

JOIN THE RIDE  
**Bicycling**

250  
BEST  
CYCLING  
TIPS



by the editors of Bicycling Magazine  
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# JOIN THE RIDE **Bicycling**

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## **CONTENTS**

Bike Care .....	4
Equipment .....	10
Clothing.....	14
Riding Position .....	17
Safety and Etiquette.....	20
Health .....	23
Nutrition .....	28
Skills .....	32
Motivation .....	38
Training.....	40
Touring.....	45



WE INSPIRE AND ENABLE PEOPLE TO IMPROVE  
THEIR LIVES AND THE WORLD AROUND THEM.



# BIKE CARE

## The Easiest Maintenance

- The two surest (and simplest) ways to help your bike work well are to maintain proper tire pressure (it's marked on the tire) and frequently lubricate your chain (at least every other ride).

## Chains and Derailleurs

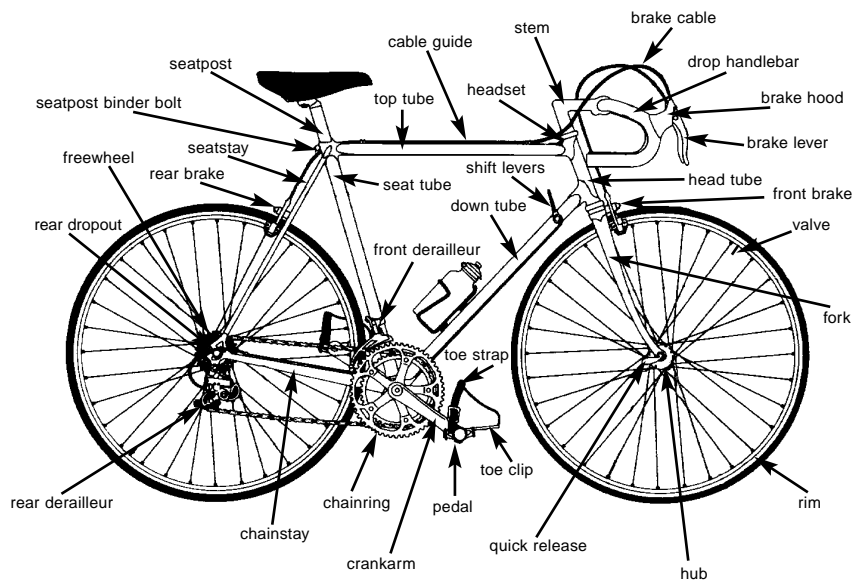
- To tell if a chain has become worn and stretched enough to require replacement, measure it with a foot-long ruler. Put the first mark on the center of any rivet, then look at the 12-inch mark. On a new chain it will also be on the center of a rivet. On a worn one, it will fall an eighth of an inch or more short of a rivet.
- A simple fix for a skipping drivetrain: Turn the barrel adjuster on the rear derailleur cable 1/2 to a full turn.
- When you hear the disconcerting scrunch of “chain sucking” and it feels as if a stick has been jammed through your chainrings, stop pedaling immediately. Either get off and turn the crank backward to free the chain, or learn to do it while on the fly. Otherwise, you risk damage to the chain, chainring, and chainstay.

- Extreme chain angles, such as combining the largest rear cog with the large chainring (or smallest cog with the small chainring), may never run quietly or smoothly, which is one reason they shouldn't be used. Another reason not to use these gear combinations: It could cause additional wear on your drivetrain.
- If possible, lube your chain 24 hours before riding. This will allow the lube's liquid carrier to evaporate and keep your drivetrain cleaner.
- Hose your bike after riding in the rain to remove most of the grit. Then dry it with a towel, and spray lubrication into derailleur and brake pivot points and where cables enter or exit their housings.
- The most important rule of mountain bike maintenance is frequent cleaning. Dirt acts as a grinding compound when it gets between moving parts. In muddy or sandy conditions, hose down the bike after every ride.

## Wheels and Tires

- Carry a patch kit *and* a spare tube, so you're not hopelessly stranded if you have two flats on a ride. Also, always carry a spare tube in the rain. Flats occur more frequently, and it's difficult to apply patches when it's wet.
- You'll know that a quick-release is tight enough in the frame if pushing the lever leaves an imprint on your palm.
- Beware of using a gas station's air pump. It quickly delivers a large volume of air, which can blow a bike tire off the rim.
- The patches in most tire repair kits have foil on one side and plastic on the other. The surface under the foil goes against the tube (after glue has been applied) and then the plastic is peeled off.
- When a clincher tire is properly installed, its bead (the thin line molded into the rubber just above the rim) should not bob when the wheel spins. However, if the line between the tire's sidewall and black tread wobbles, don't

# Bike Anatomy



A typical road bicycle



A typical mountain bike

worry—most tires have some irregularity and it won't affect performance.

- At least once a month, inspect each tire's tread for embedded glass or other debris. Potential puncture producers can often be removed before they work through the tire casing to the tube.
- When fixing a flat, carefully feel around the inside of the tire. Whatever caused the puncture may still be lodged through the tread, ready to strike again.
- If a spoke breaks, stop right away and remove it or twist it

around its neighbors. A flapping rear-wheel spoke can snag the derailleur and cause lots more damage.

- Presta valves may stick closed preventing your pump from working. The solution is simple. Before inflating a tire, unscrew the valve and fully depress it twice, releasing a small amount of air. This frees the valve and allows easy inflation.
- Refine your tire pressure to meet special riding needs. For instance, cornering force and shock absorption are improved by slightly decreasing pressure—about 10-15psi. Lower tire pressure is also good for touring or when riding in the rain. A

slightly higher pressure—about 10-20 psi—decreases rolling resistance. This is best for a race or time trial where comfort is less important than speed.

- Put your tire patch kit and other tools in an old sock before storing them in your saddlebag. This keeps everything organized and prevents rattling. Then, when you need to make a repair, slip the sock over your hand to avoid getting greasy while making repairs.
- If your bike is plagued by mysterious clicking sounds that you can't solve, put a drop of oil on each spoke crossing. Sometimes the noise comes from two spokes rubbing together.

## New Bikes

- Always take a new bike back for the free 30-day checkup that most shops offer. (Mark the date on your calendar.) The mechanics can spot and correct slight problems that you may not even notice. After this, your bike shouldn't need service for six months to a year, other than chain and cable lubrication.

## Pedals

- Silence annoying clicks and creaks in clipless pedals by applying a few drops of oil to the cleat where it contacts the pedal and to the pedal-gripping hardware.

## Handlebars and Headsets

- Wrap handlebar tape from the end of the bar to the middle to prevent it from unraveling while riding. Secure the ends near the stem with colored electrical tape.
- To check for a loose headset, stand beside the bike, squeeze the front brake lever, and rock the bike forward and back. You'll hear a clunking sound if the headset is loose. Tighten it. Then, check to see if it is too tight by slightly elevating the front wheel and letting the handlebar turn from one extreme to the other. If it sticks in either direction, the headset is tight and should be adjusted or repacked, with new lube.

## Weather

- Severe cold won't affect a bike, but if you love it at all, avoid subjecting it to extreme changes in temperature or humidity. For example, if you move your bike from a cold garage to a heated house, the temperature change will cause condensation inside the tubes. This will eventually lead to rust on steel frames.

Still have questions? With thousands of tips on repairing and maintaining any road or mountain bike, *Bicycling Magazine's **Complete Guide to Bicycling Maintenance and Repair*** has the answers! Check it out at [bmr.bicycling.com](http://bmr.bicycling.com).



# EQUIPMENT

## Reflectors

- Put some reflective tape on your crankarms. The up-and-down motion is very effective at catching motorists' attention.
- Have a clip-on light/reflector handy for when you get caught out at dusk. If you ride at night, install a battery-powered red or amber rear light, and use a bright, white headlight.

## Saddles

- In choosing a saddle, the key factor is the distance between your "sit bones." These should be your contact points with the saddle top. Because many women have a wider distance than men between these bones, wider saddles are designed for their anatomy.

## Wheels and Tires

- Installing lighter tubes is one of the most economical ways to improve performance. When you reduce the weight of a wheel, you make the bike lighter and easier to pedal. Premium tubes weigh about 2 ounces less than standard ones. Yet they cost only about \$2 more.

## Eyes and Ears

- To prevent your glasses from fogging, smear both sides of the lenses with a little gel toothpaste and rinse with cold water. Then gently towel dry.
- Don't ride on the road with earphones. While the tunes sound good, you can't hear traffic. Besides being just plain dumb, cycling with earphones is illegal in lots of states.

## A New Bike—Yay!

- Buying a new bike? Here are 8 quick things to check for when you go to the shop to pick it up:
  1. Make sure it's the exact model, color and size you want, and that it has the same components and accessories you ordered.
  2. Wear your riding clothes and shoes to the shop to accurately adjust the seat and handlebar.
  3. Spin the wheels to make sure they're true and the brakes don't rub.
  4. Verify that the tires are inflated to recommended pressure on the tire.
  5. If you're uncertain, find out how the quick-releases work, then remove and reinstall a wheel several times to become familiar with the procedure.
  6. Learn how to remove slack from the gear and brake cables using the barrel adjusters.
  7. Before heading for home, go for a short test ride to make sure the brakes and derailleurs work.
  8. Don't forget the owner's manual, then read it thoroughly prior to your first real ride.

## Bike Bags

- To carry stuff on your bike, install a rear rack and pannier. The rear bag can carry a tire repair kit, cable lock, and a bag full of groceries.

## Rainy Weather

- Wear bright yellow or orange to be visible to motorists.
- Put a visor or cap under your helmet to keep rain out of your eyes.
- Install lightweight plastic or aluminum fenders to keep dirty road water off you and your bike.
- Keep your frame waxed and your drivetrain well lubricated.
- Use wide, slightly underinflated tires to increase contact with the road.
- When you end your rainy day ride, immediately wipe your bike down with a towel, then lubricate the chain and use a water-dispersing spray, such as WD-40, on all cables, housings, and the pivot points of the brake and gear systems.

## Locks

- U-locks are easy to carry and hard to bust. Lock the frame and both wheels to a fixed object and make sure the bike can't simply be lifted over it.

## Mirrors

- A helmet-mounted rearview mirror allows you to see what's behind without turning your head and shoulders. Sure it's geeky, but you'll be a lot safer.

## Pumps

- Buy two pumps: a floor model for home use and a frame-mounted one for emergencies. A frame pump won't last long

if used every day, so save it for times when you have no other option.

- To extend your pump's life, disassemble it twice a year and dab a little grease on the plunger. This will keep the rubber soft and the seal strong.

## Car Racks

- Grease the quick-release and mounting bolt threads on your automobile rack to prevent freezing or breakage because of rust.



# CLOTHING

## Shoes

- Don't dry soaked shoes near a heat source—it may cause them to shrink or become brittle. Instead, remove the insoles and stuff the shoes with crumpled newspaper, changing it after a couple of hours.
- Put thin, resilient insoles in your shoes to improve comfort and insulate your feet.

## Helmets

- Helmets shouldn't be tipped back, causing them to catch wind and expose the forehead. Adjust the 4 retention straps to have equal tension when the helmet is level.
- In winter, wear a balaclava under your helmet. Hats are bulky and may require changing helmet pads.

## Shorts and Tops

- Always wear padded cycling shorts. The smooth leather chamois or synthetic liner will reduce chafing and increase comfort. Leave the white-tighties in the drawer. No underwear should be worn with bike shorts because the seams will score you like ropes.

- About 70 percent of the drag in cycling is caused by the wind resistance of the body. The best way to reduce this is to wear clothing made of a tight stretch fabric such as Lycra.

## Night Riding

- When out at night, wear white. Also, use clothing that has reflective stripes or panels. Look for reflective material on the heels of cycling shoes the next time you're shopping for a pair.

## Weather

- Long-distance tourists should buy a rainsuit designed for cycling, which is more comfortable and protects against hypothermia even in the nastiest weather. Commuters can get by with just a poncho. If you don't have either and rain is possible, wear garments made of wool, polypropylene, or other materials that insulate when wet.
- In hot weather, wear light-colored. A white jersey will deflect a large portion of the sun's rays, and one made of a wicking material such as polypropylene will transport perspiration and enhance cooling by evaporation. Mesh panels can increase comfort by allowing more air to reach the skin.
- Your hands and feet will be the first to complain about the cold. Protect your mitts by wearing gloves that contain an insulating material covered by a windblocker such as Gore-Tex. Neoprene booties and wool socks will stave off toe numbness.

## Gloves

- Other than a helmet, cycling gloves may be the most important safety item you can wear. They provide a nonslip grip, enable you to brush debris from spinning tires, allow you to wipe stinging sweat from your eyes, cushion your hands against road shock, and protect your palms when you reach out during a fall—and some gloves have soft, terry-cloth backings to wipe your nose with.



## Glasses

- When purchasing riding glasses, try on lots of models and simulate different riding positions while wearing your helmet to check for an unobstructed, undistorted view. Wraparound lenses are best because they provide the most wind protection and don't interfere with peripheral vision.

# RIDING POSITION

## Bike Size

- To tell if a bike is the correct size, stand over it while wearing your riding shoes. For a road bike there should be 1–2 inches of clearance between your crotch and the top tube. For a mountain bike the distance should be 2–3 inches to provide an extra margin when dismounting quickly in rough terrain.

## Saddle Position

- Your saddle should be level. It's usually not a good idea to mount your saddle with the nose pointing down. Doing so can cause arm fatigue as you try to keep from sliding forward.
- Saddle height (distance from the top of the saddle to the pedal axle when the crankarm is pointed down and in line with the seat tube) is not an exact science. Use the following two methods to get into the proper range, then take your body's advice during rides and make slight refinements.

1. With your bare feet 6 inches apart, hold a tape measure firmly into your crotch and measure to the floor. (Have a friend help so you're exact.) Multiply this number by 1.09, then use the result to set the saddle height.

2. Pedal backward, using your heels. Place the saddle just below the point where you must rock your hips to keep your feet in contact.

- To set the saddle's fore/aft location, follow these steps:

1. Locate your right leg's tibial tuberosity—the bony bump below the kneecap. This conveniently lies on a vertical line that passes through the center of the knee joint when the crankarm is directly forward. This line should also bisect the pedal axle.

2. With the bike mounted on a resistance trainer or against a wall so the top tube is level with the floor, turn the right crankarm to 3 o'clock and drop a plumb line (a nut on a string will do) from the front of your tibial tuberosity.

3. Angle your knee slightly outward, and see where the string passes the pedal axle. Slide on the saddle until the string and axle line up, then dismount and move the saddle accordingly.

- Alter your saddle height occasionally if you are still growing or you ride year-round. Lower your saddle in winter in proportion to the thickness of extra layers of tights and shorts, or if cold weather tightens your leg muscles.

## Handlebar Position

- For road bikes, put the top of the handlebar about 1 inch lower than the top of the saddle. Never position a quill stem above its minimum-insertion mark; 2 inches must remain in the steerer tube or it could be deformed (and weakened) by the expander plug.

- For mountain bikes, position the brake levers so that your wrists aren't bent. Instead, your hands should drape over the bar and rest on the levers with straight wrists.

## Test Rides

- After making the necessary adjustments to your position, minor aches and pains may develop before your body adapts to its new riding posture. Resist the temptation to keep fiddling for four or five rides.



# SAFETY AND ETIQUETTE

## Visibility

- The first rule for safe cycling on roads with heavy traffic is to be seen. Wear bright colors such as red, yellow and orange, and use lights and reflectors when light is low.

## Road Position

- Ride far enough into the traffic lane to avoid being struck by opening doors on cars that are parallel parked. You might get some honks from drivers who don't understand why you won't pull to the right to let them pass immediately, but, hey, at least you'll know they see you.
- Don't gain ground at red lights by passing a line of cars on the right. It's illegal, and you can get "doored" from either side. It also irritates motorists, because they have to pass you again after the light changes.
- Always ride in as straight a line as possible so drivers can sense how far left they have to go to get past you safely. Never weave in and out between parked cars.

## Signals and Warning Devices

- Earn drivers' respect for yourself and all cyclists by using hand signals for turns, swerves, and braking. Use your left arm (finger pointed) to signal left turns, your right arm for right turns. Don't signal right turns with the left arm. It originated because divers can't reach across to the right window.
- Horns, bells, and whistles work as warning devices but sometimes they take too long to use and most aren't loud enough to be effective. A scream is instant and requires no hands.
- Use your ears as an early warning system. Tip-offs to danger include engines revving or slowing, squealing tires, and gear changes.

## Assertive Riding

- Ride defensively, but this doesn't mean timidly. Be predictable and ride with a self-assurance that shows. This will help motorists feel comfortable with you.
- If you have the right of way at an intersection, don't coast through or drivers may assume they can cut in front of you. Keep pedaling, but be prepared to brake.
- When you see a car stopped at a cross street, watch its front wheels, where it's possible to spot even slight forward movement. If you see any, get ready to brake, swerve, or shout.

## Common Driver Errors— And How to Avoid 'Em

- Turning left in front of an oncoming cyclist who's going straight through an intersection. Make eye contact with the driver and nod that you're continuing forward.
- Failing to obey a stop sign and pulling in front of a rider. Stand on your pedals at stop signs to improve your visibility.

- Passing a cyclist and immediately turning right into his or her path. Keep your hand on the brake when a driver passes and look for a signal.

## Trail Etiquette

- Always obey the International Mountain Bicycling Association's "Rules of the Trail":

1. Ride on open trails only.
2. Leave no trace.
3. Control your bicycle.
4. Always yield trail.
5. Never spook animals.
6. Plan ahead.

## Chapter 6



# HEALTH

## Muscles

- To help prevent muscle soreness after a strenuous ride, pedal easily during the final 10 minutes and avoid hills.
- If your triceps muscles become sore it may mean your stem is too long. Conversely, if it's too short, your shoulder muscles will bother you.

## Eyes

- Need a mirror for any reason, such as relocating a wayward contact lens or finding a gnat in your eye? There's one on the driver-side door of almost every parked car. You'll also find one in most gas stations or convenience stores.
- Wear sunglasses to feel fresher on long rides. Squinting into the sun and wind fatigues the optical and facial muscles.
- If you get something in your eye and your natural reflexes (blinking and tears) don't dispel it, stop and wash it out with clean water from your bottle. If no water is available, pull your upper eyelid over the lower one, then roll your eye. This often deposits the object onto the lower lid.

## Back

- If you have back pain when you ride in the drops for more than a few minutes, raise the stem until its top is just an inch or two below the top of the saddle.
- If you suffer from lower backaches caused by riding, you may have a strength imbalance between your stomach muscles and those that lift your legs. The best cure is a daily dose of crunches. Simply bend your knees 90 degrees and roll your shoulders off the floor, stopping before the small of your back leaves the ground.

## Neck

- To prevent neck discomfort while riding, don't keep your head in the same position for more than 5 minutes at a time. Periodically tilt it to stretch and relax the muscles. Every so often on a straight, clear stretch of road, let your head drop to your chest—rotating it in one direction, then the other.

## Feet

- Relieve your feet by occasionally not pushing down for several strokes. By only pulling up, you reduce pressure on your soles and enhance blood circulation.
- At the first sign of foot discomfort on a long ride, slightly loosen your shoelaces or straps. Feet tend to swell as the miles go by, and it's the resulting tightness and restricted blood flow that causes pain and the sensation of heat.

## Hands

- To prevent numbness in the hands caused by the compression and hyperextension of the nerves passing through the wrist into the palm, cushion the pressure points. Padded gloves and handlebar covers go a long way toward solving the problem.
- Change your hand position every 3-5 minutes. On a road bike, go from the tops to the lever hoods, to the hooks, to the drops, and all points between. Each change alters the angle of your back, neck and arms, bringing some muscles more into

play as others are stressed less. This is a key to comfort on long rides. On a mountain bike, move your hands to different parts of the grips

## Mouth

- After you finish a ride, brush your teeth before drinking and eating. This will cleanse your mouth of mucus, plus the dust, grit, and other airborne stuff that you've been breathing.

## Saddle Sores

- Saddle soreness results from slight bruising and is something all new or infrequent cyclists experience, but it'll pass as riding becomes more regular. Saddle sores, however, can happen to any rider who neglects to the right equipment and hygiene, so follow these tips:

Dress right. Wear shorts with a natural or synthetic chamois liner, and don't wear underwear while riding.

Keep clean. Wash your private parts and the shorts before every ride. Have two pairs of shorts so one is always clean and ready.

Dry your shorts inside out in the sun. Ultraviolet radiation kills bacteria.

Avoid wearing tight pants when not riding. Loose clothing permits air circulation and helps keep you dry, thus inhibiting the growth of bacteria. Sleeping without underwear may also be helpful.

Inspect your bike. If your saddle is too low or high, angled up or down, or too far from the handlebar, this can cause excess movement and the chafing that leads to sores.

Ride smart. On the road, stand up when cycling over railroad tracks and rough patches, and make it a habit to pedal out of the saddle for 30 seconds at least once every half hour.

Use a good-quality saddle. Your saddle should be firm enough to keep your body stable, yet flexible enough to

absorb your weight. It should be wide enough in back for good support, but narrow in front where your legs need room. Overly wide, cushy seats can cause rocking and chafing.

- If you get a saddle sore, wash the area a couple of times a day with an antibacterial soap such as Hibiclens or Betadine Surgical Scrub. Keep your crotch as dry as possible between cleanings. Don't cover the sore with salves or ointments because these may actually keep bacteria alive. Don't apply alcohol, which can dry the skin too much and cause additional irritation.

## Knees

- If you suffer from chondromalacia (a degeneration of the cartilage under the knee cap), cycling should help, not hurt, as long as you adjust the saddle so your knee remains only slightly bent at the bottom of the pedal stroke, and avoid big gears and long, steady climbs. The key is to spin at an easy cadence of about 70-80 rpm in moderate gears.
- If your cleats and saddle are properly adjusted, knee noises aren't anything to worry about unless they're accompanied by pain.

## Extreme Weather

- When the forecasted high temperature (in Fahrenheit) and humidity total 160 or more, start cycling earlier, rest during the hottest part of the day, and complete the long rides in the evening.
- Layering is the secret for taking the danger out of temperatures as low as 10 degrees below zero. Start with long underwear made from a material that wicks perspiration away from the skin, such as polypropylene. Then add insulating layers of wool or synthetic and cover it all with a breathable windbreaker. Don't overdress. As a rule, you should feel slightly chilly during the initial miles.
- Inhaling frigid air during winter rides will not damage your throat and lungs. Exercise markedly increases body tem-

perature, and the extra heat you generate instantly warms each breath you take.

## Weight

- To improve your performance, especially on hills, lose weight. The ideal amount of body fat for an elite male rider is 6-9 percent and for a woman, 11-14 percent. In contrast, the average sedentary adult male has 20 percent fat while his female counterpart has 25 percent. Have your percentage calculated by a professional using one of three common methods: underwater weighing, skinfold measurement, or electrical impedance.

## Water Bottle Hygiene

- Fill the bottle with hot water and put in 4 drops of bleach. Let it stand overnight, then rinse with alternating hot and cold water to wash out any remaining bleach. This kills bacteria and leaves no taste.
- If the idea of bleach doesn't appeal to you, let the bottle stand overnight with a teaspoon of lemon or lime juice in the water.
- Rinse the bottle with warm water containing a teaspoon of baking soda. Then put it upside down in your bottle cage to dry.
- Wash the bottle in a dishwasher every time you use it.
- Don't drink from another person's water bottle. This can spread all kinds of nasty infections.
- On long rides, you must replace electrolytes. These are minerals (sodium, chloride, potassium) that carry an electrical charge that's necessary for muscle contraction and the maintenance of fluid levels. If you don't use a sports drink (or don't eat) on a long ride, you can suffer dangerous electrolyte imbalances such as a low blood sodium condition called hyponatremia. This results in lethargy, confusion, and muscle weakness. And will end your ride. Ugh.



# NUTRITION

## Burning Calories

- If you're interested in losing a few pounds, schedule your rides for midday. Not only will you burn calories, but the exercise will also suppress your appetite, letting you be satisfied with an apple or a cup of low-fat yogurt for lunch.
- To estimate the number of calories burned while cycling, use this formula: A 150-pound adult riding at 15 mph burns 12 calories per minute. For each 15 pounds above 150, add 1.2 calories per minute. For each 15 pounds under 150, subtract 1.2 calories per minute.

## Drinks

- Freeze a bottle of water for hot rides. It'll slowly melt, supplying you with cool, refreshing liquid. Conversely, fill your bottle with hot water for cold rides.
- Drink *before* you're thirsty. In hot weather you should be downing about two water bottles per hour. Why so much? Dehydration is one of the primary—but most easily avoided—contributors to fatigue.

- When mixing sports drinks, put a less-concentrated solution into the bottles you'll drink last. Drinks always taste sweeter the longer you ride, and what seems pleasant initially can taste syrupy 3 hours later.

## Eating While Riding

- When riding one-handed because you are reaching for food or water, grip the handlebar top next to the stem. This helps you sit up, and your movements won't be as likely to make the bike swerve.
- Practice eating while on training rides. Clear your nasal passages just before eating because you have to breathe through your nose while chewing.
- Eat something every 30 minutes on long rides to keep energy levels high. Preserve your glycogen (muscle fuel) by always accelerating smoothly, avoiding hard efforts on hills, and resisting all other activities that make your body switch to anaerobic metabolism to meet extra energy demands. Hard riding uses glycogen much less efficiently than evenly paced, aerobic metabolism.

## When to Eat

- Nibble solid food almost continuously during long rides. Don't wait until you start feeling hungry, because by then it's too late for food to digest in time to replenish energy.
- Never experiment with food or eating patterns on an important ride. Do it during training to find out what works and what doesn't.
- Don't attempt to build a reserve of energy-rich carbohydrate by eating large quantities at the pre-event meal or during the event. It takes 12 to 24 hours to digest and store carbohydrate in the muscles and liver in the form of glycogen. In other words, your fuel tank is filled by the spaghetti, rice, potatoes or bread that you eat during the 2 or 3 days leading up to the event.

- Don't eat solid food within 30 minutes prior to a substantial climb. It won't digest fast enough to give you energy, and your stomach may become upset when the going gets strenuous. Welcome to yak city.
- For short workouts don't eat beforehand. Otherwise, some of your blood will be used for digestion rather than supplying oxygen and nutrients to your working muscles. Your legs don't need to be fed—they have enough stored glycogen for an hour-long ride.
- If possible, eat 5 small meals each day rather than 2 or 3 large ones. Small meals spread calories throughout the day, providing a continuous source of energy. Processing a large meal can sap energy. Also, when you overload your digestive system, your body can handle only some of the calories. The rest are diverted into fat stores, which are less effective for fueling exercise and make your pants size increase.
- Following a long ride that depletes your glycogen stores, eat a high-carbohydrate meal within 30 minutes. This prompt refueling will enable you to ride well again the next day.

## What to Eat

- For a pre-ride breakfast, try these racer favorites: rice pudding (212 calories per serving), yogurt (114 per cup), muffins (103 each), whole wheat toast (59 per slice), oatmeal (145 per cup), and whole-grain cereal (111 per serving).
- For endurance cycling use this rule: You can ride 2 ½ hours without eating. But if you do eat, you can ride all day. Ideal on-bike foods include energy bars, fruit, and cookies.
- Eat pasta before a big event and you'll be in the company of 83 percent of world-class cyclists, according to one poll. Their pasta of choice is spaghetti, and 60 percent of them eat it at least three times a week.
- If you ride 1 hour a day, 60 percent of your daily calories should come from carbohydrate. If you ride 2 or more hours per day, up it to 70 percent.

- To prevent “bonking” (hypoglycemia, which is marked by tiredness, irritability, dizziness, nausea, confusion and sometimes fainting,) don't allow your blood glucose to become depleted. Constant snacking during long rides and sports drinks prevent bonking. This is the substance that fuels the central nervous system. To keep your stores supplied, eat the same carbohydrate-rich foods used to produce glycogen, the fuel your muscles use.
- To remedy the bonk, stick something in your pie hole, especially something rich in carbohydrates.



# SKILLS

## Road Hazards

- Cross railroad tracks near the side of the road. It's less worn there than in the center. Always cross with your wheels perpendicular to the rails, and be extremely careful if they're wet.
- Perhaps the simplest way to stop an attacking dog when you can't outsprint it is to yell, "No!" or "Go home!" Repeated several times in a strong voice, these commands mimic the dog's owner and may put an abrupt end to the chase.
- Don't ride through a puddle if you can avoid it. It's not uncommon to find a gaping hole under the water.
- Be especially cautious when rain begins, particularly if it's been dry for a few days. Oil and dust will float to the road surface, making traction treacherous. But as rain continues and washes this slippery stuff away, traction may become almost as secure as on a dry road. Painted lines and steel surfaces (manhole covers, grates, railroad tracks, bridge decks) are always slick when wet.

- To get safely through a sandy or gravel-strewn corner, straighten up the bike and lean your body until you're past the loose stuff, then resume turning.
- When you're braking in the rain or anytime your rims are wet, remember that the first few wheel revolutions will only dry the rim and pads, so allow yourself at least 25 percent more stopping distance. Once squeegeed dry, the brakes may suddenly take hold. Be ready to loosen your grip on the levers as soon as you feel the grab, or you could skid.
- The key to making it safely through unexpected patches of sand or gravel is to stay relaxed. Resist the temptation to jam on the brakes, and give the bike enough freedom to drift in the direction it wants.
- If forced from the road onto a soft shoulder, react instantly by sliding back on the saddle, reducing your cadence, and maintaining a firm yet sensitive grip on the handlebar. Continue on the shoulder until you find a safe and convenient "on-ramp" back to the pavement.

## Technique Tips

- Take a cue from fighters who shadow box to refine technique. Early or late in the day, watch your shadow as you ride, checking for flaws in position, form, and pedaling style.
- For easier breathing that contributes to maintaining a low riding position and a flat back, try this: Instead of actively drawing air into the lungs and then passively letting it out as in normal breathing, do the opposite—actively push air out and then passively let it in.
- Use the whole saddle during rides. Sit in the center for normal pedaling, scoot forward to increase your spin, and slide back to power up a hill.
- Stretching on the bike helps minimize fatigue. Coast, put your left foot down, then lean far to the right to stretch the back and left leg. Then do the right leg.

- To smooth a jerky pedal stroke, practice spinning down a long, gradual hill in a low gear (42x17) without bouncing in the saddle.

- To keep a straight line on the road:

- Focus your eyes 20 feet ahead when riding at 10 to 15 mph, and 1 foot farther for every additional mph. Looking closer doesn't provide enough time to make smooth corrections when you see things in your way.

- Keep your hands, wrists, and elbows relaxed. Drum your fingers and whistle to relax. It works. Really.

- Practice on an empty parking lot or deserted country road by riding with your wheels on the painted lines. After you can ride without wobbling, try it when you turn your head to look to the side and behind.

- When on trafficked roads, strive to ride an imaginary rail 6 inches to the left of the white road-edge line.

## Descents

- Reduce your need to brake on descents by sitting up to let your body catch the wind. This can take 10 mph off your speed.

- During long descents on wet roads, maintain slight brake pad contact with the rims to keep them free of excess water and allow quicker stopping.

- When descending, your bike will be more stable if you are pedaling, not just coasting. Always descend in high gear to retain the ability to accelerate if the situation calls for it.

- Don't ride the brakes on a long descent. Doing so will heat the rims and could cause a tire to blow off. Instead, apply the brakes briefly and firmly to slow your speed, then coast until you want to slow again. This way the rims and brake pads will cool between applications.

- To stop front-end shimmy when descending, accelerate or decelerate from the point where it occurs. It also helps to lean forward, putting more weight on the front wheel, and to

clamp the top tube between your knees.

## Climbs

- If climbing isn't your forte, start hills at the front of the group and gradually drift back. This way, you'll still be with everyone at the top.

- For long climbs, use a gear you can turn at about 80 rpm. This will be a relatively low gear that helps conserve energy for the entire hill, or you can upshift one cog as you near the top.

- Whether you should sit or stand on climbs is a matter of personal preference. But generally, stay in the saddle on long, steady hills to conserve energy. On short ones, stand to maintain speed.

- Even though it's best to sit on a long climb, it's wise to stand occasionally for a few dozen pedal strokes. This increases comfort by changing body position and altering which muscles are bearing the strain.

- Don't grasp the handlebar drops when climbing because it compresses the diaphragm and inhibits breathing. Instead, use the bar top.

## Mountain Biking

- Shift your weight to maintain traction. If the rear tire starts to slip on a hill, remain seated and slide back on the saddle. Conversely, if the slope is so steep that the front wheel lifts off the ground, lean forward and slide toward the nose of the saddle.

- Pick a line. Look at least 10 yards up the trail and choose a course that snakes around potential momentum stoppers such as rocks, ruts, and logs.

- Anticipate downshifts. It's difficult to shift to a lower gear in the middle of a steep climb and not lose momentum. It's especially important to be in the correct chainring, as it's

more difficult to shift to a smaller ring than a larger freewheel cog under pedaling pressure.

- Find your optimum saddle height. The saddle should be positioned so that your knee is slightly bent when your foot is at the bottom of the pedal stroke. Too low or too high steals power and control.
- Don't squeeze the grips. Don't even wrap your thumbs around them unless it's necessary for control. This will minimize hand and arm fatigue.
- Spin a bigger gear at a lower cadence. This will assure a smooth power delivery and permit you to easily lift your weight off the saddle to float over obstacles.
- Spend most of your time in the saddle. This position affords optimum weight distribution and traction.
- When applying the brakes, use them both, but apply the front more firmly. If the rear wheel skids, lighten your grip on that lever. A skidding wheel won't stop you as well as one that's turning, but the rear can easily lock up because so much weight is shifted forward, especially on descents. This is why skidding the front wheel is almost impossible.
- The least damaging route when you come to a mudhole is straight through the middle. If each person skirts the edge, the mudhole will grow until it's wider than it is long.
- To loft the front wheel over a bump or object, simultaneously lower your torso, apply a hard pedal stroke, and lift with your arms. You'll stay in balance and, by shifting your weight forward a bit, the rear wheel will be free to bounce over lightly.
- The rougher the trail, the more important it is to relax your body and let your bike do its own thing. Think of your arms and legs as a sophisticated and highly efficient independent suspension system that enables your body to float over the ground.

## Wind

- Because wind usually increases during the day, plan a morning ride so your route takes you into a gentle breeze that becomes a brisk tailwind on the return.

## Group Rides

- Joining a bike club is the best and quickest way for a new rider to learn about the sport.
- To become confident when riding in a paceline, start by staying 1 bike length from the rider in front, then gradually close the gap as your experience and ability increase. Once you can ride comfortably within a wheel's length, you'll be enjoying the effects of drafting.
- When taking the lead position in a paceline, don't accelerate. Maintain the same speed as when drafting so you don't cause gaps to open between the other riders.
- Communication is key to safe group rides. Make sure everyone knows of approaching turns, stops, and hazards by calling them out.
- Ride with people who are a little stronger, faster, and more experienced. You'll learn a lot, and soon you'll be stronger and faster, too. Improvement is slow when you always ride alone or with people not as skilled.



# MOTIVATION

## Climbs

- The next time you're struggling on a tough climb, smile. You'll be amazed at its beneficial effect. Also, think "light." Imagine that you weigh half of what you do—that you're a feather on the pedals.

## Goals

- To maintain your motivation, keep a training diary and use a cycle computer. Log your daily mileage (and other data) and tally the miles each week.
- Tell others about your riding objectives so it's harder to back out. You'll find it's easier to stay motivated when you're working toward a specific goal that your friends also know about.

## Variety

- On days when your enthusiasm for cycling is lacking, remove the pressure to do a specific workout. Explore a new route and enjoy the scenery. At the end of the ride you may be surprised to find that your average speed was almost training pace.

- In order for most riders to maintain the proper attitude and motivation for training, it's important to ride alone *and* with a group. The competition pushes you to become better and the solitude allows you to relax or work on weaknesses.

## Creativity

- When you're stuck for solutions at work or home, take a ride. Exercise enhances creativity. Endorphins and adrenaline released during exercise stimulate the right side of the brain, which is believed to be the source for imagination and inventive capabilities. It worked for Einstein. He said he thought of the Theory of Relativity while riding a bike.



# TRAINING

## Easy Basics

- If you're out of shape and just getting started in cycling, begin slowly. Initial rides, whether outside or on an indoor trainer, should be limited to 20–30 minutes, 3 days a week. Pedal briskly, but don't get out of breath. As fitness increases, begin riding 5 days a week for at least 30 minutes, and progress from there.
- Indoor trainers are a good way to maintain a degree of cycling fitness in winter, but you'll do better to ride outdoors as much as possible.
- Even a new rider who has no racing ambitions can benefit from a weekly program that includes both speed and distance. To firm your legs, lose weight and be healthier, use a program with these 3 elements:
  1. Moderate days. To lose weight, forget about the stopwatch and ride medium distances at a comfortable pace. This will burn fat, as opposed to the carbohydrate that fuels short, intense efforts.

2. Endurance days. To improve your stamina, go on one long ride every week. Don't worry about time, just complete the distance.
3. Speed days. One day a week of speedwork and one of intervals (never back to back) are crucial to cardiovascular improvement and muscle tone.

## Weather

- If you train late in the day when the temperature dips, carry a 2x2-foot piece of plastic folded in a pocket. When you begin to chill, stuff the sheet up the front of your jersey to insulate your chest. This also works for long descents in mountains.
- At the start of a long training ride, go into the wind. This way, you can ride faster coming back even if you're tired, and you won't be chilled by a stiff breeze.
- In bad spring weather, ride a mountain bike on the road. You'll save your road bike from rust and build power pushing the heavier bike and fat tires.

## Variety

- If you're bored with a training route, ride it in the opposite direction. You'll be amazed how different it seems.
- On long rides for endurance, throw in a couple of 15-second sprints every 45 minutes or so. You'll relieve saddle pressure, add variety, and develop speed.

## When to Ride

- Commute by bike. This is the best way to include cycling—and a few more valuable training miles—in your everyday activity.
- Don't take the day off before an event. If you need rest, do it 2 days before. Instead, take a short ride on the eve of the event, and include a couple sprints to make sure your bike and body are operating well.

- If you have limited time to train, make every second count. Prepare your bike and lay out your riding clothes the evening before. Or ride during your lunch hour and snack later back at the desk. If you emphasize quality by keeping your heart rate high, you'll be amazed at how much improvement you can pack into an hour.
- The biggest problem that many cyclists face is finding enough time for training. Here are 10 ways to do it:

1. Train before work.
2. Ride at lunch.
3. Commute by bike.
4. Train at night.
5. Schedule your ride like any other daily appointment.
6. Train intensely to maximize limited time.
7. Scale down your goals to reflect limited time.
8. Get your family's support so you can ride without guilt.
9. Combine your cycling with family activities.
10. Ride indoors when bad weather or interruptions occur.

## Gaining Speed

- Take your time warming up for a workout. For example, it may take 20–30 minutes of easy spinning before you feel ready to go hard. Stretching before riding may help reduce this time.
- To develop the ability to quickly accelerate to high speed, do “speedwork” once a week. This is a training session based on a thorough warmup, then several all-out bursts to top speed interspersed by easy riding for full recovery.
- To improve your ability to sustain fast riding, do “intervals” once a week. Following a warmup, accelerate to a speed that's as hard as you can go for the specified time (usually 15 to 90

seconds). Then ride easier for 30 to 60 seconds to partially recover. Repeat several times, then ride easily to cool down.

- Even if you just ride for fitness but would like to come closer to your potential, intervals can help. They'll improve your ability to match the pace on club rides while helping you surmount those little rolling hills that seem to be everywhere. If you want to race, though, intervals are essential.

## Recovery

- The best way to recover from a hard effort is to ride easily the next day rather than take the day off. Spin at a high rpm—about 90 in an easy gear. Use the opportunity to cycle with family and friends who are normally “too slow.”
- Don't train hard more than twice a week. Whether you are doing formal interval training, speed play (“fartlek”), club races or tackling big hills, this will wear you down. If you separate such efforts with at least 2 days of low-gear, high-rpm pedaling that assists recovery, the result should be exactly what you want—greater speed and strength.
- Don't ride 1 day each week. A day off refreshes your body and mind. Use your normal riding time that day for bike maintenance. Your bike will love you for the TLC.
- Be aware of the warning signals of overtraining, a condition of chronic fatigue that can devastate any rider, not just racers. Among the tip-offs are an elevated resting heart rate, weight loss, poor sleep patterns, irritable disposition, an I-don't-care attitude, a lingering cold, aching legs, and way too much TV watching.

## Goals

- Beginning with your next workout, start a training diary. It doesn't have to be expensive or elaborate; all you need is space to record daily data. This will allow you to objectively analyze and learn from your experiences.
- One of the best ways to improve is to have a purpose on every ride. If you're cycling with a group, practice your draft-

ing skills by slipping in a paceline. On another day, do low-gear sprints to develop your spin, or try hill repeats to improve your climbing. On easy days, work on cornering, no-hands riding, or other skills that won't tax your cardiovascular system.

- Few things in life are guaranteed, but here's one: If you routinely train in the zone between 65 and 85 percent of your maximum heart rate, you will become fitter. To estimate your maximum, subtract your age from 220.

## Chapter 11



# TOURING

## Planning

- To receive free maps for a tour, as well as excellent brochures on accommodations, attractions, climate and history, contact the tourism office of the state you'll be visiting and the chambers of commerce in the towns you'll be riding through.
- American Youth Hostels (AYH) is a national nonprofit organization that provides its members with inexpensive accommodations (often \$20 or less per night). For information, contact: AYH National Office, 733 15th St. NW Suite 840, Washington, DC 20005; 202/783-6161; [www.hiayh.org](http://www.hiayh.org).
- For road maps customized for cycling, contact: Adventure Cycling Association, Box 8308, Missoula, MT 59807; 800/755-2453; [www.adventurecycling.org](http://www.adventurecycling.org).

## What to Pack

- Always carry a chain tool for repairing the chain. It's almost impossible to improvise when you don't have one, and it's small, light, and inexpensive.

- You don't need a complete wardrobe, even on an extended tour. Make the most of what you're wearing when you start, and carry a change of underwear, socks, and a shirt. Choose clothes that you can wash and dry quickly.
- Double-check your list, then cross off anything that's unnecessary. You want to be comfortable, and a large part of that comfort will be determined by the amount of weight you carry.
- A 1-to-1 low gear ratio (e.g., 28-tooth chainring and 28-tooth rear cog) is necessary if your route has lots of hills. Lower gearing—a larger rear cog and/or smaller inner chainring—is wise for mountainous terrain.

## How to Pack

- For optimum bike handling with loads of 20 pounds or more, put about 60 percent of the cargo in the rear panniers, 35 percent in the front panniers, and 5 percent in a handlebar bag. Put heavy items in the bottom of panniers, and balance the load from side to side to ensure a stable ride at all speeds.
- Never start a tour with full bags. If you've squeezed all your gear into the panniers and strained the zippers shut, what happens the first time you stop to buy local artifacts or a bag of cookies? No cookies for you.
- Although some panniers are made of waterproof material, don't take chances. Put everything you pack into sturdy plastic bags with tight closures.

## Pacing

- Pacing may be the most important key to successful touring. Depending on mileage and terrain, divide the overall trip and each particular day into segments. Balance the long rides with the short, the hills with the flats.
- Pacing is also riding style. Maintain good form and choose gears that permit a cadence of 75–90 revolutions per minute no matter what the terrain. Spinning a lower gear conserves energy and prevents muscle and joint injury when riding day after day.

## Training

- Weekly training for touring should consist of 2 or 3 long rides (typical distance and pace) for endurance, and 1 or 2 short, high-intensity workouts to improve strength and riding skill. These might include hard charges up hills, sprints, or time trials. One weekend day should be reserved for an extra-long ride to get you used to extended periods in the saddle.
- Ride a fully loaded bike on 1 long training ride each week. This will build strength and familiarize you with handling the weight.

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