated from various animal organs and body fluids. As a supplement, it had a brief period of popularity among cyclists but has cooled off. It promotes weight gain in the form of stored water, and most studies show that it improves performance only for short, intense, repeated efforts such as a series of sprints. It has not been shown to have benefits for endurance athletes.

There are concerns about creatine's long-term health effects. The substance has been used by athletes for only a short time, so what it does to the body after several years isn't known.

RIDING POSITION

54. Can I Believe a Bike-Fit System?

I have a very long torso and arms but short legs. Most stock road bikes don't even come close to fitting me. The Fit Kit says I need a frame with a 49.5-cm seat tube, 56.5-cm top tube and a 73.5-degree seat tube angle. It recommends a custom frame. What do you think?
– Jack P.

COACH FRED: The Fit Kit's recommendations are based on many measurements of top riders 20-25 years ago. It reflects the way riders looked on their bikes in that era. Something similar is true of most generic fitting systems.

There's nothing wrong with the Fit Kit's advice. It's a tried-and-true system. However, for a person like you with unusual body dimensions, any "stock" system can be misleading. Due to the way the data was collected, they do a better job for people in the middle of the bell-shaped curve than those at the edges.

I recommend a second opinion from a different bike shop, a USA Cycling-certified coach or someone else whose knowledge you respect. The frame dimensions you list certainly aren't available in a stock bike.

Don't forget that if you need more reach to the handlebar to accommodate your long upper body, not all of it has to come from the top tube. You can get a stem with a long extension as well as a handlebar that puts the brake levers farther forward. Old "deep drop" bars have significantly more extension than some new ergonomic designs.

55. Can a Long Reach Cause Numb Hands?

My hands get sore and numb during rides. I notice it more on my road bike than on my mountain bike. I have a short torso but I like the “pro” look—low handlebar with a long stem. Is there a formula that uses a person’s torso length to figure the correct reach to the bar?
– Frank P.

COACH FRED: Probably the best “formula” is your comfort. I suspect that your hands hurt because your handlebar is too low and the reach is too great, although I can’t be sure without seeing you on your bike. A low handlebar tilts your weight forward, putting too much of it on your hands and arms.

It’s always tempting to make your bike look like the one your favorite pro rides. Don’t do it! His body may not be at all like yours. If he has a long torso and arms while your upper body is short, you’re asking for trouble. As bike-fit guru Andy Pruitt says, “Make your bike look like you, not like your hero.”

Many roadies have adopted a slightly more upright position for greater comfort. With a higher handlebar, more weight is borne by your rear end rather than your hands. Try this and I’ll bet you feel an improvement.

56. How Can I Shorten My Reach to the Handlebar?

I bought a new bike but the reach to the handlebar was too great. Although the shop put on a shorter stem, I’m still a little stretched out and can’t use the drops because they’re too low. I don’t want to use an even shorter stem for aesthetic reasons. Any suggestions? – Baldwin C.

COACH FRED: Check the dimensions of your handlebar. They should be listed in the manufacturer’s specs. It sounds like your bike may have a “deep drop” bar. Switching to a “shallow drop” model will raise the drops as well as reduce your reach to the brake levers.

57. How is Position Determined With a Threadless Headset?

I just ordered a new bike. It has a threadless headset and I’m not sure how to set up my position. What should I tell the mechanic when he builds the bike? – Peter S.

COACH FRED: I was confused by threadless headsets, too. I’m still not sure they’re better than old-fashioned threaded headsets and quill stems, although I’d rather carry a 5-mm allen key for adjustments rather than two giant wrenches!

The downside is that once you’ve cut the fork’s steerer tube for a threadless headset, you can’t adjust handlebar height without changing the stem—or worse, getting a new fork.

Don't let the mechanic cut your steerer tube until you've set the stem and bar just as you like them. With a new bike, put the fork in the frame with the wheels installed and the saddle adjusted to your precise position. Then try a variety of different spacers on the steerer tube with a couple of different stems until you have your correct saddle/handlebar height differential and reach to the bar.

You can take these measurements from your present bike, assuming it's properly set up. Then have the shop cut the steerer tube several mm too long, just in case. It can always be cut shorter after I've ridden the bike for a few weeks. But it can't be lengthened.

Most bikes come with a 90-degree stem that provides a slight bit of rise once installed. You can also get a stem that angles down so it becomes parallel to the ground after installation. Or you can get one with a steeper upward angle for more bar height.

58. What Length Crankarms Should I Use?

I'm 5-foot-6 and use 170-mm crankarms. Is this the best length for me? Is there a formula or chart? – Jim M.

COACH FRED: Crankarms are commonly available in 2.5-mm increments from 165 mm to 180-mm. This small difference, about 1/8 inch, has been the topic of much debate for decades.

Most midsize road bikes come with 170-mm crankarms. It's widely held that when shorter arms are installed, they help a rider spin faster. Longer arms slow cadence but provide more leverage for turning big gears and climbing.

Numerous studies have examined the relationship between crankarm length and power production and pedaling efficiency. Unfortunately, the results vary enormously—so much that it's hard to make a recommendation.

One theory argues that muscle fiber type is the important factor (rather than leg length). If you believe this, road sprinters who have predominantly fast-twitch fibers should use shorter crankarms so they can spin faster to improve acceleration and top-end speed.

In your case, I see no reason to change crankarm length. Someone of your height will do fine on 170s.

For what it's worth, here's one popular rule-of-thumb formula: If your inseam is less than 29 inches, use 165-mm or 167.5-mm crankarms; 29-32 inches, 170 mm; 33-34 inches, 172.5; and more than 34 inches, 175 mm up to 180 mm (easy to afford with your NBA bonus).

A crankarm's length is usually stamped on the back. It's measured from the center of the bolt that attaches the arm to the crank axle, to the center of the pedal-mounting hole.

The deciding factor might be your tendency toward knee injuries. Longer crankarms increase the reach to the pedal at the bottom of the stroke and increase knee bend at the top. Both can lead to various knee maladies.

59. Does Toes-Down Pedaling Hurt Bike Control?

My friend is very strong, but squirrely. He just can't hold a good line. He pedals with his toes down, and I believe this may be contributing to his problem. Do you agree? – Bob W.

COACH FRED: I can't think of any physical reason why pedaling on his toes would make him an unstable bike handler.

Some riders naturally pedal with flat feet, others drop their heel slightly at the bottom of the stroke, and some pedal with their toes pointed down all the way around the pedal circle.

One notorious toes-down pedaler was five-time Tour de France winner Jacques Anquetil. No one ever accused him of being a squirrely bike handler!

I suspect your friend's problem is simply poor riding technique, probably due to a tense upper body. You might consider taking him to a grassy field and practicing riding side by side slowly, bumping shoulders and leaning on each other to teach him to relax his arms.

You describe him as strong, so perhaps he lumbers in a big gear that wobbles the bike as he pushes hard on each stroke. If so, have him gear down, spin faster, and concentrate on making circles with his feet.

Two other tips: Be sure he is looking ahead in the paceline rather than at the back of the rider in front. He should keep the pedals turning instead of coasting and pedaling, coasting and pedaling—even if this requires brief periods of soft pedaling when no force is being applied.

60. What Should I Do About Toe/Wheel Overlap?

I put fenders on my road bike for winter training, but now my toe hits the front fender when I turn the wheel while riding slowly. Is this a problem? – Max D.

COACH FRED: Some bikes have front-wheel overlap even without fenders. It isn't a problem at normal riding speeds because you don't turn the wheel sharply enough to contact the toe of your shoe.

However, turning sharply at slow speed can cause you to kick the wheel or fender. The result can be an embarrassing topple. Picture Artie Johnson on that trike in the old TV show, "Laugh In."

To avoid a red face, remember the overlap. When turning sharply, ratchet your crank or stop your feet in a position that prevents wheel contact. Be especially cautious when doing a trackstand or slow roll at stoplights. That's a prime time for messing up.

61. What's the Best Position Against Headwinds?

On my commute home, I ride through a flat river valley and almost always encounter a nasty headwind. I used to stay in the drops as much as possible but have seen other guys riding on the tops. I tried it and it's more comfortable. Are there any advantages to this? – John W.

COACH FRED: Headwinds are always hard, much more difficult than climbing. You know where the top of a hill is and how to apportion your energy. But a headwind can go on all day. For this reason, a gale in your face is one of the most psychologically difficult challenges in cycling.

You're right that position on the bike is crucial to handling headwinds. Like in a time trial, your goal is a position that provides high power output coupled with good aerodynamics. These two requirements aren't often mutually inclusive. Getting low enough for good aerodynamics means that you can't push on the pedals quite as effectively. That's why most climbers do better with sitting somewhat upright with their hands on the bar tops.

When you held the tops into the headwind, your power output increased enough to counteract the poorer aerodynamics of an upright position. As long as you're not interested in absolute top speed (as in a time trial) you can continue to sit up, hold onto the brake lever hoods, and enjoy the comfort.

TECHNIQUE

62. How Can I Cope With Getting Older?

I'm 56 and can't seem to go as fast as when I was younger. And my recovery is terrible. A hard ride makes me tired for several days. I want to do long-distance cycling events, but getting older is ruining my motivation. Any suggestions? – Carl B.

COACH FRED: I just turned 56, too, so I have more experience with aging and the cyclist than I want.

Most authorities maintain, and I agree from my experience, that slowed recovery time is the biggest problem as we age. It was relatively easy to go hard three or four days a week when we were in our 20s. It's impossible in our 50s and beyond.

I'm down to one or two hard rides a week when I'm training seriously. More than that puts me over the edge. Even on a day-after-day tour or at a camp, where I do 90-100 miles a day for a week, I'm careful not to push too hard every day.

Weight training can help. It's important because we lose muscle mass as we age. Lifting two or three times per week during the off-season and twice a week when we're riding a lot is crucial. It maintains the muscle that propels us down the road. It thwarts injury, too.

Stretch to maintain flexibility. And remember, hydration and sound nutrition are even more important for the masters athlete than for younger people.

As for endurance riding in general, I recommend the Pavelka/Burke paperback, ***The Complete Book of Long-Distance Cycling***. It has info about all of these points and many more.

63. How Can I Survive Scary, Twisty Descents?

I can handle long climbs but descents with corners scare me – and I'm not afraid to admit it. Any tips? – Joe P.

COACH FRED: You're not alone. It can be frightening at 50 mph while balanced on two wheels with only a thin strip of rubber and some compressed air between you and a harsh landing. It's worse when the road looks like a snake. But safe, sane (and fun) descending is only a matter of learning these four points:

1. **Know your limits.** Never go faster than your current comfort level allows. Keep a little in reserve. Ignore faster riders zooming by.
2. **Anticipate turns.** It isn't the first turn that gets you, it's the second or third. The reason? Most riders know to enter a turn wide, cut across the apex, and exit wide to make it as shallow as possible. But they fail to set up for the turn that follows. Plan your line at least one turn ahead of the one you're approaching.
3. **Use correct technique.** Relax your upper body. Put the outside pedal down (the right pedal in a turn to the left) and stand on it with all your weight. Your butt should still be touching the saddle, but just barely.

Some riders prefer to point their inside knee into the turn, while others push it into the top tube to remain more upright while the bike heels over. Experiment to see which technique feels better to you. Slide your hips to the rear of the saddle and get low along the top tube. Lean the bike into the corner by pulling slightly with the outside hand.

4. **Practice!** You don't need a steep, curvy descent to do it. Find any gradient free of traffic and set up four or five big paper cups like a slalom course. Ride through the cups going downhill to work on the above techniques. Once a week will do wonders for your skills—and your confidence.

64. How Should I Warm Up for Group Rides?

I ride mostly alone due to my hectic schedule. When I join a group, they start too fast. I expend so much energy trying to keep up in the first few miles that the rest of the ride is a struggle. Also, I seem to be a "tweener"—too fast for slow groups, but too slow for fast ones. How can I remedy these problems? – Jeffrey S.

COACH FRED: I know what you mean about group rides that start too fast. There ought to be a law that mandates easy spinning for 15-20 minutes at the start of every ride. But often someone charges out of the parking lot in the big ring, and things deteriorate from there.

Short of imposing an "easy start" rule on your friends, the best solution is to start riding 15 minutes early so you can warm up before meeting the hammers.

Spin easily for five minutes, then gradually increase your cadence and gearing every minute until you're making a "brisk" effort and starting to sweat. Back off for a minute, then do two short sprints at 90 percent effort with a minute or two of spinning between each.

Now you'll roll up to the group with your blood flowing and your muscles warmed up. You'll have a much better chance of sticking with the fast starters.

As for finding a compatible group, lots of riders seem to share your problem. It makes me wonder why so many "tweeners" don't gravitate to their own group!

I think that if you solve the warm-up issue, the fast group won't be too fast for you. Or, you might suggest that it split in two, with a mid-level pack leaving a few minutes after the folks with fire in their eyes.

65. How Can I Judge Riding Intensity?

I'm confused about how to judge riding intensity if I don't use a heart monitor. – Allen B.

COACH FRED: With a little practice, it's possible to gauge workout intensity with RPE (rating of perceived exertion).

Traditional RPE techniques, such as the Borg scale, use ratings from 6 to 20. I prefer a simpler method using a scale of 1 to 10. A rating of 1 is no activity at all (you're slouched on the couch) while 10 is flat-out, as hard as you can go.

Using this scale, 5 is moderate activity such as walking fast or spinning along a flat road. A rating of 6 is experienced as "brisk effort." At 7, you begin to breathe steadily and rhythmically. Conversation is more difficult. At 8, your breathing intensifies. When you're gasping, you've reached 9. Fit riders time trial between 8 and 9.

Once you've got the feel for RPE, you can use these numbers to plan workout intensities and describe them in your training diary. You won't need heart rate for defining effort.

66. How Do I Determine My Lactate Threshold?

I'm 43 and have a max heart rate of 174 beats per minute. Can you tell me at what heart rate I would be exceeding my lactate threshold? In a century, I ride at about 135 to 140 bpm but go harder on hills and tend to blow up near the finish. – Fred K.

COACH FRED: The general rule is that a fit rider's lactate threshold (LT) is about 90 percent of max heart rate. That would put your LT at around 157. The best way to find out is to do an all-out time trial that takes at least 30 minutes to complete. Your average heart rate for the time trial will be close to your true, laboratory-determined LT.

LT is important because if you exceed it, you quickly deplete muscle fuel (glycogen) and experience rapid lactate buildup.

Given your max heart rate of 174, your century cruising heart rate of 135-140 bpm is about 80 percent. That may be a bit too high for the initial part of a long ride. I say this because of "cardiac drift," which is the tendency of your heart rate to rise over the course of several hours of steady effort, even though you aren't working any harder. Cardiac drift results from factors such as dehydration and fatigue.

You mentioned that you hit the hills hard. The key to a successful century or any other long recreational ride is not to go over your LT when you climb. It's better to keep a steady pace on the hills and continue it on the descents and flats. Even one effort above LT will waste glycogen. You may not fully recover for the rest of the ride.

67. How Can I Find My Max Heart Rate?

How can I accurately determine my maximum heart rate on the bike? – Jerzy L.

COACH FRED: First, get a physician's approval so you're sure you can go to max without health risks. Then do the following test on a trainer so you don't have to worry about traffic.

- Warm up thoroughly.
- Start riding in an easy gear.
- Maintain a 90 cadence.
- Progressively increase the gear every 2-3 minutes until you're working as hard as possible but can't hold 90 rpm any longer.
- Get off the saddle and sprint, sprint, sprint!

The highest heart rate you record at the end of this maximum effort will be very close to your absolute max.

68. How Should I Adjust to High Altitude?

I plan to do a tour in New Mexico beginning at about 5,000 feet above sea level. One day includes a climb of 5,000 vertical feet (to 8,300 feet) in just over eight miles. I live at 300 feet in Illinois. Is there a way to prepare for the altitude? – Richard M.

COACH FRED: I don't think you'll have a problem going from the Midwest to 5,000 feet for the majority of your tour. The day you ride to 8,300 feet may be a little tougher, but primarily because of the long climb rather than the altitude itself.

This is based on what people from sea level tell me when they come out to Colorado (where I live) to ride. They have a problem if they go to places like Crested Butte where the rides start at 9,000 feet and go up from there. But one excursion to 8,000 feet shouldn't be a problem.

Here are two keys to enjoying the tour:

1. Make sure you do enough training miles to be comfortable with the distance of each day's ride.
2. Stay hydrated! The dry air of New Mexico can suck the moisture out of you. Drink copiously while you ride and carry a bottle with you the rest of the day. Keep drinking. Many of the symptoms that people blame on altitude are really caused by dehydration.

69. How Can a Big Guy Climb Better?

I'm a 5-foot-11, 200-pound recreational cyclist. I can hold my own on the flats but I suffer on steep or extended climbs. I know I'll never be the size of great climbers, but what can I do to improve? – John M.

COACH FRED: Climbing is essentially a matter of your power-to-weight ratio. Generally, if your weight in pounds is greater than twice your height in inches, it's hard to be a top climber. At 71 inches tall, this means your weight would need to be about 140-150 pounds.

Obviously, that's impossible for a muscular guy with a large frame. So, improvement depends on reducing body fat, working on technique, and increasing power output. All of these fixes are linked. For example, you need to consider what reducing calorie consumption will do to your energy for training.

I sympathize with your struggles. Once 205 pounds and now 162, I'm still 20 pounds too heavy to climb really well. I dieted like crazy one season, got down to 150 and won my category in the Mount Evans Hillclimb here in Colorado. Then I was so tired and weak from not eating enough that the rest of the season was a write-off. I looked like a skinned rabbit.

My RBR eBook, ***Off-Season Training for Roadies***, has one chapter on diet and others on strength and power. You'll find sound ideas and specific programs that'll pay off in better climbing.

70. How Can I Improve Seated Power?

As my mileage increased this spring, I noticed I felt stronger when out of the saddle but was not improving while seated. Are there specific things I should work on to improve power in the saddle? – Jan P.

COACH FRED: There are two classic ways to improve seated power:

1. Do intervals up short hills while seated. Find a hill that's moderately steep and takes about 30 seconds to climb. Use a fairly large gear and hit it hard at the bottom. Don't let your cadence slow too markedly by the top. Your gear should enable you to maintain at least 90 rpm for the whole climb.
2. Do longer (10-15 minute) time trial-like intervals seated at a heart rate of about 85 percent of your maximum, again at a cadence of about 90 rpm.

You could also undertake a winter weight training program that focuses on squats and leg presses, but that's a long-range solution suitable for serious competitors. There are detailed programs in my RBR eBooks, **Basic Training for Roadies** and **Off-Season Training for Roadies**.

71. How Can I Recover Faster?

Ten years ago, I recovered quickly after a hard ride or race. Now, nearing age 40, I find that after a hard Tuesday training ride my legs still feel achy on Thursday and Friday. Is this just old age? What can I do after a hard ride to recover faster? – Douglas A.

COACH FRED: I hate to tell you, Doug, but slower recovery is an unavoidable part of the aging process.

As we age, muscle repair takes longer. As a result, an effort that we easily recovered from overnight when we were in our 20s takes longer and longer. I'm in my 50s and I notice this more each year.

It's possible to train correctly and postpone slowed recovery for a short time, such as during a tour or cross-state ride. But eventually you have to pay the piper.

For example, each March, Ed Pavelka and I coach at the PAC Tour Training Camps in Arizona. We do 60 to 125 miles per day for a week.

If I train with some consecutive longer rides on weekends leading up to the camp, I feel pretty good during the high-mileage week. But when I get home it catches up to me. I need a couple of weeks of easier riding and rest to come back.

In addition to sensible training, here are several other ways to recover faster as you age:

- **Get quality rest.** Sleep more than when you were younger. Don't stand when you can sit, and don't sit when you can lie down. Do only one or two intense workouts each week. Take at least one and probably two rest days each week. Periodize your training so you work hard for two or three weeks, then do a week of easier training. Build at least a month of reduced training into your yearly schedule.
- **Stay hydrated.** As we age, we lose our ability to recognize thirst. Keep a bottle of water on your desk at work and nip at it frequently. Carry plenty of water or sports drinks on each ride. Hydrate fully after each ride.
- **Eat enough.** Many cases of slowed recovery are due to under-nutrition. Eat sufficient carbohydrate to fuel your training. Allow enough extra for muscle replenishment.
- **Lift weights.** We lose muscle volume as we age. It then takes more effort to produce a given amount of power—and the increased effort requires more recovery time. Resistance training helps you maintain muscle volume.

72. How Can I Overcome Indoor Trainer Boredom?

*I'm stuck on the indoor trainer four days a week, and the boredom is killing me. As you suggest in **Off-Season Training for Roadies**, I limit workouts to an hour and vary what I'm doing every couple of minutes. But I'm still going mad! Any suggestions? – Pat C.*

COACH FRED: If you're limiting your trainer time to 60 minutes, varying the workout, using a fan for cooling, and watching TV or race videos while riding—but still having trouble—try this:

Use the trainer as one station in a circuit. Warm up with 15 minutes of pedaling. Then get off and do one set of 15-25 reps of three exercises such as step-ups, crunches and pushups.

Hop back on the trainer and ride 2-3 minutes at a resistance that gets your heart rate close to lactate threshold at the end of the interval. The effort should feel hard but not excruciating. The combination of one trainer interval and three exercises is one set.

Work up to 5-8 sets. Vary the exercises each time and the trainer interval as well. For instance, you might try three repeats of 30 seconds pedaling hard, separated by 30 seconds of easy spinning. Or pedal at a moderate pace for five minutes.

Such workouts have been shown to boost lactate threshold. They help make indoor training a lot less boring. I guarantee they make you work hard and get the most out of an hour.

73. How Can I Learn to Ride *Slower*?

This sounds silly, but how can I learn to ride slower? When I tour on our wonderful English lanes, I find it difficult to slow down. I finish the day exhausted. – Samuel P.

COACH FRED: It's not a silly question at all. Riders who spend most of their time going at a "training" pace find the slower pace of touring almost impossible to maintain.

I know from personal experience that no matter how hard I concentrate on smelling the flowers and looking at the scenery, I still find myself pushing on every hill.

There are three secrets to enjoying a slower, more relaxed pace:

1. **Use a heart monitor.** I know, it sounds crazy to strap on a monitor when your aim is to go slow. But if you set the upper limit alarm at about 75 or 80 percent of your maximum heart rate, you'll get a signal when you're going too hard.

Make it an ironclad rule: When you hear the beep, shift to an easier gear and reduce your cadence about 10 rpm. Then look for those flowers.

2. **Stop for five minutes every hour.** This is an old backpacker's trick. Find a scenic spot with a fence or hedgerow to lean your bike against. Have a snack and take a drink. Stretch. Look around. These breaks serve to interrupt your rhythm—a good thing when you have a tendency to lock into an inappropriately hard pace.
3. **Ride with someone slower.** On a one-day tour, go with your spouse or a friend who isn't as fit, fast or competitive. Let them set the pace. Chat and enjoy their company.

74. How Can I *Reduce* My Climbing Speed?

I am the only rider in my group without triple chainrings. When climbing, they shift to small gears and spin while I blow by them in my double chainring. I don't want to look like a show-off. How can I ride with them on the climbs? – Don P.

COACH FRED: Now that's what I call a good problem to have!

If you slow down to stay with them, you'll have to pedal at very low rpm because you have bigger gears. That's not good for your knees.

Either get a lower gear so you can twiddle along and talk to your friends on climbs, or ride at your own pace to the top, then go easy to recover while they catch up. If you explain the gearing realities, they might not see you as a showoff.

TRAINING

75. What's a Watt?

I keep hearing that pros generate 400 to 500 watts when climbing. Can you explain what this means? How can I find my wattage? – James W.

COACH FRED: A watt is a measure of power just like for light bulbs. If you can put out 100 watts, you could light a 100-watt bulb.

When England's Chris Boardman set the hour record several years ago, he produced about 430 watts for the full 60 minutes. Pros who are hammering up short hills can generate more than 600 watts. Sprinters tally well over 1,000 during their surge to the finish line.

Watts can be measured on a stationary bike at health clubs or on high-tech home trainers such as the CompuTrainer.

For on-road measurement, units are available from a U.S. company, Graber (the PowerTap), and from Germany (the SRM). Prices begin at about \$800. Polar, the company that makes heart monitors, plans to introduce a less expensive watt-measuring device, the S-710, in early 2002.

Another way to measure your wattage is to get a performance test on a bicycle ergometer at a sports medicine facility. You'll find out exactly how many watts you can produce at your lactate threshold—the level of exertion in a time trial or when going hard on a long climb.

76. Can I Use a Mountain Bike for Road Training?

*I read your advice in **Off-Season Training for Roadies** about buying a used "beater bike" for sloppy roads. My local shop has an old mountain bike with a rigid fork for sale. It's in great shape, but are mountain bikes OK for road training? – Perry C.*

COACH FRED: You bet! If you found a rigid-fork mountain bike in decent condition, you've got a prize. Just be sure you can make the saddle's height and fore-aft position (relative to the bottom bracket) the same as on your road bike.

Here are a mountain bike's advantages for a roadie:

- **It's versatile.** You can put on smooth-tread tires for road training, or knobbies to ride on dirt roads, trails, or snow-covered roads. It's a great bike for commuting and errands, too.
- **It's slow.** This is an advantage when it's cold because you'll feel less windchill. If you ride the road with knobby tires, the extra rolling resistance will give you a great workout at a slower -- and warmer -- speed.

- **It's convertible.** Check with your bike shop about installing a drop handlebar to get your exact road position. Then you'll have a bombproof, year-round beater that you can use during any inclement weather.

77. Lose Body Weight, or Lose Bike Weight?

Is it better to take five pounds off your bike with a lighter frame and components, or lose five pounds of body weight? – Rich P.

COACH FRED: Great question, Rich! Reducing weight of any type makes the most difference on climbs. Everything else being equal, shedding five pounds can make you several minutes faster on a steady five-mile climb. Weight reduction is a smaller factor for accelerating, and it matters least during flat riding once you're up to speed.

As for whether it's better to take the weight off your bike or your body, it doesn't make much difference—with two caveats.

First, rotating weight on the bike (tires, rims, pedals, shoes) makes more difference than static weight on the frame. So, taking an ounce off your wheels' outer circumference will help more than taking an ounce off another part of the bike.

As for your body, losing a pound of flab is like losing a pound off the bike frame. But there's one important difference. Usually you need to increase your training to lose weight, which puts you in better shape. You get a double benefit—less weight to pedal, and more finely tuned muscular and cardiovascular systems with which to do so.

It's also cheaper to shed unneeded body weight than to lighten your bike. We get a kick out of obviously overweight guys carrying on about the \$160 carbon handlebar they just installed.

Warning! Be certain you need to lose weight before you go on a diet. Fat weight lost by putting in quality miles is good. Muscular weight lost with dangerous and restrictive diets is not good. Your muscle tissue is what propels you down (or up) the road—no matter how much weight is involved.

78. How Can I Reduce Fat Thighs?

What is the best way to lose fat in my thighs? – Marcy D.

COACH FRED: Sorry, Marci, nutritionists and exercise physiologists agree that there's no such thing as spot reducing. That is, taking fat off one specific part of the body while everything else remains the same. When you lose body fat, it's lost evenly all over, rather than from the fattest part of your anatomy.

The best way to eliminate excess fat is to combine a sensible diet, aerobic exercise like cycling, and strength training.

Winter is a great time to do it. I devote a whole chapter to this subject in ***Off-Season Training for Roadies***.

79. Why Can Power Drop While Heart Rate Rises?

I have a watts meter on my bike and did a test time trial yesterday. I averaged 255 watts for 50 minutes. My average heart rate was 164 and my average speed was 26.4 mph. I was happy except for one thing—my heart rate increased during the ride, while power dropped off slightly. How come? – Tom P.

COACH FRED: The phenomenon you're experiencing is almost certainly the one called "cardiac drift." As bouts of effort at time trial pace (lactate threshold) continue past 20 minutes or so, heart rate rises for the same energy expenditure.

Part of the reason is dehydration, unavoidable in a 50-minute effort even if you drink because your stomach can't absorb enough fluid to keep up with the deficit.

Another reason is muscle fatigue. It takes more work from the heart to maintain the same power output from the muscles.

One way to avoid this power loss in a time trial is to begin at a slightly lower heart rate and power output in the first half, then increase intensity during the second half. For example, if you want to average 255 watts for the TT, ride the first 25 minutes at an average of 240 watts, then bump it up to about 265 for the last 25 minutes.

But as all time trialists know, this event is as much witchcraft as it is science. There's no substitute for experience. The great thing about watt measuring devices is how they let you monitor your body while using different pacing strategies.

80. What's the Right Balance of Hills and Flats?

I usually ride solo in flat terrain but have begun riding with a group in the hills. What is the correct balance of flat and hilly training? – Chris J.

COACH FRED: Good question! The proper mix depends on a couple of things:

- First, decide what your goals are. If you want to do well in hilly group rides or races, you need to include more climbing than if you specialize in flat criteriums.
- Second, you need to determine what cycling coach Joe Friel calls your "limiters."

If you climb poorly, you either need to spend more training time on climbs to improve this weakness, or you need to decide that you'll never be a good climber (for genetic reasons) and stick to flatter events where you have a greater chance of success.

81. How Can I Get Stronger on Hills?

Climbing kills my legs. On a long hill or a sequence of short climbs, I can feel my strength ebb. What's the best way to ride a hill, and how can I build strength and stamina? – David W.

COACH FRED: The usual reason riders die on consecutive hills is simple—they attack the first one too hard and then have no zip left. If you go so hard that you're panting uncontrollably, you're in big trouble.

On a single long climb, it's the same story. Don't go too hard during the first third or you'll die before the top.

The second reason is overgearing. Your pedaling cadence while climbing should be almost as high as on the flats—at least 80 rpm. This means you probably need lower gearing than you have.

Lance Armstrong climbs in a 39x23-tooth gear, or even a 25. He produces more than twice the power of the average masters racer, not to mention recreational rider. Yet, many roadies have only a 39x25 low gear. If Lance uses a 23 or 25, most of us need a triple crankset to get gears low enough for climbing with a high and efficient cadence.

Finally, to climb well, climb. Many people avoid climbs on their training rides and wonder why they're no good on hills. Seek out hills once or twice a week and go up at a brisk, steady pace. You'll improve.

82. What's the Right Training Pace?

My training partners argue that long, slow distance rides are important for all cyclists. But I've heard that training should be specific to the distance and intensity you plan to race. Who's right? – Ian M.

COACH FRED: This is one of the oldest controversies in endurance sports, and it's still unresolved. The latest discussion I've read was in the April, 2001, issue of *Running Research News* by Owen Anderson.

As that article indicates, Peter Snell, former Olympic 800-meter running champion and now an exercise physiologist, has been at the forefront of this discussion. He advocates long workouts at a moderate pace. I heard him speak recently and his talk was compelling. But the physiology that underlies it seems suspect to many observers.

Some authorities say that long and easy rides improve endurance and even boost speed. Others maintain that long slow rides do nothing but accustom you to riding long and slow.

I think the question is moot for most cyclists who live in cold, snowy climates. They can't ride long in the winter when they're supposed to be building a base. They have to do their endur-

ance workouts using crosstraining. I think it makes sense to go harder on short rides or on the trainer, but this idea is subject to much debate.

83. How Much Should a Hard Workout Hurt?

*I started doing the "Pedaling for Power" workout described on page 56 of **Basic Training for Roadies**. I did the Drag Races (short, all-out efforts) and was able to maintain max output for about 25 seconds. I spun easily for the recommended five minutes, then went again. After five of these, I rode home. Total time, 55 minutes. Distance, 16 miles. I felt fine after this workout. No fatigue. Is this right? Not that I want to hurt, but it didn't feel like it was hard training. – Andrew M.*

COACH FRED: Interesting question. I don't think it's necessary that every workout makes you feel like you just returned from a polar expedition. Feeling fresh isn't bad.

The workout you did is different from hard intervals. Drag Races are quick and intense, so you should feel like you would after a weight-training workout—invigorated and fresh.

Also, it's hard for an endurance-trained rider to really go all out in a 25-second effort. Your muscles and nervous system aren't accustomed to explosive efforts, so it's nearly impossible to go truly hard. A sprinter, on the other hand, can focus his energy. He can explode for 25 seconds and feel really spent afterwards.

Try increasing your reps by one or two and focusing on going as hard as possible in each effort. Soon you'll see a difference in the power you generate and the fatigue you feel.

You should recover from this (or any other) workout in a reasonable time. If you don't, either the workout was too hard, your recovery period was too short, or you're not eating enough carbohydrate to refuel your muscles.

84. What's the Best Time Trial Training?

I've changed my time trial training program over several seasons to no avail. My lactate threshold has increased to 92 percent of my max heart rate, but my power output at that intensity isn't greater. What kind of workouts would you recommend? – John W.

COACH FRED: Thanks for a great question. We're pleased to be getting a lot of sophisticated questions from readers who are obviously serious about improvement.

We like time trialing here at RBR. Our Team Race Across America world record in 1996 was essentially a 2,905-mile time trial. Ed Pavelka has won state TT championships in NC and PA, and he won the tandem nationals with Pete Penseyres in 2000. I've won the Colorado TT and was third at masters nats.

So, we know something about time trialing, but yours is a complicated question.

Essentially, the trick is to build strength first and then convert it to time trial-specific power.

Start in late fall with a periodized weight program. Do high reps with light weight at first. Then lower reps with higher weight. As spring approaches, go back to high reps to build lactate tolerance.

Interesting note: Colorado's Scott Tucker, the 55-59 national TT record holder, works up to 1,000 pounds in the leg press over the winter. His record for 40K (24.7 miles) is under 52 minutes. This shows the importance of a strength base.

Begin interval training in early spring. To convert your weight-room and low-cadence strength into TT power, you need to do intervals of 3-10 minutes at lactate threshold or slightly above, while keeping your cadence at 90-100 rpm. I prefer to do these intervals up a gradual climb to build more power.

My two RBR books, ***Basic Training for Roadies*** and ***Off-Season Training for Roadies***, have specific directions for weight training and on-bike power-building intervals. These are derived from Lance Armstrong's coach, Chris Carmichael, and other experts, as well as my own experience.

85. What's the Best Interval Training for Time Trials?

In a recent report, five different interval programs were studied, ranging from four 8-minute intervals at race pace with one-minute recoveries, to twelve 30-second hard intervals with long recoveries. The conclusion suggests using the 30-second interval program in the final three-week tapering period before a time trial. This approach is unique compared to the standard recommendation that normally calls for much longer intervals. Your thoughts? – Jon B.

COACH FRED: I read the same research and tried a regimen of 30 seconds on/30 seconds off last spring when I was "peaking" for the weeklong PAC Tour Training Camp in Arizona run by Lon Haldeman. I coach there every March.

I had been doing long, steady rides in January and February when the weather permitted. I wanted to add some intensity before the camp because it usually features some spirited riding. I felt strong at camp and thought that the intervals had done some good. Certainly, they made for hard workouts!

Of course, it's impossible to decide how useful that protocol was since I was an experiment of one. But there's solid research, primarily with runners, showing that 30-second intervals work.

As for longer intervals, like 8-minute repeats at time trial pace, they're a mainstay of any time-trial interval program.

The key to interval training is to avoid overtraining and burnout. I often find it easier mentally to dispense with structured intervals, instead riding a hilly course and letting the climbs create intensity in a natural way.

86. How Should I Train for Criteriums?

I'm 33 and getting back into racing after 13 years out of the sport. My problem is that I get blasted off the back of criteriums when the speed increases. I've been doing steady-state intervals at my lactate threshold, but they don't seem to work. Should I continue with these workouts or do more intense intervals? – Patrick S.

COACH FRED: There's nothing wrong with doing lots of training at lactate threshold (LT). As coach Chris Carmichael says, such efforts are great for increasing your cruising speed. They're a cornerstone of any time trial program.

But there's a problem with training primarily at LT (about 90 percent of max heart rate). When the pace heats up to higher intensities, your body isn't accustomed to the effort and you get dropped.

Criteriums demand the opposite of what you receive from traditional LT workouts of 5-10 minutes at a steady state. The reason is all the corners. You have to accelerate out of every one. In a typical 40-km crit on a 1-km, 4-corner course, that's 160 jumps. Some make you ride at a higher intensity than you reach in an LT workout.

The solution is to incorporate crit intervals into your training.

Here's a good workout: Find a circuit of about 1-km in a park or industrial center where you can ride safely. Warm up, then ride the circuit at your LT pace for 15 minutes, jumping hard for 10-15 seconds twice each lap. Work up to 30 minutes. You can also do this on the open road, but you won't get the cornering practice that improves your crit bike-handling skills.

You'll find this workout effective for increasing crit speed and giving you the ability to repeat short, high-intensity efforts.

87. How Can I Improve My Finishing Speed?

How can I keep my legs in a 60-mile race so I can sprint at the end? I hang with the breaks and attacks, but in the last mile, when the pace really gets hot, my legs fatigue. Meanwhile, on our 30-mile weekday group ride I'm always in the top three in the sprint. – Curtis P.

COACH FRED: I know a rider with a similar problem. He could stick with the lead group to the finish but couldn't finish fast. So, he worked on his sprint exhaustively—and still didn't improve.

Finally, he hired a coach. After some analysis, the coach determined that his sprint was fine—when he wasn't tired. The problem was that accumulated fatigue from the early part of the race was blunting his sprint at the end.

So, the rider shouldn't have been working on speed—he had plenty of speed—he needed to work on endurance at race intensities. Then he'd be able to reach the finish with enough freshness in his legs.

In your case, you have considerable speed but only enough endurance at race pace to conserve that speed to the end of 30 miles. Double the distance and your legs are too tired to sprint effectively.

The solution is to do one ride per week of about 75 miles. Here's how to structure it:

- Keep the pace brisk at about 80-85 percent of max heart rate
- At mile 30, do a 5-mile time trial at close to maximum effort
- At 55 miles, do 3 repeats of 3-minute intervals all out, with 3 minutes of easy spinning between
- Finally, at 70 miles, do 3 hard sprints to tire your legs and simulate the finish in a race.

A few weeks of this workout and you'll hit 60 miles with a lot more left.

88. How Can a Fast Rider Develop Endurance?

I'm a reasonably accomplished velodrome racer but I want to switch to criteriums and road racing. I train on Wednesdays with Pete Penseyres's group in San Diego. I suffer on the climbs but have improved. Would I be better off avoiding hills in midweek training sessions and doing flat, fast speedwork instead? My teammates say I should forget the hills because of my genetics. – Kelly M.

COACH FRED: Say hi to Pete for me on the next ride! He was my teammate on our record-setting senior team in the 1966 Race Across America.

The classic method of converting track speed and power to road stamina is to do long endurance rides once or twice a week during the off-season. It takes several months to see appreciable benefit. The off-season gives you a relatively long window of time to build your aerobic fitness.

Do these rides on a variety of terrain, including flats and rolling hills. Avoid extended climbs for the first couple of months. Do them at an endurance pace (about 70-85 percent of max heart rate). An occasional foray into higher heart rates on steep climbs is okay as long as you don't overdo it.

Here's the caveat: Your ability at endurance activities like road racing is limited by your genetic makeup. Many great roadies can't sprint to save themselves because their muscles are mostly slow-twitch fibers. (Pete is a good example.) All the speedwork in the world won't make them truly fast.

If you're a good velodrome racer with a powerful sprint, you probably have the genes to excel at criteriums. If you train yourself to last the distance in flattish road races, you'll still have your natural speed for the finishing sprint and do well.

You need to treat yourself to an off-season of endurance riding as outlined above to see what happens. Pete is a very knowledgeable coach and could probably advise you on the particulars of a program.

89. Can I Survive 200 Miles on Minimal Training?

I want to ride a double century four weeks from now. I did a 6-hour century three months ago. Since then, I've ridden 200 miles per month with some interval training, and run 15-20 miles per week. Can I complete the double? – Sean O.

COACH FRED: Completing a 200-mile ride is possible given your training history, but you shouldn't expect to do it fast or comfortably.

Ideally, you'd gradually increase the distance of one long training ride each week for at least eight weeks. When you could comfortably ride about 150 miles, you'd have the base to enjoy a double century.

It's too late in the game to do big-mileage training rides on the weekend. The best you can do is about four hours the first weekend, five hours the second and six hours the third. Then spin easily during the last week before the event to be well rested. This isn't optimum, but it will get you enough saddle time to protect your knees.

Also, it may be helpful to stop running during this month. Get as much cycling adaptation as possible.

During the event, pace yourself from the start. Pause at every aid station so you stay hydrated and well fed. Keep stops to less than 10 minutes so you don't stiffen. Ride hills at a steady pace that's well below your maximum. Take advantage of all the draft you can get from other riders. And be patient! It may take you longer to finish than you'd like, but it should be doable.

90. Why Am I So Tired in August?

I've had a very successful season, completing my first century and doing Ride the Rockies. I trained hard all winter and spring to meet these goals. Now, I'm tired and don't even want to ride anymore. This upsets me because I love to ride, but suddenly I can't stand the thought of the bike. What's wrong? – Stan C.

COACH FRED: Your fatigue and lack of enthusiasm aren't unusual for hard-training cyclists. You're experiencing a mental letdown after meeting your cycling goals, and you're physically tired from months of training.

You won't like this (or maybe you will because of your present condition), but the only way out is to take time off the bike.

How long? From one to as many as four weeks. Do other activities—hiking, running, court games—anything to maintain some aerobic fitness. Ride once or twice a week if you feel like it, but go easy.

After this rest period, you'll be invigorated and eager to get back on the bike—just in time for riding in great fall weather.

91. Why Do My Legs Feel Empty?

I've been feeling great all season on our hard Sunday morning club ride, but last Sunday I felt terrible. My legs were empty. I wanted to quit 10 minutes after the start. I thought I was well prepared. In fact, I had stepped up my interval training and my mileage the month before, hoping to do especially well. Any ideas? – Martin S.

COACH FRED: You probably overtrained in the month before the ride and it caught up to you. If you aren't getting better despite hard training, you're probably not getting better *because* of hard training.

Your body has only so much adaptive energy for improvement. When you train too hard and too long without adequate rest, your performance (and your motivation) quickly dwindles.

A strong desire to quit is a classic symptom that you've pushed too hard. You should be going into competitive rides with eagerness. If you're lethargic and feel like quitting, you've left your competitive fire out on your training roads.

The solution is about five days of complete rest. Take a nap instead of training. Be sure you're adequately hydrated and eating enough carbohydrate to replace your muscle fuel (glycogen). Many cases of overtraining are caused by eating too little for the work you're asking your muscles to do.

Start riding again by going easy for seven to 10 days. Then, assuming you're feeling good, resume normal training. Avoid the excessively hard work and additional miles that got you in trouble in the first place.

92. Can Morning Heart Rate Foretell Overtraining?

All articles I've read about overtraining list elevated morning heart rate as the first warning sign. Mine is never elevated even when I'm really tired. What's going on? – Sam G.

COACH FRED: Most authorities say that if your morning heart rate is 10 percent higher than normal, your body is telling you to back off training and recover.

For many cyclists, however, morning heart rate doesn't have much predictive value. One reason is because it's hard to get a consistent reading. Sometimes you wake slowly from a rest-

ful sleep. Other times you're startled by the alarm clock or even wake abruptly from a disturbing dream. Your heart rate might jump temporarily.

Surprisingly, severely overtrained cyclists may even have a *lower* morning heart rate than normal. It's as if the body is trying to slow down and get the rest it needs.

I suggest charting your morning heart rate under similar circumstances for a month. A way to make conditions consistent is to wake up, make your trip to the bathroom, then return to bed. Relax for a specific time (say 90 seconds) then take your pulse. Be careful not to fall asleep again!

Compare these readings to your subjective feelings on the bike and to your riding performance. If morning heart rate has predictive value for you, by all means use it as a training tool.

93. Why Is It Hard to Sleep After a Workout?

I attend a very intense spinning class. We meet from 5:30 to 6:30 pm. On those nights, I have a hard time falling asleep. Is this a common reaction? – Gregory D.

COACH FRED: Yes. Intense workouts done late in the day often make sleep difficult, for two reasons.

1. A workout raises your body temperature and it remains elevated into the evening. Sleep, on the other hand, requires a gradual cooling of the body.
2. Spinning classes are hard. Your body gets into the "flight or fight" mode with plenty of adrenaline circulating. It takes time to unwind and get ready for sleep.

One solution is to do the class earlier in the day, if that's possible. Another approach is to do relaxation exercises about an hour before bedtime. Try rhythmic breathing and muscle tensing and relaxing in order to prepare your mind and body for sleep.

If these ideas don't work, you'll just have to accept a later bedtime on spinning days and make up the sleep somewhere else in your schedule.

94. Does Cold Weather Affect Heart Rate?

I'm 24 years old and overweight (40 pounds down, 50 more to go). I've been riding about two months. Since the temperature has been dropping into the low 50s, I've noticed that my heart rate doesn't climb into the zones I am accustomed to, except on hills. Is the cold air to blame for this phenomenon? – Kevin R.

COACH FRED: I don't think autumn's cool air is the reason. I suspect that your heart rate is lower because you're in better shape!

You're probably going the same speed on the flats as you were when you started riding. Now, however, you're able to maintain that speed with less effort—and that translates to a lower heart rate.

On hills, the speed difference isn't as noticeable, so you're working hard to get up them at a slightly faster pace than last month. As a result, your heart rate remains high on climbs.

The solution to this problem (and it's a good problem to have) is to push a bit harder on the flat parts of your ride, hard enough to get your heart rate back up to a suitable training zone for you.

Don't make the mistake of using larger gears and reducing your cadence. Use a gear only slightly higher than you're accustomed to, and keep pedaling at 90 rpm.

95. Are Hard Winter Rides Counterproductive?

I'm confused about the physical effects of base training at 70-80 percent of maximum heart rate. I've heard that while in this zone our bodies are building capillaries that supply muscles with blood and nutrients for the harder efforts later in the season. Further, we should avoid any hard efforts in winter, such as climbing, that raise heart rate above this zone. Is this true? By the way, I'm doing squats in addition to my slow rides. – Gary D.

COACH FRED: It's important to build an aerobic base with relatively slow rides. But research has invalidated the idea that only slow rides build capillaries. The consensus now is that a mix of slow rides and faster or harder training is best.

Now, about those squats.

Squats enlist fast-twitch fibers, so they negate any capillary-building advantages of your slow rides. Studies show that Olympic weight lifters have the same number of capillaries per muscle fiber as untrained people!

Does this mean squats are bad? No. It's fine to do them in the off-season—if they are part of a periodized program that builds strength first, then converts it to cycling-specific power with on-bike workouts such as hill climbing and intervals.

After you've built weight-room strength, on-bike training will restore your endurance—and you'll retain the strength base from squats.

96. How Does Snowshoeing Help Cycling?

Snowshoeing has become the hot crosstraining sport among the local cyclists in my area, but I don't see the connection to riding a bike. What's the carryover to cycling? – Tammi W.

COACH FRED: I love snowshoeing! Unlike cross-country skiing, it has a shallow learning curve. You don't need much technique to get an effective workout. Snow conditions can be marginal, and you can do it in all types of terrain—even through the woods. Don't try that on skis unless you're skilled.

I snowshoe a lot where I live in western Colorado. I think it has at least five direct benefits for cyclists.

- **Endurance.** Treks of three or four hours train the body to burn fat for energy while sparing its muscle fuel, glycogen.
- **Weight control.** When you snowshoe with poles, long hikes burn calories at an even greater rate than long rides. You're using upper-body muscle mass much more than when riding.
- **Upper-body conditioning.** Use poles and you'll get a great workout for your arms, shoulders and back.
- **Leg strength.** Pulling a snowshoe out of the snow and pushing it forward for the next stride is similar to the motion of pulling the pedal up the back of the stroke and pushing it over the top. When you're snowshoeing uphill, you'll feel how well it works the quads.
- **Variety.** If you ride all winter, you may not be as enthusiastic about cycling as you should be once spring arrives. Snowshoeing keeps you fit while making you eager to get back on the bike.

97. How Should I Combine Cross-Country Skiing With Cycling?

I live where the snow starts flying in October and ends in late June. I cross-country ski to retain my aerobic conditioning, but do you have any suggestions on how to keep my legs in cycling shape too? – Steve K.

COACH FRED: The best advice I've heard is from three-time Tour de France winner Greg LeMond.

Greg used to include a substantial dose of cross-country skiing in his preparation for the European racing season. He said that if you ski hard and then get on the trainer two to three times per week for an hour each time, you'll retain much of your cycling fitness through the winter. My own experience supports this approach.

98. Will Running Help My Riding?

Winter's coming, it's getting dark earlier, and I can't always fit in a ride. If I run instead, either on trails or pavement, will it improve my cycling performance? – Víctor C.

COACH FRED: Several studies have shown that although hard intervals on the bike can improve running performance, the opposite isn't the case—running doesn't seem to improve cycling performance.

But there's an important caveat: Most of these studies looked at running on flat terrain. Running up hills seems to help cycling performance because it works your thigh muscles (quadriceps) in much the same way that pedaling does.

Running is a quick way to achieve general cardiovascular fitness. If you're pressed for time or the weather is bad, running is a good option. If you do it on hills, stairs or stadium steps, your ability to push the pedals may be improved, too.

Be careful, though. Running downhill is very hard on the knees. Be smart and walk down. Treat it like interval training—hard effort when ascending, recovery when descending.

99. Are You Sure That Running Doesn't Help Cycling?

You've said there are studies showing that although hard intervals on the bike can improve running performance, the opposite isn't the case—running doesn't seem to improve cycling performance. Some of my running and cycling friends dispute this. Are you sure you're right? – Jon P.

COACH FRED: A number of studies back me up. One was done at Cal State Northridge in the early 1990s. Groups of runners trained either by running at a steady state, running intervals, or not running at all but doing intervals on a stationary bike.

Those who only cycled improved their cycling VO_2 max by 15 percent. Their running VO_2 max rose the same. Ventilatory threshold (VT, another measure of improvement) rose 31 percent when measured on the bike and 13 percent when measured while running.

The subjects that did running interval workouts produced similar gains in running to those who did cycling interval workouts. But their cycling VO_2 max increased only 9 percent and their VT while cycling didn't improve at all.

These results suggest that cycling improves running a great deal, probably due to the ability to do high-intensity work without the pounding of running. But they also suggest that cycling fitness transfers to running better than running fitness transfers to cycling.

These results also agree with the practical experience of many cyclists. Running is a great off-season tool because it's quick and can be done in darkness and bad weather easier than

riding outdoors. Most people who have tried it both ways agree that running on the flat doesn't help cycling ability as much as running uphill.

One other thing to consider: Lance Armstrong climbed hills in the 2001 Tour de France while standing and using a very rapid cadence. It looked like he was running uphill! I asked his coach, Chris Carmichael, if running was Lance's "secret weapon," designed to increase his cardiovascular ability. But no, he said that Lance didn't run much except for some trails in the off-season.

100. How Long Should Indoor Trainer Rides Last?

How long should I ride on the indoor trainer in the off-season? I race up to 112 miles in Ironman triathlons. A well-respected triathlon coach says to limit indoor rides to two hours, but with races over six hours, this seems short. – Jeff M.

COACH FRED: The problem with indoor cycling is boredom. It's difficult to ride a trainer for more than an hour without going slightly nuts.

When you're riding outside, your brain has many things to think about. Inside, there's nothing to do but watch old Tour de France videos and the steady stream of sweat dripping off your nose onto the top tube.

As a result, crosstraining works better for off-season endurance workouts when weather precludes riding outside.

One approach is to ride the trainer for an hour. Then run, ski or snowshoe for an hour or more. Then get on the trainer for another hour. This gives you a long workout with enough cycling time to remind your muscles that the pedal stroke is important.

101. How Do Headwinds Help Me?

I live in the Midwest where we can have days with 40-mph headwinds. I hate it! Does all this misery do me any good? – Jeffrey S.

COACH FRED: I agree that wind is tough. At times here in western Colorado, it seems like most of Utah is blowing through town.

My worst day in the wind was on a transcontinental ride where we hit a headwind from Ennis to West Yellowstone, Montana. It was gusting to 45 mph. We still had 80 miles left in a 140-mile day. Even with a pack of strong riders, we rarely reached 10 mph for several hours. It was a long slog.

In conditions like that, there's nothing to do except find a gear that allows you to keep a decent cadence—and then grind it out. But you can get some benefits.

Patience and perseverance, for example!

Headwinds actually do help your fitness because you have to work harder. As a friend of mine likes to intone when we're facing a howling gale: "The wind makes you strong!"

Also, riding into a headwind is a chance to work on your position. It's almost like being in a wind tunnel in the sense that minute changes in upper-body posture make a real difference in your speed and pedaling ease.

Experiment with aerodynamics by holding your hands in different positions on the bar, moving your elbows in or out, and altering the angle of your back. At least it's something to think about.

Try to find routes that offer windbreaks. Maybe there are sheltered, tree-lined sections, or roads low in the valley. If it's really howling, look for a circuit a couple of miles around so the wind alternates from the front, side and rear at frequent intervals.

One other tip: Put cotton in your ears. When you can't hear the wind roaring loudly, it doesn't seem to be blowing so hard.

102. Does High-Altitude Simulation Work?

My gym has a "hypoxic" enclosure outfitted with a stationary bike and treadmill. Would training in the simulated high altitude two or three days a week improve my fitness? – Joe S.

COACH FRED: Probably not. The current thinking on altitude training is "sleep high, train low."

The theory: Training at low altitude allows you to work at maximum effort because there's lots of oxygen. Sleeping at high altitude makes your body expand its oxygen-carrying capacity.

Therefore, training at altitude actually makes you slower because you can't do quality speed-work. Your gym's enclosure might be useful, however, if you live at sea level and want to acclimate for a high-altitude tour or other event.

Todd Wells, a mountain bike racer who returned to the sport so successfully this year, reportedly got back into shape quickly by training at 2,500 feet in Tucson and then driving up Mt. Lemmon to sleep at around 9,000 feet.

The word is that Lance Armstrong trains at sea level most of the time but sleeps in a hyperbaric chamber that simulates high elevation. The UCI is examining this practice to determine if it's an acceptable method for improving performance.

WEIGHT TRAINING

103. Is Arm Muscle Dead Weight?

I'm 42, 167 pounds, 6-feet tall and have about 10 percent body fat. I probably have a little too much muscle bulk in the upper body. Is this really dead weight? I don't want spaghetti-looking arms. – Curt P.

COACH FRED: A large and muscular upper body is definitely a detriment to cycling performance, especially on climbs.

Because your arms do very little work while out of the saddle—and even less when seated—they're just going along for the ride. Their weight holds you back, just like extra weight on the bike.

Elite riders are quite thin from the waist up, and the best climbers do have spaghetti arms. Lance Armstrong (hmmm, interesting last name) is an exception.

Although Lance has lost considerable upper-body muscle mass since his bout with cancer, his arms are still larger than the norm for great climbers. However, he generates enough wattage that it doesn't matter.

At your height and weight, I doubt that your upper body is so bulky that it's hurting your performance in any meaningful way. Once body fat is near minimum levels, as yours is, it's nearly impossible to reduce the upper body while retaining the leg muscle that powers you up the road.

104. Why Do Upper-Body Weight Exercises?

*In your book **Off-Season Training for Roadies**, you say to do only weight exercises that directly relate to cycling. If that's the case, why include any upper-body pushing exercises like pushups? – Rod P.*

COACH FRED: Two reasons:

1. As a roadie, you lean on the handlebar for long periods. Think about those sore, strained triceps you sometimes feel, especially on longer rides and particularly early in the season. An off-season weight program that includes pushing exercises such as pushups, dips or bench presses strengthens triceps and shoulders, reducing this discomfort.
2. You need to achieve balance by doing exercises for so-called antagonistic muscle groups. Doing upper-body pulling exercises is important for climbing and sprinting. But if you do only pulling exercises, you'll lack both strength and muscular development in the pushing muscles. This imbalance could lead to injury.

105. Should I Ride and Lift on the Same Day?

This off-season, I started doing leg work in the gym twice a week to complement twice-weekly interval sessions. But now my legs are dead when I get on the bike. I want to keep riding this winter. Should I ride and lift on the same day or lift on days I'm off the bike?
– Patrick D.

COACH FRED: Good question—but there doesn't seem to be expert consensus on an answer.

One approach is to lift twice a week on the same days you ride hard on the road or trainer. The idea is to shock the muscles two days a week, leaving five days for rest and easy recovery riding.

The other approach is to lift two days and ride hard two other days, spreading out the workload. You'll have to try it both ways to learn what works best for you.

That said, why are you doing intervals in winter? This is the season to build a strength base in the weight room and maintain endurance with steady riding or aerobic crosstraining. There'll be plenty of time for intervals in the spring.

106. Are Squats Better Than Hills?

Is it smart to skip hilly road rides in winter in order to keep a regular routine of squats in the weight room? – John O.

COACH FRED: The advantage of building strength by riding hills in a high gear with a low cadence (as opposed to doing squats) is primarily one of specificity. You get better at the activity you're doing, so riding a bike is better training for cycling than squatting.

Having said that, strength should be built in a sequence starting with weights, progressing through low-cadence/high-resistance hill climbing, and ending with conventional interval training at 90-110 rpm.

I recommend a regular squat (or leg press) routine twice a week in November, December and January, along with one low-cadence hill workout each week.

Then go to one squat workout per week in February plus two hill workouts in a medium cadence and gear. Begin conventional intervals in March when you stop doing squats.

There can be variations to this pattern, of course. But the basic idea is to build strength in the weight room and then convert it to cycling-specific power.

107. How Should I Begin Off-Season Leg Presses?

I want to begin doing leg presses for off-season training. But when I started last winter, I got extremely sore muscles. I could hardly walk for a week! How can I avoid this misery?

– Cindy A.

COACH FRED: The trick is to work into leg presses (or squats) extremely slowly.

Start with a good warm-up before lifting. I like to ride to the athletic club to loosen my quads and break a sweat. Then I do some bodyweight squats. Ten or 15 minutes on a stationary bike works fine, too.

For your first leg-press workout, use a weight no greater than your body weight. Do only one set of about 15 reps. Two or three days later, do two sets. Two or three days after that, do three sets. Then increase the weight no more than 10-20 percent a week. In a month, you will have accustomed your muscles and connective tissue to the strain. Then you can begin a more aggressive program.

Much depends on your past history with the exercise. The more experience you have with leg presses, the faster you can increase weight, reps and sets.

108. Should I Do Leg Presses Year Round?

Last winter I did leg presses three times a week, and boy was I strong on the first ride of the season! But by October I enjoyed hills less, and when I went back to the gym last week I was amazed at how much strength my legs had lost. Should I do leg presses all summer, too?

– Nanci L.

COACH FRED: It's not unusual to lose strength during the cycling season if you define strength as the ability to do leg presses. After all, by December you haven't done that exercise in more than half a year. I bet you'll regain leg-press strength quickly now that you're back in the weight room.

Studies show that the neuromuscular coordination necessary to do leg presses (or any other weight-training exercise) comes back quickly, although it takes several months of workouts to actually improve the strength of muscle fibers.

I don't think it's necessary to pump leg weights in summer. Your legs get enough work on the bike. I suspect your lackluster climbing at the end of the season was a reflection of lessened enthusiasm rather than a true loss of leg strength.

If you want to maintain your weight-room strength throughout the season, one or two sets of leg presses one day each week should help. If you ride long on weekends, Monday is a good day for this workout.

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