



# Parking Lot Drills



## Instructor Manual

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**T**he League of American Bicyclists gratefully acknowledges the contributions of Bill Hoffman, Fred Meredith, John S. Allen, Preston Tyree and Bill Nesper, for the development of this document as a supplement to the Smart Cycling curriculum. The Parking Lot Drills are traditionally taught in the Traffic Skills (TS) 101 course. The first part of these drills, the handling drills are now a part of the Bicycling Skills 123 course sponsored by the National Bicycle Dealers Association. The parking lot drills are designed to follow the material in the TS 101 course. Each of the drills builds upon the drills that precede it.

**The following learning objectives are applicable to the parking lot drills. The material in this document follows this list.**

- To demonstrate the ability to:
  1. Correctly mount and dismount from the bicycle.
  2. Start and stop smoothly.
  3. Maintain a straight line.
  5. Scan behind for traffic without wobbling.
  6. Use appropriate hand signals to indicate intentions.
- To understand the physics of quick stopping, rock dodging and quick turning techniques and be able to demonstrate proficiency in correctly performing these maneuvers.

**The following learning objectives are applicable to the road test but are not covered in this document.**

- To understand and demonstrate correct riding techniques and road position when:
  1. Passing parked cars.
  2. Turning right or left on residential streets.
  3. Stopped for stop signs or traffic lights.
  4. One is at intersections with right-turn-only and left-turn-only lanes.
  5. Moving from the right-most through lane to a left turn position on multi-lane roads.
  6. Proceeding straight through at intersections.
  7. Selecting the correct lane position for wide, normal width and narrow lanes.
  8. Avoiding hazards.





# Preparing for the Drills

These directions are intended for use with the included diagrams. We have included a page with diagrams of all the drills which can be used to make field cards.

## Insurance:

You should ask permission of the owner of any space (other than public roads) that you are going to use for instruction or practice. If the owner wants evidence of insurance, contact the League office at least two weeks prior to holding your drills.

## Parking Lot:

The parking lot should be smooth, free of debris and as level as possible. A space that is at least 50 by 200 feet is ideal but smaller spaces can be used with some creativity. If the parking lot has a slope it seems to work best to layout most drills uphill or across the hill. This means the cyclists have to pedal instead of coasting.

## Placement:

Try to get far enough away from traffic and other noise producers to make it easy for the cyclists to hear instructions. Make sure they are not facing into the sun when you are talking to them. Put the wind at your back during your instructions so that your voice will carry. In hot weather, try to have shade available for use during the discussion.

## Markers:

The drills are designed for half tennis balls in all exercises requiring markers. Use of other markers (i.e., damp sponges) is permissible. Markers must not create a hazard for the students when run over. Markers should not be tall enough to be hit by pedals at the lowest point. Markers should be relatively stable in windy conditions and be easily placed or replaced.

## In Case of Rain:

League Cycling Instructors (LCIs) have successfully held parking lot drills in covered parking garages. The floors that are remote from the entry are usually lightly used and make good locations for most of the drills. Remember to ask permission ahead of time.

## Competency:

LCIs are expected to be able to demonstrate proficiency in all of these drills. Under medical or other circumstances that don't allow an LCI to demonstrate proficiency, the LCI must demonstrate excellent description and presentation skills for the techniques involved or have an accomplished cyclist demonstrate the drills.

An LCI should set up the layouts and practice them before demonstrating them to the students. Plan to practice each drill at least three times. The first time is to relieve performance anxiety, the second to let your brain get out of the way and the third is to let your body do the drill. This three-time rule also applies when working with the students.

## Handling Skills:

The four exercises in the Handling Skills set are intended to get riders comfortable on their bicycles before moving to the more advanced Avoidance Maneuver drills. Even the most accomplished rider will benefit from working through these exercises. Cyclists already know most of what is taught in this set of drills but may have forgotten in their normal cycling routine. These drills are related to the first layer of prevention – Bike Handling.



## Avoidance Maneuver Drills:

This set of four drills has been developed to allow cyclists to practice avoiding hazards in those unlikely occurrences when a cyclist is faced with a situation that threatens to lead to a serious crash. There are presented in a specific sequence to build on prior experience and skill. To gain a certificate, TS 101 candidates are required to be proficient in performing these maneuvers. This means they shall:

- Explain the reasons why they need to know the maneuver.
- Explain the concepts and techniques of performing the maneuver.
- Demonstrate that they understand the techniques.
- Demonstrate significant progress towards competency in the maneuver.

# Starting/Stopping

## Layout:

The layout for the four handling skill drills is the same. See the diagram included in this book. It is an oval 120-foot long and 20-foot wide. Use this length to acquaint students with the 100-foot distance that should be used when signaling. Use a 20-foot width to get people used to leaning as they turn their bike.

Use the parking lot as shown in the diagram. It has been tested and allows for an even flow of people into and out of the drill. All of these drills should be done three times for proficiency.

## Purpose:

The purpose of this drill is to ensure that the students can start and stop quickly without wobbling or falling over.

## Why we do this drill:

Starting and stopping quickly without wobbling helps a cyclist maintain control in traffic and present an appearance of competence to motorists. Using the bicycle's gearing effectively improves acceleration at the start. The techniques used in this drill will help cyclists get across intersections quickly and smoothly and come to a smooth controlled stop.

## Explanation:

Have the cyclists line up two-by-two facing the instructor. Each cyclist should start and stop six times as they do three loops of the oval. The next cyclist should not start until the first cyclist has turned and is on the other side of the oval.

### The instructor will be looking for competence in the following items:

1. **Cyclist standing** over the bicycle ahead of the saddle, not on the saddle.
2. **Pedal in power position** – The pedal should be in the 2 o'clock position (viewed from the right side of the bike).
3. **Power stroke** – The pedal should be pushed down firmly as the cyclist rises onto the saddle.
4. **Continuous rotation** – The second foot should join the pedal as it



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reaches the top of the circle and continue with the pedal. Clicking into clip-less pedals or slipping the feet into toe clips should wait until the cyclist has gained momentum or cleared the intersection.

5. **Braking with both hands** – Both hands should be used to slow the bicycle to a complete stop prior to placing a foot down. If the cyclist leaves the saddle to place a foot down before the bicycle has come to a complete stop the back tire is likely to lose traction and/or lift off the ground.
6. **Handlebar turn** – As the bicycle comes to a complete stop, the handlebars should be turned slightly away from the foot that will be placed on the ground. This action will cause the bicycle to lean slightly to the side where the foot is to be on the ground.
7. **Pedal repositioned** – The cyclist should automatically reposition the pedal to the power position.

## Demonstration:

The instructor should demonstrate this drill at slow speeds, indicating the proper action for the 7 items for which the students will be judged. It may be helpful to demonstrate incorrect techniques and why they are inefficient

and hazardous: cowboy mount/dismount, with the cyclist standing next to the bicycle when stopped; tricycle start/stop sitting on the saddle with both feet on the ground; scooter start, using one foot to push off instead of pedaling.

## Bicycle:

Any type of bicycle can be used in this drill, including recumbents and tricycles. This is a good exercise to explain the benefits of downshifting when coming to a stop. Have cyclists shift their bikes to the highest gear. Have them go through the exercise. Have them shift to a lower or lowest gear and go through the exercise. Then have them choose a gear that gives them good acceleration without strain. During the road test, have them work to always be in that gear when they stop.

Students should keep toe straps loose for their first exercise in starting and stopping. On a recumbent bicycle it is necessary to place the foot into the toe clip by pulling back from underneath the pedal rather than kicking back from above. If a bicycle has a backpedaling (coaster) brake, it will be necessary for the cyclist to switch feet on the pedals to restart after stopping. Clip-less pedals, or toe clips and straps, are not practical with a coaster brake.

# Straight Line/Shifting

## Purpose:

This drill provides practice riding in a straight line. Students who are unable to demonstrate competence in this simple skill should not take part in the road ride.

## Layout:

The layout is the same as all the handling skills.

## Explanation:

Being able to ride a straight line a comfortable distance from the curb is critical to the practice of vehicular cycling. It provides a predictable motion and enhances the appearance of cycling competency.

## Exercise:

Line up students in the parking lot. Each student should demonstrate the proper starting technique and move quickly and smoothly through the oval. The next student can start when the previous student turns at the end of the layout. Up to six students can be in the oval at the same time. Each student can practice acceleration when starting, and

again after turning, and practice slowing and stopping when returning to wait in the parking lot.

### The instructor will be looking for competence in the following items:

1. Starting technique from Drill 1.
2. Holding a straight line at a comfortable distance from the curb.
3. Starting in a low gear and shifting up through the gears while accelerating.
4. Smooth cadence with even strokes; proper cadence once having accelerated.
5. Shifting down before stopping – before braking, then after some practice, while braking.
6. Stopping technique from Drill 1, including downshifting if necessary.

## Demonstration:

To demonstrate this drill, the instructor should ride slowly and smoothly around the oval. Remind students to keep their eyes up, looking beyond the end of the layout instead of on the ground just in front of their front wheel. The instructor can demonstrate

downshifting at the turn and upshifting on the straight away. Show how to shift up while accelerating, maintain a proper cadence, and shift down before turning or stopping. Point out that a higher cadence provides the same power without strain — the leg is a pendulum when walking with a natural cadence, but when pedaling, it is like a piston in an engine and can easily go faster.

Instruct students to keep braking moderately during this exercise to avoid skidding and loss of control.

## Bicycle:

Any type of bicycle can be used in this drill including recumbents and tricycles. A single-speed bicycle will not allow practice in shifting. If a student has brought one, make a teachable moment of advising on standing for power when starting and on choosing a drive ratio that provides a good cadence on level ground. You can demonstrate these points on a geared bike by not shifting.



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# Scan Drill

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DRILL

## Purpose:

The purpose of this drill is to allow the rider to practice and demonstrate the ability to scan behind both to the left and to the right while maintaining a straight line of travel.

## Layout:

Use the same layout as the other handling skills.

## Why we do this drill:

Many crashes between cyclists and motorists and between cyclists and other cyclists, are caused by a cyclist swerving or turning left without checking behind to determine if the maneuver can be made safely. The scan maneuver is one of the most basic maneuvers available to cyclists to avoid crashes. This maneuver falls in Layer 2 of the layers of safety (don't cause crashes).

## Explanation:

Have the students line up in the parking lot. Practicing a proper start, each student should ride around the oval three times. You can easily get six students in the loop at one time.

Instruct the students to scan near the beginning of the straight leg and near the end. This simulates the technique of looking before signaling and then looking again before turning. The instructor will stand outside the end of the oval and raise zero, one or two arms. The students should call out how many hands are being held up.

The instructor will be looking for competence in the following items:

1. Turning enough to identify the number of hands held up.
2. Maintaining a straight line.
3. If swerving, how well does the cyclist recover from the swerve?



## Demonstration:

Before beginning, the instructor should demonstrate at least two different ways of doing a proper scan. For many people simply turning the head will not be possible. The first recommended way to scan is to tuck the chin into the shoulder and look past the shoulder. Also demonstrate removing the left hand from the handlebars and placing it on the hip or the back of the saddle before turning the upper body to look behind.

To demonstrate this drill the instructor should ride smoothly through the layout, displaying the proper head and body movement.

## Bicycle:

Any type of bicycle can be used in this drill including recumbents and tricycles, but the techniques can be very different. Most recumbent bicycles and tricycles do not allow the head to be turned far enough to look directly back. Students riding them must demonstrate competence through a combination of a scan using a rear-view mirror to look directly back, and a turn of the head to check to the side. The student may also lean forward from the waist and then attempt the scan.

# Signaling

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## Purpose:

The purpose of this drill is to review the hand signals that are lawful in the state and to give the students a chance to practice scanning behind, riding with one hand while signaling and turning properly.

## Layout:

This layout is the same as the other handling skills.

## Why we do this drill:

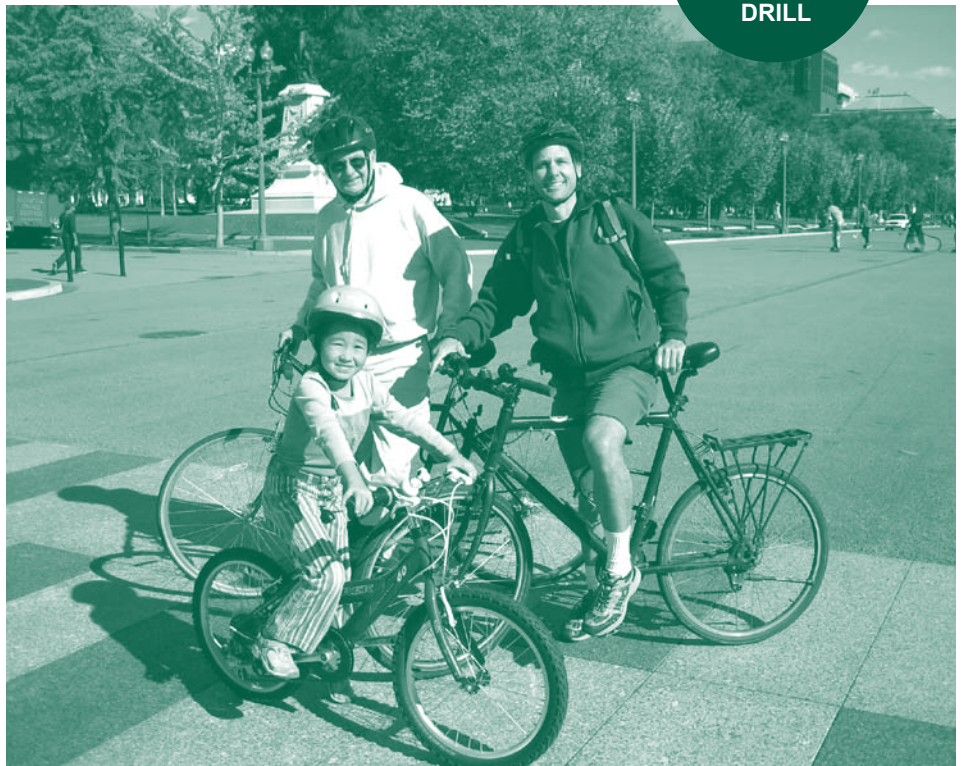
Signaling turns and stops is required in all states. All states require use of signals for lane changes, turns and stopping. Some states allow the use of the right hand to signal right turns. Some states do not require signaling if removing the hands from the handlebars to signal would endanger the cyclist. Obviously, it is not desirable to make a hand signal when both hands must be on the handlebars for good steering control or to use the handbrakes. What is important is to obey the spirit of the law.

Remember, the purpose of signaling is communication. For a cyclist, usually traveling slower than other traffic, a turn signal is most important to indicate the desire to make a lane change and to obtain the cooperation of a motorist to let the cyclist into line. The cyclist makes this signal before changing lanes or turning and then discontinues it when better control is needed during the maneuver itself. In close quarters, a cyclist can also signal with a turn of the head. The most effective right-turn signal is made with the right hand. Motor vehicles have had turn signals since the 1950s; many motorists do not understand the antiquated hand-over-head right turn signal.

A slow signal is most useful to indicate to a following motorist that it is unsafe to pass.

## Explanation:

Have the students line up in the parking lot. Practicing a proper start, each student should ride through the oval demonstrating the proper handling skill to scan early, then signal while



riding with one hand on the handlebar and then a final scan before turning.

Students will be judged on starting technique, scanning technique, signaling technique, turning with both hands on the handlebar, and stopping technique. Each rider shall wait to start until the preceding rider is beyond the first turn. At least six riders can be in the oval at one time.

The instructor should be positioned outside of the oval at one end and raising hands.

### The instructor will be looking for competence in the following items:

1. Starting technique from Drill 1.
2. Holding a straight line at a comfortable distance from the curb while scanning as described in the Scan Drill.
3. Beginning the signal early enough to complete it before the middle of the oval.
4. Holding the signal for a full count of two.

5. Returning the signaling hand to the handlebar in sufficient time to make a second scan and the turn.
6. Making a smooth turn.
7. Stopping technique as described in Drill 1.

## Demonstration:

To demonstrate this drill, the instructor should ride slowly and smoothly through the layout, displaying the proper scanning maneuver, then the proper hand signal for a count of two, and then placing both hands on the handlebars well before the turn is initiated and making one more scan. At the end of the demonstration the instructor should move to the observation position and have the riders perform the drill.

## Bicycle:

Any type of bicycle can be used in this drill including recumbents and tricycles. Use of a medium or lower gear can make this drill easier. See discussion under Scan Drill for issues of scanning.



# Quick Stop

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DRILL

## Purpose:

The purpose of this drill is to allow the rider to practice and demonstrate the ability to stop the bicycle quickly in an emergency.

## Layout:

This layout requires eight markers in four pairs with approximately 18 inches between markers in each pair. The spacing should be in-line about 4 feet, 2 feet and 4 feet apart. This basic layout also will be used in the next drill, the rock dodge.

## Why we do this drill:

The ability to brake quickly without either skidding or pitching over the handlebars requires good braking technique and practice. The proper use of lane positioning and signaling should allow a cyclist to avoid most of the situations which require a quick stop. This maneuver falls in Layer 4 of the layers of prevention (avoid other drivers' unsafe decisions).

## Walk-through:

A walk through may not be required.

## How we do this drill:

Each cyclist should practice the body movement in the parking lot without using the brakes. Have the students line up away from the start. Request that riders with clips or clip-in pedals free one foot. Riders should wait to start until the proceeding rider has stopped and restarted. Have the riders make at least three passes, one with just the back brake, one with both brakes and finally one with both brakes and the center of gravity body movement. Riders should practice reducing force on the rear brake to minimize skidding. The instructor will be looking for competence in the following items:

1. Starting technique from Drill 1.
2. Body movement.

3. Use of both brakes.
4. Control of skidding by modulation of the front brake.
5. Stopping straight.
6. Coming to a complete stop with one foot down.

Get all the students to raise the hand that controls the back brake on their bicycle. Most times it is the right hand but some people have the back brake in the left hand. Tell students that they should always check the brakes on a bicycle that is new to them, to learn how sensitive the brakes are — it varies. Make the point that the two brake levers look the same, but they don't work the same. A cyclist who has learned with the brake levers one way may have trouble on a bicycle set up the other way.

Instruct the riders that they should put more pressure on the front brake (three times as much) than the rear brake as it is the strongest brake. Remind them that if the rear wheel starts to skid or fishtail, it is a sign that the weight has moved too far forward and they need to let off on the pressure on the front brake. Also point out that light use of the rear brake at a signal will not wear out the rear tire as quickly, and that for all but emergency stops, the rear wheel will not be skidding.

If the bicycle begins to go out of control, skidding or pitching forward, the reaction must be to release force on the brakes, to regain traction — not to grab the brakes harder in panic. This response should become second nature, through practice. Demonstrate weight transfer while walking alongside the bike, with one hand on each brake lever. Grabbing the rear brake lever will skid the rear wheel and offer only light braking. Grabbing the front brake lever will raise the rear wheel off the ground. Increasing force on both brakes until the rear wheel skids, and then backing off on the front brake achieves maximum braking without risking pitching forward.

## Demonstration:

To demonstrate this drill the instructor should first demonstrate the center of gravity movement (moving off the saddle) without using the brakes. Ride past the cyclists and push the bicycle out in front of you and try to place your stomach on the saddle. Not all LCIs can do this maneuver. The objective is to lower the center of gravity, as can also be done by lowering the upper body down near the handlebars. The instructor may then demonstrate using the back brake and both brakes, attempting to avoid skidding with the rear tire. Ride into the layout and use the back brake to stop. Try to the degree possible to avoid skidding of the rear wheel, but note that using the rear brake alone can wear out a rear tire quickly. Come to a complete stop and put one foot down. Then ride through with both brakes and finally with both brakes and the center of gravity movement. Stop and put a foot down at the end of each run.

A final demonstration is to have everyone stand over their bike, off the seat. Have them grab both brakes and push the bike forward until the back wheel lifts off the ground. Then have them release the rear brake to see that it has no effect. The only way to bring that back wheel down is to ease off the front brake.

## Bicycle:

Any type of bicycle with dual handbrakes can be used in this drill, including recumbents and tricycles but the techniques can be very different. Tandems and long-wheelbase recumbents will not pitch over the front wheel; short-wheelbase recumbents will pitch over quickly. Some low, recumbent tricycles have one brake lever controlling the brake on each front wheel, and so the two brake levers should be used equally.

# Rock Dodge

## Purpose:

The purpose of this drill is to allow the rider to practice and demonstrate avoiding a hazard that is noticed just as it is approached by the front wheel.

## Layout:

This drill uses the same layout as the quick stop with the addition of a tennis ball turned inside out to simulate a rock. Do not use a real rock.

## Why we do this drill:

The ability to avoid a hazard that is close to the front wheel before it is seen is important to maintain control. If a piece of debris is struck and punctures the tube in such a way as to cause a catastrophic failure of the front tire, the bicyclist can pitch over the handlebars. It is not as critical to avoid the hazard with the rear wheel. This maneuver falls in Layer 1 of the layers of prevention (avoid falls or collisions with others).

## How we do this drill:

Have the students line up at the start. Practicing a proper start, each student should ride through the layout demonstrating the proper handling skill to maneuver past the hazard. Each rider shall wait to start until the proceeding rider has turned at the end of the layout.

### The instructor will be looking for competence in the following items:

1. Starting technique from Drill 1.
2. Smooth pedaling.
3. Avoiding all the hazards.
4. Smooth exit from the layout.

## Walk-through:

Because the technique is subtle, a walk-through is important to demonstrate the actual movement of the front wheel. Holding the stem, the instructor should walk the bike through the layout moving the front wheel to the left and then to the right. Most of the crashes that occur doing this maneuver occur on recovery. We recommend that people always move to the left and then to the right so the recovery is toward the curb and not towards traffic. One should try it both ways but practice the left/right sequence the most.

## Demonstration:

To demonstrate this drill the instructor should ride smoothly through the layout displaying the proper hand and body movements. When done correctly, the body and head should not move, when viewed from behind. This

maneuver should be practiced before it is demonstrated to students. Point out that this is a good skill to practice before riding in a group. At higher speeds, it may be more effective to lean the upper body sharply to one side in order to divert the bicycle's wheels to the other. This works better on bicycles with less trail in the front fork (e.g., road-racing and sport bicycles as opposed to touring bicycles). The instructor may also demonstrate this technique.

## Bicycle:

Any type of bicycle can be used in this drill including recumbents and tricycles, but the techniques can be very different. A medium or lower gear can make this drill easier. Note that tricycles are much less likely to crash upon puncture of a front wheel so this exercise is more of a convenience than a true life saver.



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# Avoidance Weave

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## Purpose:

The purpose of this drill is to allow the rider to practice and demonstrate a level of bike handling skill that is adequate for riding in traffic.

## Layout:

The layout for this drill is easy to construct. Put a straight line of eight markers 10 feet apart. Then, as shown on the diagram, put a series of eight markers 18 inches to the sides.

## Why we do this drill:

Control of multiple weaving movements is important when riding beside traffic either in a lane that is wide enough to share or in a bike lane or shoulder. Minor debris and other hazards can cause a cyclist to make these movements when the hazard is not dangerous enough to cause the cyclist to scan and move into the travel lane.

## Walk-through:

If the instructor feels a walk-through is required, it should be done with one hand on the stem, turning the bike, and letting the frame tilt back and forth.

## Explanation:

Have the students line up at the start. Practicing a proper start, each student should ride through the layout, demonstrating the proper handling skill to maneuver between the hazards.

Remind the students that looking long makes this drill easier. Each rider waits to start until the proceeding rider has passed out of the layout.

Then each rider should make three passes outside of the markers to the wide side.

### The instructor will be looking for competence in the following items:

1. Starting technique from Drill 1.
2. Turning early.
3. Riding straight through the paired markers.
4. Stopping technique from Drill 1.

## Demonstration:

To demonstrate this drill, the instructor should ride smoothly through the layout, displaying the proper hand and body movements. Turns should be made early so the bicycle is riding straight as it passes between the pairs of markers. This drill works better at road speeds. When viewed from the rear, the cyclist should display minimal movement of the upper body and head as the weaving motion is completed.

## Bicycle:

Any type of bicycle can be used in this drill, including recumbents and tricycles but execution of the techniques can be very different. This drill will be more difficult with a long wheelbase recumbent or tandem. With a tricycle, one wheel may pass between the markers, with two wheels passing on the outside of the markers. A medium or lower gear can make this drill easier.



# Quick Turn

## Purpose:

The purpose of this drill is to introduce the concepts and techniques of this avoidance maneuver and allow the rider to practice it in a non-threatening environment.

## Layout:

See diagram for the dimensions of this layout.

## Why we do this drill:

When a vehicle turns in front of a cyclist (either a right hook or a left cross), the most effective way to avoid a serious injury is to turn with the motor vehicle. This avoids turning into traffic and also steers the cyclist in the same direction as the vehicle, thus reducing the impact of a crash if one occurs. This maneuver falls in Layer 4 of the layers of prevention (avoid other drivers' unsafe decisions).

## Walk-through:

It is useful to first ask the students which way to turn the handlebars to turn right quickly. Many will be surprised that left is the answer. This is followed by a demonstration of how it is necessary to get the bicycle into a lean before it can turn. Once it is leaning, the student will turn right in order to avoid falling. A walk-through is required. Holding the stem, the instructor walks the bike into the layout, turning the front wheel to the left allowing the bike to lean to the right, and then swinging the front wheel to the right and holding the lean to complete the turn.

A good demonstration is to have everyone get off of their bicycle and stand beside them; start to lean the bike down while pushing on it. Bikes will lean very far before the tires will slip.

## Explanation:

Have the students practice swooping. Then have the students line up at the start, placing their hands where they normally have them when they ride. Practicing a proper start, each student should ride through the layout demonstrating the proper skill to make the turn. Each rider waits to start until the preceding rider has cleared the exit of the layout. Have the students ride three times and continue this exercise until each student has accomplished at least one adequate turn.

## Demonstration:

Placing the hands near the center of the handlebars, ride smoothly into the layout and demonstrate the move. Remember that the outside pedal should be down, the body must lean into the turn and look up and around the turn. Remind the riders that brakes should not be used. The faster the cyclist is going, the less handlebar motion is used to initiate the lean; building up to the right amount for a sharp turn, short of losing traction and falling, requires practice.

This drill becomes problematical at speed over 20 mph. The tires will lose traction in a shudder manner and the cyclist will likely pitch over to the outside of the turn. Explain to the students that the most common crash in this maneuver is when the front wheel is turned back to catch the lean with too much vigor.

## The instructor will be looking for competence in the following items:

1. Starting technique from Drill 1.
2. Smooth pedaling.
3. Steering to the outside, then catching the lean.
4. Outside pedal down.
5. Shoulders leaning into the turn.
6. A look up and around the turn.

## Bicycle:

Some types of bicycles cannot be used in this drill, including some recumbents and many tricycles. Have a student with one of these at least attempt the exercise, understanding that it may not work. A long-wheelbase recumbent or tandem requires more steering motion to initiate the lean. A short-wheelbase recumbent steers very quickly; the cyclist must take care not to steer too far and initiate a fall. A low tricycle may simply be steered into a turn. A high tricycle requires great care, as it can tip to the outside of a turn — the cyclist must lean to the inside in order to make a tight turn.



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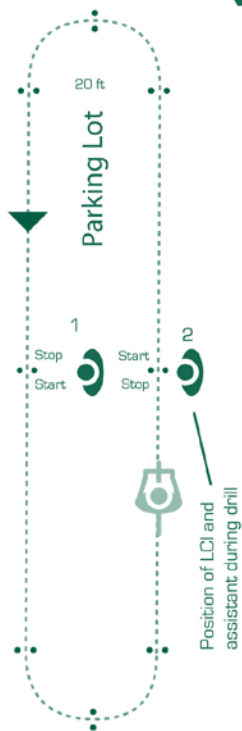
## STARTING STOPPING

Have riders find "starting gear" by making three starts in different gears. Have them start off of the saddle with both feet on the ground.

Bike in starting gear, foot in power position, stand up and push down. Get second foot on the pedal as it reaches the top. Keep the pedals turning with no stop.

Brake to a stop in the middle of each leg. Use both brakes and turn handlebars as the bike comes to a complete stop. Get off of the saddle and put one foot down.

Instruct students to return to Parking Lot after three repetitions of each complete drill. Parking lot is in the middle of one end of the layout.



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## QUICK STOP

Balls are 18" apart and spaced 4 ft, 2 ft, 4 ft apart along the chute.

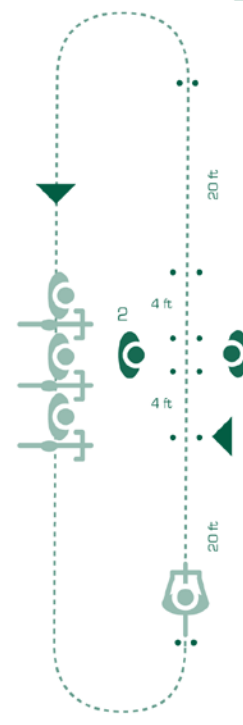
Each student should make at least three passes, one using just the back brake, one using both brakes and one with both brakes and a weight shift.

Instruct students to begin applying brakes when the front wheel reaches the first set of markers.

Have students come to a complete stop, with one foot flat on the ground.

Instructor stands in a position to support the students when they come to a stop. Assistant stands on the other side.

**For more advanced riders:** instruct them to begin braking when you give a signal while they are somewhere within the chute.



Drawings not to scale.

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## SCANNING

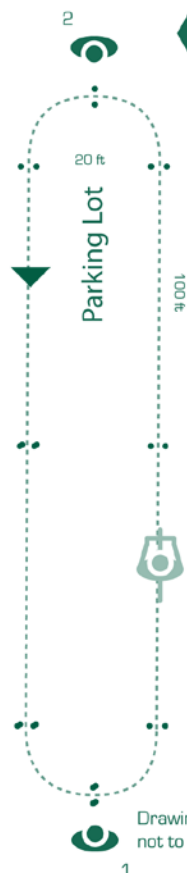
Instruct each student to scan two times on each leg and call out the number of arms the instructors are holding up.

Go around three times scanning to the left and return to the parking lot. Then go around three times scanning to the right.

Have all students complete at least three repetitions of both scans.

If no assistant is available, have the students scan left for three repetitions and then scan right for three.

Instructors should stand approximately where the driver of an automobile would be.



Drawings not to scale.

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## AVOIDANCE WEAWE

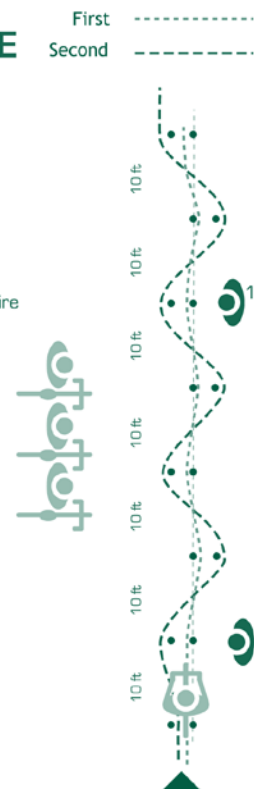
Start with 8 balls on a straight line 9-10 feet apart. Place the other balls 18 inches to the side.

Remind students that the first few passes will be between the balls which means that the tires only have to move the width of a tennis ball.

The second set of three passes will require moving outside of the balls which means 3 feet sideways for every 10 feet along the layout.

Instructor stands in a position to give encouragement and remind riders to look up, turn early and lean their bicycles.

This is a fun exercise and most students will want to continue on so make sure you maintain your time discipline.



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## ROCK DODGE

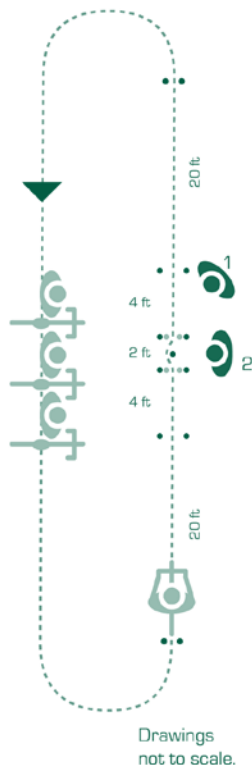
We teach the maneuver by turning left first and then back to the right a little more. If done properly the front wheel should pass to the left of the ball and the rear wheel will pass to the right.

Remind students that they will not lose points if the back wheel hits the "rock". Turn a 1/2 tennis ball inside out to make the "rock". Mark spots with chalk for easy replacement.

Instructor stands in a position to see the front wheel. Assistant stands where they can replace the "rock" easily. Have extra rocks in hand.

Start with balls 18 inches apart and reduce the width if riders are "steering" around the rock instead of dodging.

Before you do this, announce that you are going to make it easier, it really is.



Drawings  
not to scale.

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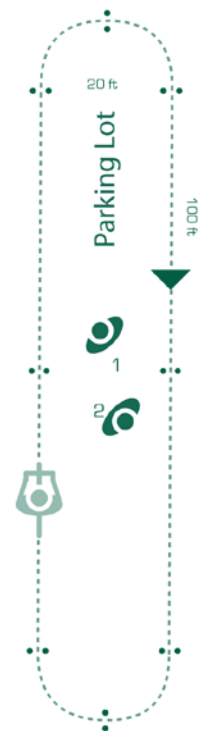
## STRAIGHT LINE GEARS

Remind students that they should be looking long to stay in a straight line.

Have the group ride in a loop going a different way than the the last drill, shifting to be in a high gear in the middle and a low gear at the ends.

Instructor and assistant should be encouraging students to lean the bicycle to complete the turn within the 20 foot curve.

Each student should go through the entire loop three times and return to the parking lot.



Drawings  
not to scale.

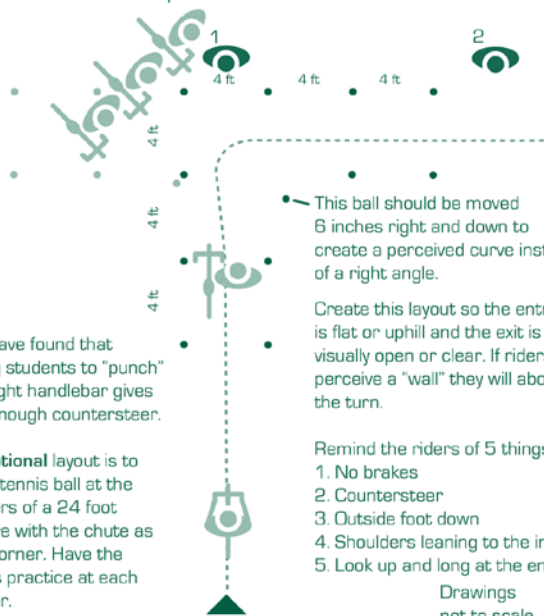
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## INSTANT TURN

Point out to students that this is the space that they would have if they were sharing a wide lane or riding in a bike lane. Have them begin the counter-steer at the second set of balls.

NOTE: Most riders fail by straightening up before they have completed the turn. Aggressive riders may jerk the wheel back too sharply and end up over the handlebars. The maximum safe speed for this drill appears to be about 15 mph.



We have found that telling students to "punch" the right handlebar gives just enough countersteer.

An **optional** layout is to put a tennis ball at the corners of a 24 foot square with the chute as one corner. Have the riders practice at each corner.

This ball should be moved 6 inches right and down to create a perceived curve instead of a right angle.

Create this layout so the entrance is flat or uphill and the exit is visually open or clear. If riders perceive a "wall" they will abort the turn.

Remind the riders of 5 things:

1. No brakes
2. Countersteer
3. Outside foot down
4. Shoulders leaning to the inside
5. Look up and long at the end

Drawings  
not to scale.

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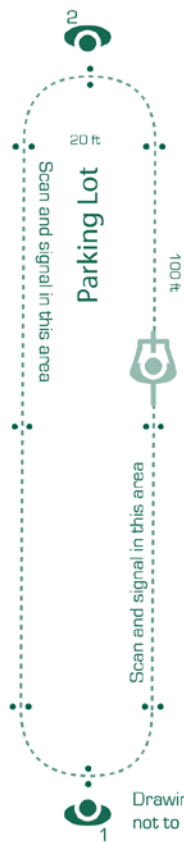
## SCAN SIGNAL TURN

Instruct students to scan early, signal for a count of two, return hands to the handlebars before reaching the mid-point then scan one more time before beginning the turn.

Most states require a signal 100 ft before a turn. This layout gives students practice judging that distance.

After each student has been around three time signaling a left turn, and are back in the parking lot, have the group reverse directions and signal a right turn.

Make sure the students remember to scan and signal early and have both hands on the handlebars during the turn.



Drawings  
not to scale.

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# Drill Layout

## SET UP:

The Cycling Skills/Adult drills are designed to allow a neophyte cyclist to practice basic bike handling drills in a non-threatening environment.

The layout is 120 x 20 feet. It is this size for a reason and you should be hesitant to change it. Most states require turn signals beginning at 100 feet before a turn. This layout allows riders to visualize that distance and practice scanning, signaling and turning in that distance.

The 20 foot width is designed to give cyclists a chance to practice turning in tight conditions. It makes them comfortable leaning their bike to turn which gives them better control.

## RIDER CONTROL:

Have riders line up two by two straddling their bicycles in the "Parking Lot."

Instruct them not to go until they are clear what the exercise looks like and you touch their handlebars.

Instruct them that they are to return to the parking lot each time they complete three repetitions of the exercise.

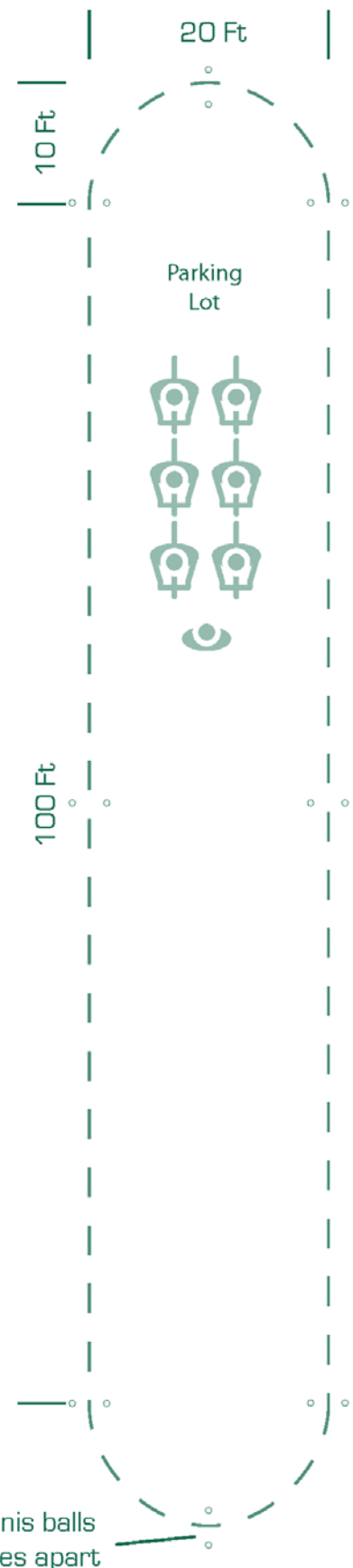
## MOUNTING AND DISMOUNTING:

Many riders will be uncomfortable mounting by throwing a leg over the seat. There are numerous other ways to mount and dismount a bicycle, even one with a top bar.

If someone has a problem mounting or dismounting it is always appropriate to suggest a bicycle with a low step through height. Many cruiser, comfort or town bikes have low or non-existent top bars.

The easiest way to mount a standard frame bicycle is to reach across and grab the far handlebar, and with the other hand on the seat, lean the bike towards you. You can either step directly over the top bar or swing your leg in an arc behind the seat.

Dismounting involves a similar movement.





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