



Special Olympics Coaching Quick Start Guide

CYCLING



Special Olympics

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Special Olympics welcomes your ideas and comments for future revisions of this guide. We apologize if, for any reason, an acknowledgement has been inadvertently omitted.

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Essential Components of Planning a Cycling Training Session

Each training session needs to contain the same essential elements. The amount of time spent on each element will depend on the goal of the training session, the time of season the session is in and the amount of time available for a particular session. The following elements need to be included in an athlete's daily training program. Please refer to the noted sections in each area for more in-depth information and guidance on these topics.

- Warm-up
- Previously taught skills
- New skills
- Competition experience/
Specific event workout
- Cool-down
- Feedback on performance

The final step in planning a training session is designing what the athlete is actually going to do. Remember – when creating a training session using the main components, the progression through the session allows for a gradual buildup of physical activity.

1. Easy to difficult
2. Slow to fast
3. Known to unknown
4. General to specific
5. Start to finish

In organizing the athletes for effective teaching and learning experiences, the coach should always arrange the session so that:

- The safety of the athlete is ensured.
- Everyone can hear the instructions.
- Everyone can see the demonstration.
- Everyone will have the opportunity for maximum practice.
- Everyone will have an opportunity to be checked regularly for skill improvement.

The procedures for learning and practicing skills on the road are determined by the skill to be learned, the skill level of the cyclists, the size of the training area, the extent of varying terrain and accessible roads, and the number, sizes and ages of the athletes.

Following are recommendations to ensure successful learning, regardless of the type of teaching approach used.

1. Athletes, if at all possible, need to face away from the sun and from distracting influences during demonstrations.
2. Athletes must be able to see and hear the instructions during demonstrations and practice sessions.
3. Athletes must have the opportunity to make the physical and mental adjustment to the bike and road in relation to the skill to be learned.
4. Coaches must schedule maximum time during practice for skill work. This practice must include analysis of each athlete's movements and appropriate and timely suggestions by the coach for the improvement of the athlete.
5. Cyclists must have ample space to practice without interference by other athletes.



Tips for Conducting Safe Training Sessions

The most important factor in planning a training session is to provide for the safety and well-being of the athlete. Every effort must be made to prevent accidents by taking appropriate safety precautions, including providing safe conditions. Though the risks can be few, coaches have the responsibility to ensure that athletes/ parents/ guardians know and understand the inherent risks of cycling.

- Establish clear rules for behavior at the first practice, and enforce them:
 - Keep your hands to yourself.
 - Listen to the coach.
 - When you hear the whistle or command to stop – first be sure it is safe to stop and that the riders near you are aware that YOU are stopping – NEVER STOP SUDDENLY WITH RIDERS BEHIND YOU.
 - Stop, Look, and Listen.
 - Ask the coach before you leave the training area.
- When the weather is poor, have a plan to immediately remove athletes from inclement weather.
- Make sure athletes bring water to every practice.
- Check your first aid kit; restock supplies as necessary.
- Make sure coaches have medical forms and emergency contact information for each athlete.
- Train all coaches on emergency procedures, and provide athletes information on emergency procedures.
- Choose a safe training area. Do not practice in areas with loose gravel, speed bumps or holes in pavement that could cause injury.
- Walk the training area and note curbs or obstacles, and mark them with safety cones. Sweep up gravel.
- If training on open roadways, pre-ride the course to ensure safe conditions.
- Review your first aid and emergency procedures. Have someone who is trained in first aid and CPR on or very near to the field during practice and games.
- Establish clear rules for behavior at your first practice.
- Warm up and stretch properly at the beginning of each practice to prevent muscle injuries.
- Train to improve the general fitness level of your cyclists. Physically fit cyclists are less likely to get injured. Make your practices *active*.
- Athletes must be proficient with the skills outlined in the Basic Skills section before progressing to open road riding.
- A ratio of one coach per five athletes is recommended. A ratio of 1:1 is recommended for road riding. Coaches should ride with the athletes and be available to point out all potential hazards and traffic regulations.
- Rules, such as adherence to all traffic regulations at all times, must be explained and reinforced:
 - Ride on the right side of the road at all times.
 - Adhere to all traffic signs.
 - Yield to cross traffic.
 - Use correct hand traffic signals – be sure your athletes know how to use hand signals.



- All athletes must be accounted for at the start of the period, at regular intervals during the period and at the close of training.
- All cyclists and coaches must wear helmets whenever they are on the bike and keep both hands on the handlebars.
- Coaches should conduct an equipment check prior to every practice:
 - Helmets should be fitted properly and checked for cracks and working straps.
 - Clothing will not interfere with riding.
 - Hair and/or glasses should not interfere with the athlete's line of sight.
 - Bicycle frame and fork are in good condition.
 - Bicycle seat (saddle), handlebars and stem are tight.
 - Accessories (such as water bottle cage, pump, saddlebag or computer) are fastened correctly.
 - Brakes work properly (brake pads grip the rim securely).
 - Tires are properly inflated and wheels are centered properly.
 - Quick-release or wheel nuts are secure.
 - Chain has adequate lubrication and gears are functioning correctly.



Cycling Attire

Appropriate cycling attire is required for all competitors. Every sport has specialized clothing, and cycling is no exception. A coach can help riders understand the need for proper clothing and know how to dress to keep healthy. Discuss the importance of wearing properly fitted clothing, along with the advantages and disadvantages of certain types of clothing worn during training and competitions. For example, long-pant jeans or blue jean shorts are not proper cycling attire for any event. Explain that athletes cannot perform their best while wearing jeans that restrict their movement. Take athletes to local cycling events or watch cycling videos to point out the attire being worn. You should set the example, by wearing appropriate attire to training and competitions.

Establishing a partnership with one of the bicycle retailers in your community can help your program. Visit several area shops to determine who can best assist your program. You are not looking for “sponsorship,” but a reliable shop that will help your athletes the most. The shop does not have to be the biggest in town, but it needs to have staff who will best understand the needs of Special Olympics athletes. Some shops may be able to offer reduced prices, but remember, business people need to charge for their services. Be sure to check with Special Olympics, Inc., to determine availability of group discount programs. In addition, several mail order catalogs offer discounted prices on cycling apparel and equipment.

Helmets

Helmets must meet the safety standards of the Governing Body for cycling in the host country. The fit of a helmet is extremely important. Loose helmets can obstruct vision and will fail to protect during a fall, while helmets that are too small will result in a literal headache to the rider. The front edge of the helmet should rest just above the eyebrows. Straps should be secure enough to prevent the helmet from sliding back from the forehead during an impact. The front and back strap intersections should fit just below the ears. Check with the manufacturer’s instructions. Finally, helmets should provide ventilation slots on the front, sides, top and back of the shell. Helmets that have been involved in a collision involving a blow to the head should be inspected and replaced if necessary.



Shirts/Jerseys

Shirts or jerseys with sleeves must cover the shoulders and should provide comfort and allow freedom of movement in the shoulder and back areas. T-shirts are suitable if tucked in. Remember, loose clothing can get caught in the bicycle’s moving parts or saddle (seat). Cycling jerseys provide protection from the elements and pockets for carrying identification, keys and food; the bright colored fabric promotes visibility.





Shorts

Lycra stretch shorts provide upper leg support, have a padded seat for added comfort and reduced chafing, and allow for freedom of movement in legs and hips. Cycling shorts are designed to be worn without undergarments. Properly fitted mid-thigh shorts are acceptable if cycling shorts are not available. Whether your riders choose to wear Lycra or other shorts, washing the shorts after every training session is a must for good hygiene.



Socks

Cyclists should wear socks, preferably socks covering the ankle.

Shoes

Although running shoes will work, an athlete serious about cycling will want to invest in a pair of cycling shoes. The stiff soles and cleats will provide efficiency to the athlete's pedal stroke. The shoes should fit comfortably without binding or restricting circulation. The rider should try shoes on with the same type of sock used for riding.

A road shoe may be efficient (due to their stiffness and lightweight) but a Mountain bike or a touring shoe may be more practical because these shoes tend to be more comfortable and easier to walk in.





Gloves

Cycling gloves can add comfort for holding the bars and can protect the hands in the event of a fall, and should therefore be worn at all times.



Cold/Wet Weather Attire

Coaches and athletes should always be prepared for inclement weather. Some examples of useful clothing to have available include:

- ◆ Headband
- ◆ Cycling rain jacket
- ◆ Warm undershirt
- ◆ Cycling tights or leg warmers
- ◆ Cycling jacket or arm warmers
- ◆ Long fingered cycling gloves
- ◆ Shoe covers

Accessories

- ◆ Eye protection is recommended for all athletes and essential for athletes with contacts
- ◆ Hydration system such as CamelBak® or water bottle may be useful to ensure proper hydration





Cycling Equipment

The sport of cycling requires the type of sporting equipment indicated below. It is important for athletes to be able to recognize and understand how equipment for the specific events works and impacts their performance. As you show each piece of equipment, have your athletes name -and give the use for each. To reinforce this ability, have the athletes select the equipment used for their events as well.

Bicycle

There are several different types of bicycles used by Special Olympics athletes. Your riders may be using any one of the following bicycles:

Road Bicycle

The drop-style handlebars allow the athlete to ride in a more aerodynamic position. Typically, road bicycles have narrow, high-pressure tires better suited for riding on pavement. Road bicycles can have as many as 30 different gears. Road bicycles are most appropriate for athletes who have higher skill levels.

Mountain Bicycle or Hybrid Bicycle

These bicycles have upright and relatively straight handlebars offering a more comfortable position. Typically, these bicycles have heavier wheels and tires with more tread, which are slower on the pavement. Three chainrings on the front sprocket is common and allows for up to 27 gears.



Tandem Bicycle

This is the classic bicycle built for two people, which is available in both road and mountain bicycle styles.

Hand Cycle and Tricycle

A three-wheeled bicycle (tricycle), typically chain -by the athlete, is equipped with one wheel in the front and two wheels in the back. This may allow an athlete with balance challenges to safely cycle. A hand cycle is a three-wheeled cycle with standard bicycle drive train and standard bicycle crank arms. The hand cycle is operated by pedaling and shifting using only the upper body.

Pedals

Pedals can be found in three types: platform, platform pedal with toe clip and strap, and clipless. Coaches should encourage athletes using platform pedals with toe clip and straps to upgrade to clipless pedals. Double-sided mountain bicycle pedals are easiest to use and can be paired with a mountain bicycle or touring shoe that is safe and comfortable to walk in.



Tires

Tires come in a variety of widths, diameters and tread profiles. Each variety of tire, along with its corresponding tire pressure, offers different characteristics. A narrow high-pressure tire offers the least amount of rolling resistance. For athletes using a mountain bike, a high-pressure smooth-profile tire will be most efficient for riding on pavement. Coaches should encourage athletes to have spare inner tubes correctly sized for their tires in case of a flat.



Saddlebag

The cyclist should be ready for small mechanical problems while training. Your cyclist's bicycle should be equipped with a small saddlebag with a few basic tools. Items are listed below.

The Basic Saddlebag

Item	Quantity
Spare inner tubes	Minimum one, two or more
Tire levers	Two or three
Identification	Card with name and phone number
Patch kit (tapered edge patches)	One kit, but purchase extra glue tubes
CO2 Cartridge (to inflate spare tube)	One inflator, three cartridges

Tool Kit

- Portable tool box or bag
- Spoke wrench
- Freewheel removal tools
- Freehub lockring tool, if Hyperglide-type freehub
- Chain whip
- Chain tool
- Screwdriver for derailleur adjustment
- Crank-arm bolt wrench (3/8" drive ratchet with socket to fit); crank-arm puller
- Allen keys: 3, 4, 5, and 6mm; 7 and 8mm may be needed for certain parts
- Combination wrenches, especially 8, 9, and 10mm; adjustable wrenches (6 and 12-inch)
- Pedal wrench (do not substitute cone wrench for pedal wrench)
- Metric tape measure (to measure positioning changes)



- Plumb bob (simply a weight with cord, again to track position changes)
- Permanent marking pen (for marking wheels, jerseys, underwear, etc.)
- Bicycle floor pump (needs to fit both types of tire valves: Schrader and Presta)
- Spare tires and tubes
- Seat-post binder bolt (spare)
- Chain lubricant, bicycle grease
- Electrical tape
- Safety pins



Equipment Accessories

- ♦ Bicycle computer
- ♦ Frame pump or CO2 cartridge inflator
- ♦ Cones (traffic and marking)
- ♦ Stopwatches
- ♦ Clipboards
- ♦ Whistles
- ♦ Beverage cooler
- ♦ First aid kit
- ♦ Push broom
- ♦ Duct tape



Teaching Cycling Rules

The best time to teach the rules of cycling is during practice. Please refer to official *Special Olympics Sports Rules* for the complete listing of cycling rules. Both you as a coach and your athlete need to:

- ♦ Know the proper uniform/attire to wear for practice and competition.
- ♦ Show an understanding of the event that the athlete is competing in.
- ♦ Understand that the divisioning process includes gender, age and preliminary times.
- ♦ Realize that preliminary times may be adjusted by the coach in extenuating circumstances.
- ♦ Know the course (layout, number of laps etc.)
- ♦ Know to watch for direction from the Chief Referee.
- ♦ Know not to interfere with other riders.
- ♦ Follow official Special Olympics cycling rules and [UCI Rules](#).

Special Olympics Unified Sports® Rules

Unified Sports Cycling refers to only Tandem Time Trial and can be found in the official *Special Olympics Cycling Rules*.

Protest Procedures

Protest procedures are governed by the rules of competition. The role of the competition management team is to enforce the rules. As coach, your duty to your athletes and team is to protest any action or events while your athlete is competing that you think violated the official *Special Olympics Cycling Rules*. It is extremely important that you do not make protests because you and your athlete did not get your desired outcome of an event. Check with the competition team prior to competition to learn the protest procedures for that competition. Many times a simple inquiry into the situation can correct an official's timing or scoring error without the need to file a full protest. It is important to work together with your officials. Not all situations require an official protest filing.

- All protest forms must be fully completed and should contain the following information:
 - Date
 - Time submitted
 - Sport - Event - Age Group - Division
 - Athlete's name - Delegation
 - Reason for protest (Cite the specific rule violation from official *Special Olympics Sports Rules* or UCI Rules.)
 - Signature of Head Coach



Cycling Etiquette

In cycling, it is important that all riders understand the importance of safety first. Should your athletes ride single file or two-by-two? As a coach, you need to determine what is the safest for your riders depending upon the roads you are training on. Practice both ways.

Riders should never wear headphones or use cell phones while riding. Riders need to learn to recognize traffic noises and alert the group as to a car approaching from behind the group. An announcement such as CAR BACK will alert the group. Practice what you should do when a car approaches.

When a rider in the group flats: Develop a plan before riding so everyone knows who waits and who does not. But remember to teach your athletes NOT to wait for another rider during a race!

Water bottles: Athletes should each have their own water bottles clearly marked – no sharing bottles. Teach the athletes and their caregivers to properly clean bottles after each use; using bleach once a week helps to keep the bottles clean. Practice with your athletes on how to drink from their water bottles if they are going to be riding for any length of time. Athletes without the appropriate skills to do so should not have a bottle on their bike, i.e., their bottle can be carried by the coach. Riders should be taught not to throw bottles while riding.

Riders in the lead of the group should alert riders behind of an obstacle. This can be done verbally or by pointing. When an obstacle on the road is seen ahead, the lead rider points with the right or the left hand depending upon where the obstacle is. For some athletes, this is not practical due to balance or control problems; in those situations, coaches should develop a verbal warning plan for obstacles and practice with their athletes.

Spitting and blowing noses: Bike riders may need to spit or blow their noses while riding. Some athletes may not be able to take a hand off of the handlebars to blow their nose. As a coach, you will need to work with each athlete to determine an appropriate technique for spitting or blowing the nose. In a race situation, the athlete needs to be considerate of the other racers.

Going to the bathroom: Remind your athletes to use the bathroom at least 30 minutes before their competition.

Changing clothes: When possible, athletes should not travel to the event in cycling attire. Athletes should change out of cycling shorts as soon as possible after training or racing. Dry clothes should be available to change into after racing or training. At no time should athletes be allowed to change in the open.

Warming up on the course: Riders may warm up on the course only during open course times. Riders must understand that it is not always possible to practice the course at race speed. Riders must respect other riders practicing on the course and give way to all officials and course marshals working on the course. Riders should alert race officials as to any potential hazard seen on the course while warming up.

At Competition

Staging: Riders should be ready to race approximately 20 minutes before the start of their race. Riders need to know how to get to the starting line and line up according to official instructions.

Racing: Racers must respect their fellow racers and should not use profanity at any time during the competition. Safe riding is required at all times; no abrupt or erratic moves are allowed. Riders need to be taught not to move from one side of the road to the other abruptly.

After the race is over: Athletes should congratulate riders they were racing with.

Listening to officials: Athletes need to obey all officials' commands during warm-up and racing.

Bell ringing: The ringing of the bell signifies the last lap of the event. All competitors finish on the same lap as the leader. If a rider has been lapped and has been instructed to stop or leave the course, the rider must do so.

Riding backward on the course: NEVER!

The lead vehicle: Riders are not allowed to pass the lead vehicle.



Cycling Glossary

Term	Definition
Aerobic	Exercise at an intensity that allows the body's need for oxygen to be continually met. This intensity can be met for long periods.
Anaerobic	Exercise above the intensity at which the body's need for oxygen can be met. This intensity can be sustained for brief periods of time only.
Apex	The sharpest part of the turn where the transition from entering to exiting takes place.
Attack	A sudden increase in speed to ride away from other riders.
Bonk (The)	A state of severe exhaustion caused by the depletion of oxygen in the muscles, which has been brought about by failure to eat and drink enough during the race.
Bottom Bracket	The part of the frame where the crankset is installed, including axel, cups and bearings of the traditional crankset, or the cartridge of sealed bearing cranksets.
Brake Calipers	The levers on the handlebars that pull the brake cable, thus activating the brakes.
Brake Levers	Mechanisms attached to the handlebars that control both the front and rear wheel brakes on a bicycle with more than one gear.
Brake Pads	Rubber pads attached to the brake arms, which clamp the rim during braking.
Brakehoods	Rubber covering of the brake calipers, hence "riding on the hoods" is riding with hands resting on the brakehoods.
Breakaway	The leading rider or group of riders who have broken away from the peloton; a second rider or group of riders between the breakaway and the peloton is called the chase group.
Bridging a Gap	Going off the front of the peloton and making contact with a breakaway up the road.
Bunch	The main cluster of riders in a race; also the group, pack, field or peloton.
Cable Clipper	A wire cutter whose teeth cut by passing each other like a pair of scissors, required for making a clean cut of a brake or shift cable.
Cadence	The pedal revolutions per minute (rpm).
Cassette	The set of gear cogs on the rear hub; also freewheel, cluster or block.
Chain	The flexible metal link between the rear wheel and the front chain ring. It transmits the power from the pedals to the rear wheel.
Chainring	A sprocket on the crankset; also a ring.
Chain Rings	The front gear wheels that drive the chain. One- to three-speed bicycles have one chain ring. Ten- to sixteen-speed bicycles have two chain rings. Bicycles with more than sixteen speeds (touring and mountain bikes) have three chain rings.
Chainstay	Small tube running from bottom bracket back to rear dropouts.
Chain Tool	A tool designed to break the chain by extruding the pin from one of the links.
Chamois	A soft, absorbent, slightly padded liner of the crotch of the cycling short, designed to be worn next to the skin.
Chasers	A group of riders ahead of a peloton trying to catch a breakaway.
Circuit	A course that is ridden two or more times in a race.
Cleat	A metal or plastic fitting on the sole of a cycling shoe that engages the pedal.
Clincher	Tire and tube separate, and the tire expands under pressure to grip the sides of the rim like a car tire.



Term	Definition
Clipless Pedals	Pedals designed for use with cleated shoes. The foot is held on to the pedal by attaching the cleat into the clipless pedal.
Cog	A sprocket on the rear wheel's cassette or freewheel.
Crankset	A pair of crank arms.
Criterium	A mass-start race of multiple laps on a course that is about one mile or less.
Cycling Gloves	A fingerless glove, similar to a rowing or golf glove, but with padding on the palm for comfort on the bars and protection from crashes.
Cyclocross	A fall or winter race contested on a mostly off-pavement course with obstacles that force riders to dismount.
Derailleur (front & rear)	Mechanism that moves the chain from one gear wheel to another. The front derailleur moves the chain between two to three chain rings. The rear derailleur moves the chain among as many as 8 gear wheels.
Derailleur Adjustment	A plastic or metal barrel where the shift cable enters the rear derailleur. Turning left or right adjusts where the derailleur hangs relative to the cogs on the freewheel. Front derailleur usually is adjusted by changing cable attachment. Set screws on front and rear derailleurs determine the full range of movement.
Downshift	To shift to a lower gear: larger cog on the rear, smaller chainring on the front.
Downtube	The tube extending from the bottom of the headset down to the bottom bracket.
Drafting	Drafting, or riding closely behind another rider in the slipstream (a pocket of moving air created by the rider in the front), decreases wind resistance. This enables the second rider to maintain speed with less effort. A drafting rider can save as much as 25% of effort and be more rested at the finish of the race.
Drivetrain	Components directly involved in making the wheel turn: chain, crankset and cassette.
Dropout	Open-ended fixtures at the fork ends and at the convergence of the seat and chain stays, which receive the axles of the wheels.
Drops	Lower parts of a turned-down handlebar, also called the hooks.
Echelon	A form of the pace line used in a crosswind: Riders line up offset to the lea side of the rider in front so the pace line stretches across the road at an angle or echelon.
Ergometer	A stationary bicycle-like device with adjustable resistance used in physiological testing or indoor training.
Feed Zone	Designated areas on a race course where riders can be handed food and drinks,. It is customary to feed from the right because most riders are right handed (too bad for the lefties).
Field Sprint	The sprint for the finish line by the main group of riders.
Fixed Gear	A direct-drive power train using one chainring and one rear cog with no freewheel mechanism. Used on track bikes, which have no derailleurs and no brakes and which decrease speed with back pressure on the pedals. Also used on rollers or on road training bikes to improve pedaling technique.
Foot Brake	Mechanism that stops the rear wheel when pedals are pushed in reverse. Foot brakes are used on single speed bicycles.
Frame	The bike's chassis. Frames are made from a variety of materials including steel, aluminum, titanium and carbon fiber.
Freewheel	The cluster of gear wheels attached to the rear wheel, which provides a variety of gears.



Term	Definition
Front Fork	Component of a bike frame that extends from head tube forking down over front wheel to front axle.
Gapped	When a rider falls back out of the draft of the rider in front, usually due to a sudden increase in speed by the rider in front, or to fatigue.
Gear	Toothed wheel (sometimes called ring) that drives the chain.
Gear-Shift Lever	Lever used to switch gears by activating the front and rear derailleurs.
Grupo	Includes crankset, brakes, calipers and front and rear derailleurs.
Hammer	To ride hard in big gears.
Handlebars	The bicycle's steering apparatus.
Handlebar Tape	Tape used to cover the handlebars. Usually made out of plastic, cork or cloth. Some types have foam padding.
Headset	The bearing apparatus at the top and bottom of the head tube into which stem and fork are fixed; should be adjusted snug so there is no play, but not tight so that it binds.
Headtube	Short vertical tube at the front of the frame.
Helmet	Worn on the head to protect from head injury. Helmets used by Special Olympics athletes and coaches must meet the standards of the American National Standards Institute (ANSI Z 90.4).
Indoor Trainer	Used for indoor training or for warming up before a race. A bicycle is attached to the indoor trainer unit by removing either the front or rear wheel. The indoor trainer is a good training tool since the athlete can use his/her own bicycle.
Interval Training	A training method that alternates periods of effort with periods of rest.
Jam	A period of hard fast riding.
Jump	A hard acceleration out of the saddle.
Lead-out	When one rider leads another to the line in his slipstream so the other can slingshot around the first rider for the final meters of the sprint. In any bunch sprint, the first rider to go for the line is considered to be giving the lead-out.
Lantern Rouge	The last finisher in a stage race, considered a position of honor because it takes some skill and planning to be last yet not eliminated by the time cutoff.
Mass Start	Any race event in which all contestants leave the starting line at the same time.
Minuteman	The rider in front of you in the starting order of a time trial, so called because most time trials use a one-minute interval between starters, but correctly used no matter what the actual interval might be.
Motorpace	To ride behind a motorcycle or other vehicle; usually done for speed work in training, but there are some motorpaced races on the track and on the road.
Mudguards	Fenders.
Off the Back	A rider who has failed to maintain contact with the main group.
Overgearing	Using too big a gear for the terrain or for one's conditioning.
Oxygen Debt	The amount of oxygen that must be consumed to pay back the deficit incurred by anaerobic work.



Term	Definition
Paceline	A line of riders in which each lead rider pulls off at regular intervals, drops back to the last position, and begins to rotate through to the front of the line again. May be ridden with riders pulling off the front as soon as they are clear of the previous rider, thus creating a second line of riders dropping back to the rear position; may also be ridden as a double pace line in which the pair of riders at the front pull off simultaneously to the left and to the right.
Peak	A relatively short period of time during which maximum performance is achieved.
Pedals	The foot levers that turn the chainrings.
Peloton	The main group of riders in a race.
Pinch Flat	Internal puncture caused by rim pinching the tube when the wheel hits a hard object.
Presta Valve	Narrow valve stem with small metal screw-down cap, common on light racing tires (see Schrader Valve).
Prime	Prize given to the leader of particular laps during a criterium, or to the first to arrive at a designated line in a road race; pronounced "preem."
psi	Abbreviation of pounds per square inch, unit of measure for tire inflation.
Pull	A turn taken on the front of a paceline; a breakaway of the peloton.
Pull Off	To move to the side after taking a pull.
Resistance Trainer	A stationary training device into which a bike is clamped.
Rim	The outside section of a wheel, around which the tube is inflated. Most rims are made of steel or aluminum. The tire covers the tube and holds it to the rim.
Road Race/Mass Start Event	Road races are mass start events which take place on public roads (mass start is a race in which all the racers start at the same time from the same location). They can be point-to-point races, or loops of one to 25 miles (40km) in length.
Road Rash	Skin abrasion resulting from a crash, the most common cycling injury.
Rollers	An indoor training device composed of three rollers (about three to twelve inches in diameter depending on the type of rollers), set parallel in a rectangular rack that rests on a flat surface.
Saddle	The bicycle's seat.
Saddle Sores	Skin problem in the crotch that develops from chafing caused by pedaling.
Schrader Valve	Inner tube valve like those found on car tires.
Seat Position	Height of seat from center of bottom bracket; fore and aft positioning of seat over bottom bracket; forward and backward tilt of seat.
Seat Stay	Small frame tubes descending from behind the seat to the rear dropouts.
Seat Tube	Frame tube running from seat down to bottom bracket.
Sewup Tire	A tire that is sewed together around its inner tube and glued onto a slightly concave rim, also called a "tubular."
Shift Lever	Modern shift levers are built into the brake calipers; before that, shift levers were placed near the top of the down tube.
Sit on a Wheel	To ride in someone's draft.
Skewer	A metal bar with a cam action lever which clamps the hub of the wheel into the frame.
Slipstream	Pocket of protected air behind a moving rider.



Term	Definition
Spin	Ability to pedal at high cadence.
Spoke	The thin metal support rods which comprise the inside of a wheel and keep the wheel round (or true).
Spoke Wrench	A wrench with a slot designed to fit the top of a spoke.
Sprocket	General term for chainring or cog.
Stationary Bicycle	A stationary bicycle is used for indoor training. The unit provides different levels of resistance.
Stem	The bar that extends from the top of the headset to the handlebar.
Take a Flyer	To go very early in a sprint.
Tempo	Fast riding at a brisk cadence.
Thread Cut	When a puncture has cut one or more threads of the tire casing (throw the tire away).
Time Trial	Time trials pit individual riders against the clock, with the goal to cover the course distance in the shortest amount of time. The course is usually straight out for the 500 meter to 1km distances, and out-and-back for the 5km thru 25km.
Tires	Protect the tube. Tires come in a variety of sizes depending on the size of the rim. Tires come with different treads depending on the terrain the bicycle is used on. Mountain bike tires normally are "knobby" while road racing tires have a smooth tread.
Top Tube	The frame tube running from the seat to the top of the headset.
Toe Clip	Toe piece attached to a pedal, which holds the foot on the pedal.
Tubes	Tubes hold the air that keeps the tires inflated.
Turn Around	The point where riders reverse direction on an out-and-back time trial course.
UCI	Union Cycliste Internationale, the International Federation of bicycle racing.
Upshift	To shift to a higher gear, smaller cog or larger chainring.
Velodrome	A banked track for bicycle racing.



Appendix: Skill Development Tips

Learning to Ride a Two-wheel Cycle (Bicycle)

There are many methods for teaching someone to ride a two-wheeler. One successful way is to find a bicycle of the right size that your athlete can comfortably sit on the seat while touching the ground with both feet. This may mean using a bike that is normally too small for the rider, but for learning, it can add confidence and security. It is now best to remove the pedals, crank and chain, which allows the rider easy and clear access to the ground with the feet. (It is preferable to have your athlete in long pants and a long-sleeve shirt during this learning phase.) Find a very slight decline and have the rider scooter back and forth using the feet for propulsion. When the athlete is able to go down the slight downhill with feet off the ground, it is time to re-install the pedals so the athlete can learn to use them to move the bicycle forward. If you are frequently teaching someone to learn how to ride a two-wheeler, it may be best to have a small bicycle set up for this purpose. Be prepared to demonstrate; set up a bike for you to use for this drill.

Training wheels are probably the most common method for learning to ride a bicycle. One advantage of this method is that the training wheels make the bicycle more stable, which makes the rider more confident. For example, a stopped bicycle without training wheels will not stand up. As the rider gains balance, the training wheels may be raised up in small increments. Just remember that cornering at speed with training wheels may require more caution.

Basic Cycling Skills

Different cyclists will best learn different skills by different methods of teaching. It is your challenge as a coach to learn the most efficient way to teach your riders. Some will need much more verbal explanation, while others will learn simply by example. Breaking down the skills into steps will simplify the teaching process as well as provide positive reinforcement to the athlete who has performed some steps but may not yet be ready to acquire the entire skill.

Learning to Ride a Bicycle Drills

Coasting Drill

Position the bike on a gentle sloping road. Athlete should be able to sit comfortably on the bicycle with feet on the ground, with no holder. NOT using the pedals, the athlete should push off the ground and coast with feet up – not touching the ground.

Pedaling Drill

Athlete sits on bike and puts right foot on the right pedal, balancing on the left leg and pushing with the left foot to move the bike forward while at the same time pushing the right foot down on the pedal. Place left leg on left pedal as the bike starts to move forward while keeping the head up and looking forward.

NOTE: If there is a stationary trainer available; mount athlete's bike on the trainer and practice pedaling.

Pedaling with One Leg Isolated Drill

Have the athlete remove one foot from the pedal and use the other to complete an entire circle of pedal stroke. Make sure the free foot stays clear of the rear wheel. One-leg drills should start with 20 revolutions and progress up to 40. Alternate legs and notice if one leg is stronger or more coordinated than the other.



Mounting and Starting

Mounting a bike is a prerequisite to riding a bicycle.



Mounting and Starting Drill

Athlete straddles the bike and puts right foot on the right pedal, balancing on the left leg and pushing with the left foot to move the bike forward while at the same time pushing the right foot down on the pedal. Athlete lifts himself/herself up onto the saddle as the bike moves forward. He/she places left leg on left pedal as the bike starts to move forward, while keeping the head up and looking forward. Athlete should be able to pedal forward and in a straight line.



Braking (Hand Brakes)

Emphasize to your riders the importance of braking properly. Knowing when to begin braking in different situations is an important aspect of braking. Your athletes should understand that the front and rear brakes stop the bike in different ways. It is best to slow or stop the bicycle using both brakes. If only the rear brake is used, the bike will eventually stop. If only the front brake is applied with the same amount of pressure as used on the rear brake, the cyclist could go over the handlebars. Correct braking involves knowing the balance between the front and rear brakes as well as weighting the back wheel to avoid “skidding” or flipping over the handlebars. Braking skills involve not overreacting, braking gently and “feathering” the brakes by continuing to pedal while braking.

Braking (Hand Brakes) Drill

Hand Brake Stopping Drill

Mount the bike; pedal forward toward a cone; discontinue pedaling while applying equal pressure, squeezing the brake levers until the bike comes to a stop.

NOTE: Athlete needs to be able to identify front and rear brake and practice squeezing the levers; athlete practices squeezing each brake: right lever to activate the rear brake and left lever to activate the front brake.

NOTE: If there is a stationary trainer available, mount athlete’s bike on the trainer and practice braking.



Stopping and Dismounting

The athlete must be able to stop the bike using the mechanical brake system and be able to dismount safely and correctly.



Stopping and Dismounting Drills

Coaster Brake Stopping Drill

Mount the bike and pedal forward toward a cone. Discontinue pedaling forward and keep the pedals in the middle position (3 and 9 o'clock) with the left pedal forward and the right pedal back. Gently push the right pedal backward and down; continue to apply pressure to the brakes while the bike slows down.

Just before the bike stops, lift the left foot from the pedal slightly in preparation to get off the saddle. Lean the bike to the left and put left foot on the ground when fully stopped.

Hand Brake Stopping Drill

Mount the bike and pedal forward toward a cone. Discontinue pedaling while applying equal pressure, squeezing the brake levers until the bike comes to a stop.

Just before the bike stops, lift the left foot from the pedal slightly in preparation to get off the saddle. Lean the bike to the left and put left foot on the ground when fully stopped.

Dismounting Drill

Follow the stopping drill procedure. After coming to a complete stop, lean the bike slightly to the left take the left foot off the pedal and put left foot on the ground. Then athlete moves forward off the saddle, leans upper body forward slightly, raises the right leg back and lifts body off the saddle while both hands hold the handlebars.

For clips and pedal systems, it takes extra time to remove or loosen the foot from the pedal. Allow extra time to remove the left foot from the pedal in advance of stopping.



Riding a Straight and Controlled Line

Riding in a straight line is a primary skill that all cyclists need; a cyclist must have the ability to ride steady no matter what the conditions may be. This skill is needed before a cyclist can ride in a group.

Riding a Straight and Controlled Line Drills

Riding a Straight Line Drill

Set up two rows of five to six cones parallel to each other, with enough room to ride comfortably between. As the athlete becomes comfortable with this drill, increase the distance and decrease the width between the cones.

Looking Forward Drill

Using the drill above, athlete identifies a color card held up by the coach.

Riding Side-by-side with Another Rider While Riding Straight Drill

Use the Riding a Straight Line Drill, add another row of cones.



Changing Direction

Changing direction can involve turning or steering. Turning is a technique where the athlete turns the handlebars to change the direction of travel; this technique should only be used at lower speeds. Turning is a more basic skill that allows your athlete to change direction at low speeds. Steering is an intermediate skill where the athlete uses weight transference of the hips in the saddle (or leaning), rather than the handlebars, to change direction at higher speeds.

Steering on a tricycle can be a challenging task. As with a bicycle, the method is to stop pedaling, transfer weight to the inside pedal and get as much weight to the inside of the cycle as possible. The tendency is for the inside back wheel to lift off the ground and cause the tricycle to tip over. Getting the rider used to this light feeling on the inside wheel is good as long as he/she knows that tightening the corner or increasing the speed will cause a crash.





Changing Direction Drills

Steering Drill

Make a circle of cones or use chalk to make a circle. Stand next to the bike on the left side, holding the bike by the handlebars with both hands. Push the bike counterclockwise around the circle; repeat drill going clockwise while standing to the right of the bicycle.

After a few laps in each direction, athlete mounts the bike away from the circle and pedals forward slowly and approaches the circle, steering onto the circle and riding multiple laps in both directions.



Figure 8 Drill

Using cones or chalk, make a figure eight and have athletes ride the figure eight course.





Slalom Drill

Place ten cones in a straight line approximately 7 meters apart. Before starting the course, athlete should be on the bike in a controlled manner well before the first cone.



Cornering Drill

Go back to the circle of cones. This time the athlete holds the bike by the top of the seat and leans the bike slightly to the inside to make the bike follow the circle. Have the athlete do this exercise in both directions, changing hands.

Find a corner or use cones to make a turn. The athlete mounts the bike and, at a moderate but controlled speed, approaches the corner with the inside pedal up and the head up and looking through the turn. The inside knee is pointed toward the turn, and the athlete is coasting but not pedaling. Repeat this drill by having the athlete approach the corner in the opposite direction.

NOTE: It may be helpful to have the athlete think about touching the inside knee to the elbow just before approaching the turn.





Intermediate Cycling Skills

The next set of skills will prepare the rider to do more than just ride the bicycle. We will now take into account other riders around us as well as riding more efficiently.

Scanning

It is very hard to ride in a straight line forward while looking backward; however, it is not only helpful but also sometimes necessary to know what is going on behind you. Scanning is the ability to look from side to side and behind while maintaining a straight line. It is important to include looking over the left shoulder for cars coming from behind, looking back to change lanes and looking right to see if anybody is trying to pass on the inside. All these moves need to be done while holding a straight line. Cyclists tend to pull the bars in the direction they turn to look. For example, when looking to the back and left, the rider pulls the left hand on the bars causing the bike to veer left. To avoid this, have the upper body relaxed and hands loose on the bars. When looking to locate other riders they may have passed, riders should be able to look under the arm and look for the front wheel of the rider behind and/or to the side of them and ultimately look down and back under their arm to see past the rear wheel.





Scanning Drill

Set up two rows of parallel cones (five or six cones), with rows approximately 5 meters long and cones 1 meter apart. Ask the athlete to approach the cones at a moderate speed and ride his/her bicycle between the cones a couple of times to practice riding in a straight line. Once the athlete is secure in riding a straight line, ask the athlete to ride between the cones at a moderate speed. At the halfway point, ask the athlete to look to the left (scan) briefly, while maintaining a straight line, and identify the color of a card held up by a coach. To practice scanning behind, ask the athlete to look back over the left shoulder to identify the card and then look forward to check that the bike has maintained a straight path. The athlete must call out the color of the card. Alternate riding the course scanning to both the left and the right. Hint: Begin by flashing the cards as the athlete approaches to get him/her used to looking for the card. Then, wait until the athlete passes you to flash the card so the athlete is required to scan to the left at approximately 90 degrees. Finally, wait to flash the card until the athlete passes so the athlete must scan over his/her shoulder in order to see the card. Practice first on a stationary bike. Emphasize the need to continue riding in a straight line, keep both hands on the handlebars, and turn the head – and not the shoulders – to scan.



Changing Position of Hands on Bars

In order to ride efficiently as well as comfortably, the rider needs to be able to change the position of the hands on the handlebars while riding. The grasp on the bars should remain light (no white knuckles!) and relaxed. If the bike has drop handlebars, the position of most control is on the drops, with one or two fingers poised on the brakes. For relaxing and easy riding, the rider may find that positioning the hands on the tops of the brake levers (or the “hoods”) is the most comfortable. Also the hoods are the preferred hand position for climbing hills, as it allows the chest to be more open and the diaphragm less compressed for easier breathing.

Placing one hand near the center of the tops of the bars (near the stem) will help the rider maintain good centered steering while riding one-handed for shifting, signaling and drinking from a water bottle or hydration system. The rider will need to change hand positions on the bars to accommodate braking or shifting or just to relieve pressure on the hands after a long ride.

The athlete should develop the ability to change hand positions frequently and comfortably without losing control of the bike. Adopting a “steering” style of directing the bike, with the hips rather than the handlebars, would be very helpful regarding adapting to this technique. In order to do all of this, the athlete will need to commit more weight to the saddle than to the handlebars.



Hand Position Drills

Tapping Drill

Have the athlete move the hands to the top of the handlebars, toward the center near the stem, and the body weight to the saddle. He/she should be sitting up on the bike. Instruct the athlete to remove the dominant hand from the bars and then replace it quickly. Do this in increasingly longer intervals. Start off as if to tap the bars, and then increase the interval that the hand is away from the bars, therefore increasing the confidence and security of the athlete.



One Hand Drill

As the athlete becomes more secure, you can introduce more drills, such as touching the water bottle, waving and touching the helmet. Then move to the non-dominant hand with signaling. Throughout these drills, the hand on the handlebars should be in the center near the stem.

NOTE: To advance the drill, practice taking the water bottle out of the cage without looking, and then replacing it in the cage (which is far more difficult than removing it).



Fingertip Drill

An even more advanced version of this drill is to have the athlete place ONLY the fingertips on the bars. Start on the tops (but to further the difficulty, this can be done on the drops). Then reduce the number of fingers in contact with the bars as skill and confidence increase.



Drinking from a Water Bottle or Hydration System (CamelBak®)

It is a necessity to keep hydrated while exercising, and therefore drinking while cycling is an important skill. The two recommended methods of drinking on the bike are from a water bottle and from a hydration system. The water bottle is quite obvious, with the bottle carried in a bottle cage on the bicycle frame. A hydration system is a backpack-type reservoir with a tube reaching to the rider's mouth.



Drinking from a Water Bottle or CamelBak Drill

First, with the rider standing over the bike (stopped), have the athlete remove and drink from bottle without looking at it. Second, start drill by having athlete ride with one hand on the bars and the free hand giving you a wave. It is necessary that the athlete be able to control the bike for 30 seconds with only one hand. Placing the hand near the stem is the most stable one-hand control position on the bike. Next, have the athlete remove and drink from bottle while riding a straight line. It is important to keep eyes on the road and not have to look down for the bottle.

With the CamelBak hydration system, it is necessary to remove the hand from the bars for only a brief moment to insert drinking tube into mouth. Have athlete touch index finger of one hand to nose while riding; when comfortable with this skill, he/she can insert drinking tube into mouth while riding.



Shifting Gears

Shifting is the process of adjusting the gearing that allows the athlete to ride and negotiate a variety of terrain. For example, if riding up a hill using a high gear (e.g., the chain is on the large chain ring in the front and the small sprocket in the rear), we will encounter tremendous resistance, which may prevent us from making it to the top. The solution is to shift to a lower gear (e.g., shift the chain to a smaller chain ring in the front and/or a larger sprocket in the rear) before climbing a hill.

Work with the athlete to find the cadence that is most comfortable. Then ask the athlete to remember what the cadence feels like (perhaps referring to a cycling computer) and instruct him/her in shifting to maintain that cadence as the terrain changes. If pedaling too fast, then have the athlete shift into a gear that increases the resistance; if it is too hard or too slow, then shift to a gear that is a little easier. When approaching a hill, the athlete needs to remember to anticipate the change and to shift before it is needed, and to continue pedaling throughout the shifting process. Do not coast when shifting.





Shifting Gears Drill

Using a stationary bike, ask the athlete to practice changing gears. Encourage the athlete to look forward, not down at the gears, in order to maintain a straight line when riding on the road. Ask the athlete to identify which gears are easier or harder to pedal by feel, not by sight. Ask the athlete to maintain a steady cadence while switching gears to emphasize how the gears affect how hard or easy it is to pedal.

On the road, find a course that offers a combination of flats and hills. While riding next to the athlete, prompt the athlete to select the appropriate gears for the terrain. Encourage the athlete to maintain a comfortable cadence throughout the ride (usually 70-80 rpm) by changing gears as the pitch of the road changes.





Controlling Pedal Cadence

Since pedaling is the primary method of getting a bike to move, it is very important that we understand cadence. Cadence is the number of pedal revolutions per minute (rpm's) that we turn the crank over. By shifting gears we are able to maintain the perfect cadence. The ideal cadence will vary slightly from cyclist to cyclist due to individual style, but the average ideal rpm is around 90. That is, 90 pedal revolutions per minute.





Controlling Pedal Cadence Drill

Work on low end of pedal cadence by having athlete pedal as fast as possible in the largest gear on the bike. This would be the large chainring in front and the smallest cog in the rear. This drill should last for a duration of 40 complete pedal revolutions and be done on a flat road.

Work on the high end of pedal cadence by having the athlete pedal at maximum pedal frequency. On a downhill road, have the athlete select a very low (easy) gear so there will be no resistance on the cranks, and see how many revolutions are possible in a period of six seconds. Cadence between 160 and 200 is target.



Climbing Hills

Gear selection is a very important part of climbing; therefore, understanding the skill of shifting gears is necessary. It is also important that the rider develops his or her own personal method or position for climbing. The two obvious styles are sitting and standing. The most efficient location for hands while climbing is on the hoods for control; this opens the chest and decompresses the diaphragm for breathing while climbing. Dropping the heels at the bottom of the pedal stroke yields more power to the climb. The body weight should be back over the saddle (whether the rider is in or out of the saddle), and the rider should be able to access the gearshift mechanism during the climb.

Gear shifting can make or break a climb. It is recommended that the athlete either adjust the power exerted or adjust the frequency of the pedal stroke to climb. This can be done by shifting the gears or applying more force on the pedals. If the athlete is not physically strong, he/she may opt for a lighter gear option. In this case the speed will decrease, but the actual energy output will decrease, and the time on the hill will increase. If the athlete is physically strong, he/she may be able to shift less often and accommodate by increasing the pressure in the pedals to increase the cadence. This is the fastest way to climb, but is also the most energy burning.

The athlete needs to complete the hill by making sure not to stop pedaling at the top to rest. Once the athlete begins to crest the hill, the cadence should increase and the rider should shift to a higher gear to complete the crest. It is also recommended not to coast down the other side, as this could cause lactic acid generated during the climb to “pool.” The athlete should keep the legs moving, even if there is no resistance; this acts as a muscle “pump” to remove the lactic acid.

Climbing out of the saddle almost acts like an extra gear for some riders. But unless they are well trained, most will become fatigued after being out of the saddle after 30-45 seconds. If they do opt to be out of the saddle, they need to keep their hips back near the saddle and not forward. The driving wheel is the rear wheel, and it needs all the traction it can get. If the riders return to the saddle during a climb, they need to ease back into the saddle and not “plop” in the saddle, as this will cause the bike to lurch backward down the hill and perhaps into the front wheel of another rider following closely.





Climbing Hills Drill

Best done on a hill that has a moderate pitch and takes approximately 30 seconds to climb at a moderate pace. A coach riding next to the athlete while climbing is recommended. After warming up sufficiently, the athlete should approach the hill and work on climbing the hill while maintaining the appropriate cadence through proper gear selection as the hill pitches up. The athlete should practice climbing in seated position as well as while standing out of the saddle. A combination of seated and standing can be used on longer climbs. Ride next to the athlete during the drill to encourage proper gear choice and cadence and to encourage the athlete to stay relaxed. If the athlete is uncomfortable riding while standing, practice on a stationary bike. The rider should be able to correctly “gear up” as the hill crests. The coach may also mark key shifting areas of the hill with flags, cones or chalk to remind the athletes to shift.



Drafting

Drafting is the most energy efficient way to travel down the road. Riding in another rider's slipstream will reduce the air friction and conserve approximately 30% of the rider's energy. To achieve this, the rider must learn to ride in close proximity to another rider. Also, the direct benefit of the draft is dependent upon the speed the riders are traveling as well as the wind direction. The faster the athletes are riding, the more benefit there is in drafting. The harder the wind is blowing, the more benefit in drafting.

The logic behind drafting is that the rider in front is "breaking the wind" for the rider behind them, creating an "air pocket" for that rider to ride in that has 30% less air resistance. It is a huge advantage to ride in another rider's slipstream or draft. But to be able to do this requires some skill and confidence.

First of all, the rider will need to become comfortable riding behind another rider's wheel without hitting or overlapping the wheel. The rider also needs to become very aware of his/her own size in relation to that of the other riders. Usually, beginning riders feel very uncomfortable around other riders and have a huge "zone of comfort," which limits allowing others into their "space." The coach will need to help these athletes relax and become more confident in their skills and the skills of other riders. This will take time mostly, but you can create a few games on the bike that may help them start to relax.

Things to focus on when teaching how to draft:

- Don't stare at the wheel in front. Look beyond the rider, up the road in front of them, to anticipate changes and obstacles.
- Do not overlap wheels. Stay 2 inches to half of a bike wheel's diameter behind the other wheel for optimal drafting.
- Feather the brakes when you need to slow down. Ride with your right hand resting on the brake.
- Teach how to feel which direction the wind is blowing and how to accommodate whether you need to be to the right or the left of the wheel in front of you.
- All riding changes must be made gradually. Accelerate gradually, brake gradually and turn gradually. Do nothing suddenly.





Pace Lines and Drafting

A pace line is a term for something as simple as one rider following another on a bicycle ride. It may also cover a much larger group riding two by two in a tight cohesive pack. Generally, riders take turns leading the pace line (rotating) so all riders share the workload. The purpose of a pace line is not only to keep order in the group but also to offer shelter or a draft to the riders behind you. Drafting is a technique the athletes will use to save up to 30% of their energy by closely following the rider in front of them.





Pace Line and Drafting Drills

Single Open Pace Line Drill

Have a group of four to six athletes ride in a straight line at as high a speed as can be maintained by the slowest rider in the group and take turns of one minute riding on the front. After the athlete has done their turn on the front they should move off to one side and let the group pass. The athlete should then follow the last rider in line. Keep the speed steady and the group must stay together.



Rotating Closed Pace Line Drill

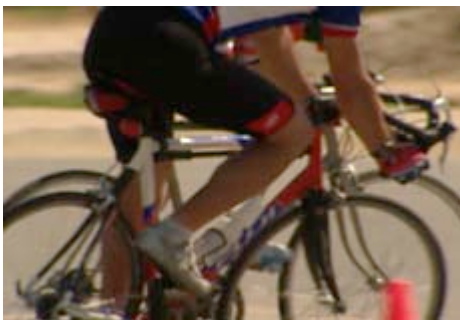
Have the group ride in two lines, side by side, with one line going slightly faster than the other. When the leading rider in the fast line is completely ahead of the leading rider in the slow line, the leading rider of the fast line should move to the [front of the] slow line and begin dropping back until he/she is the last rider in the slow line. At that point he/she moves to the back of the faster line and continues to rotate within the group. The line on the left is the advancing line. The line on the right is the resting line. When the rider at the front of the left (advancing) line passes the rider at the front of the right (resting) line, the passing rider should look under the right arm to verify that he/she has cleared the front wheel of the rider who has been passed. The passing rider should then pedal (not coast) all the way over to the right and start to “soft pedal” or decrease the pressure on the pedals while pedaling. A few strokes of soft pedaling should help this rider to adjust his/her speed to that of the resting line.

At the back of the resting line, the riders should be looking for the last rider in the right line to pass them. At that time they should prepare to accelerate gradually between the lines to slide over to the advancing line and match their speed without leaving a gap.



Riding in a Group

Group riding is what makes cycling a unique sport. Group riding has many benefits over riding alone, such as camaraderie, shelter, pacing, direction and in some cases safety. In order to be effective as a group, you must be able to stay together as a group. Therefore, all changes must be made gradually, and communication is important. All accelerations, turns and stops must be made gradually. The riders at the front of the group must maintain a consistent pace and not surge or slow down quickly. The riders at the front must communicate their observations to the rest of the group, such as a hole in the road, a dog running toward them or a car either passing or turning in front of them. Riders in the back may be expected to communicate to the group that a car is passing them from behind. Everyone in the group should avoid braking if possible; however, if they need to do so, they should gradually adjust their speed. A sudden stop or change in line of direction may cause a chain reaction and ultimately a crash. If a gap does occur, the rider should close the gap gradually, not jump to close it, as the rider behind will be forced to do even more work to recover the distance.





Riding in a Group Drills

Dry Land Drill

While standing (off the bike), ask the athletes to line up in a single line. Explain the concept of drafting to the athletes by explaining how the lead rider uses the most effort to travel forward since he/she is “breaking the wind,” and point out to each athlete that they are getting a “draft” from the rider in front of them. Ask the first athlete in the line to step to the left, and have the 2nd athlete in line step forward to become the lead rider. The drill helps athletes understand what a “single pace line” is. Now ask the athletes to stand to the right of their bikes with their hands on the handlebars. Line the athletes up in a single line and repeat the single pace line process, explaining that the closer the athletes’ bikes are to each other, the more draft each athlete will get.

Single Pace Line Road Drill

After a sufficient warm-up, coach the athletes into a single line while riding. Encourage the lead rider to ride at a steady pace to enable all the athletes to join in the single pace line. Ask each athlete to take a 30-second turn (pull) at the front of the line. Ride alongside the pace line in order to time each athlete’s turn at the front. After the 30-second pull, the lead rider will drift slightly to the right of the pace line to enable the 2nd rider to take on the role as the leader. While to the right of the pace line, the athlete must ride slightly slower than the group in order for the next athlete to take on the leader role. Coach the next athlete to maintain the steady pace and not accelerate while taking a turn as the new group leader. Change the “pull” time so the athletes can practice maintaining a steady pace for longer or shorter periods.

NOTE: When learning, it is best for riders to pull off to the right, as there is little room for error. If beginners pull off to the left, they usually will be riding very near the center line in traffic. This is a dangerous place to be.





Advanced Cycling Skills

Riding over Pavement Changes/ Hopping Up One Short Step (Curb)

The primary objective here is to teach riders to shift weight to the front or rear wheel while moving. This skill is necessary to safely ride through large potholes (that are unavoidable), onto different levels of pavement and up onto a sidewalk if necessary.



Riding/ Hopping Up One Short Step (Curb) Drill

This skill involves shifting the weight completely from one wheel to the other. The first step is to “pop a wheelie” by lifting the front wheel off the ground. For a beginner this means just off the surface of the ground. The second step is to then to un-weight the rear wheel by pushing down on the handlebars and picking up slightly on the pedals with the body weight off the saddle.

With a one-inch diameter stick on the road, have the rider try to pass over it without the wheels touching it. Increase the size of the obstacle until the rider is able to smoothly step up a 6-8-inch curb.



Competition Skills

Race Starts

Starting with One Foot on Ground

This skill is used every time we ride a bicycle. It is important to be able to perform this skill quickly and efficiently at the start of a road race or in traffic when the light turns green.

Starting a Race with One Foot on Ground Drill

Have a group of three to eight athletes line up in one row across the road, with one foot on the ground and the other foot in contact with the pedal at the 1- or 2-o'clock position (just past top center). On the command of "go," have the riders push off with grounded foot, make contact on the pedal with the pushing foot and ride a controlled straight line for 100 meters. Gearing for this drill and for race starts should be on the low side (42 x 18 teeth), or large chainring to middle cog on the average bike.



Starting a Time Trial from Holder with Both Feet on Pedals

Starting a time trial with the assistance of a holder will enable the athlete to move quickly off of the start line, because both feet are on the pedals prior to the start.

The start of a tricycle time-trial is another area where specific training is helpful. The best way to compensate for this is with efficient use of the gears on a multi-speed cycle, or having a relatively low gear on a single-speed cycle. The most efficient short time trial would involve two to three shifts along the course. There are many methods to help the rider know when to shift; the simplest may be just to have the rider count the number of times his/her right foot has come to the top of the pedal stroke. After a certain number of strokes are reached, it is time to shift up one gear. Another method may be the use of light poles or road signs along the course; at every pole or two it is time to shift. Of course this is all dependent on the riders' cadence, and ultimately your athletes will start to feel when they are pedaling the most efficient speed.



Starting from Holder with Both Feet on Pedals Drills

Drill 1

Before the rider comes to the start practice area, have the rider look at the gears and, with assistance, shift the bike to the proper starting gear; this is usually one or two cogs down from the biggest cog in the rear and the big ring in the front. Rider practices with the coach holding the rider from behind and having another coach give a 5second count down. Rider has both hands on the bars in the drops (if they have drops); right pedal is positioned 2 inches higher than the left pedal. Rider is looking up and straight ahead, with both feet clipped in (or on pedals if no clips). On the count of Two, the rider stands up in the saddle, with hips directly above saddle, not forward; at Go, rider pulls up equally on the bars and at the same time pushesg down with the right foot and lifts up with the left foot. Rider continues out of the saddle until speed increases to a pace that requires shifting gears; then the rider gradually eases onto the saddle. When pedaling in the saddle, rider may practice shifting to a harder gear.

Drill 2

After the rider is comfortable with starting, work on having the rider stay within two lines of ten cones to practice riding straight after the start.



Road Width, Time Trial Turnarounds

Many individual time trials are held on out-and-back courses and therefore require a 180-degree turn at the halfway point to reverse the rider's direction. The speed that is safe to perform this turn is based on the width of the road as well as the rider's skill level.



Road Width, Time Trial Turnarounds Drills

Drill 1

Find a straight stretch of road at least 500 meters long. Set up a cone at each end with a marshal at each cone. Have the athlete ride toward the cone, slow to almost a stop and turn around the cone. (Athlete should ride slowly toward the cone for the first practice of this drill.) Rider should practice shifting to an easier gear for the turn. After the turn, he/she should stand up out of the saddle as if sprinting and then sit and shift back to the gear that was being used before the turn.

Drill 2

Repeat at race speed – distance may need to be increased between cones to make this work.



Sprinting

Because the order of finish in mass start bicycle races is determined by place and not by time, it is important to be able to accelerate rapidly when approaching the finish line. Any rider coming to the finish of a race in a group or pack will have a sprint to the finish.



Sprinting Drill

Rider needs to practice getting out of the saddle with hands on the bars in the lowest position if using drop bars. In this drill, a cone should mark 200 meters before the drill finish line – marked by chalk and marshals. Rider should first practice riding at slow speed to the cone and then practice what is called a “jump.” The rider pulls up with the bars and seat comes off the saddle while pushing down and pulling up on the pedals. This is the same skill needed for the time trial start, which should be mastered first.

Rider “jumps” at the cone and proceeds to stay out of the saddle for as long as possible until reaching the finish line. Rider must control the bike at the finish.

Repeat drill at higher entering speeds.



Maintaining High Sustainable Speed

Time trialing or riding a long distance in the least amount of time requires being able to pace oneself and maintain a consistent and high rate of speed.



Maintaining High Sustainable Speed Drills

Drill 1

Find a straight, safe road that is at least 1 mile long – longer if possible.

Mark off a start area and a finish area, and have riders practice riding fast with no coasting. Take the riders' times. Repeat as needed. If cycling computers are available, have each rider ride to a specific speed and report back the numbers seen on the computer.

Drill 2

Increase distance and practice using different gears to teach riders about the differences in gear choices.



Everyday Skills

Bicycle as Transportation

Riders need to learn the rules of the road. Time needs to be spent on teaching the riders about using their hearing to judge the size of vehicles approaching them, using hand signals, looking back before turning and looking before crossing intersections.

Spend time talking about what roads in their area are safe to ride alone, with another rider, or NEVER.

Before riders can use their bikes for transportation, they need to demonstrate knowledge of safe riding skills and habits: turning lights on, using a blinker, making hand signals, using a horn or making noises at a car that may be coming into an intersection fast. It is important that riders know how to ride on the side of the road in a straight line and to recognize road hazards such as railroad tracks, grates in the road, glass, etc. Riders need to know how to change a flat tire and be able to tell someone their name, address and phone number.

Another critical skill is how to deal with rude or angry drivers. Riders are always at the disadvantage on the road. Cars are bigger than we are, and no matter how angry or rude a driver may be, we always need to maintain composure and a non-combative attitude. Never yell or gesture rudely in return. Just smile and wave and take mental notes regarding the make and color of the car and, if you can...the license plate.



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