



road safety

Riding is never risk free, but you should aim to ride 'low risk'. A low-risk rider has good observation, speed management, road positioning, decision making and hazard perception skills.

Observation skills

The road environment is constantly changing, and this requires high levels of observation and concentration. The key to good observation is 'scanning'.

Scanning

Scanning is keeping your eyes moving, and checking for hazards in one area for a couple of seconds and then moving your eyes to another area.

When scanning, look:

- in the distance
- at the road surface
- to your left and right
- regularly at your mirrors and instruments.

Before moving off from traffic lights, check all directions to make sure the traffic has stopped.

Mirrors

Properly adjusted mirrors will allow you to see the lane behind you and as much as possible of the lane next to you. When properly adjusted you may be able to see your arm or shoulder, but it is the road behind and to the side that you are interested in.

You should check your mirrors every few seconds so you always know what is behind you.

There are also particular times when it is very important for you to use your mirrors:

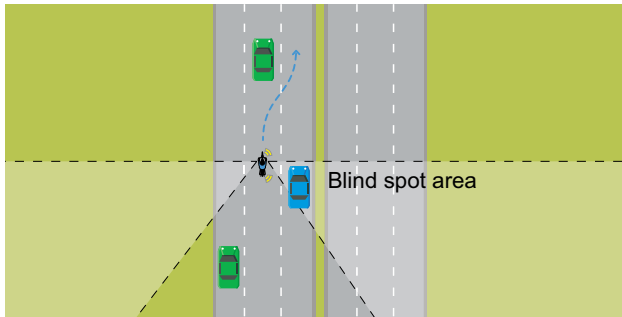
- before making any change to your speed or road position
- when preparing to turn or change lanes
- when you are stopped behind another vehicle and preparing to move out into traffic.

Check blind spots before changing your road position.

Head checks

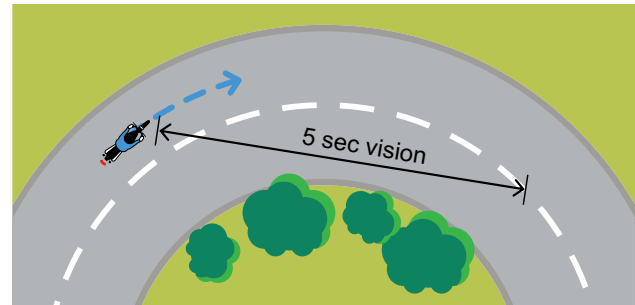
Motorcycles have 'blind spots' just as cars do. A blind spot is the area next to you that you are unable to see in your mirrors. When you are about to change your position on the road (e.g. make a turn, exit a roundabout, move off, or change lanes), make sure you turn your head and look over your shoulder to see if it is clear. This is called a 'head check' and is the only sure way to see objects in your blind spot.

Perform a head check before turning right into a street or driveway, just in case a following vehicle has not seen your indicator and is overtaking you.



Head position for turns

Looking 'through' a corner will help with your coordination and balance when cornering. To do this, use your peripheral vision to scan the road surface while keeping your head pointed in the direction you want to go.



Crash avoidance space (road positioning)

A low-risk rider maintains what is called a 'crash avoidance space' around their motorcycle at all times. Crash avoidance space is simply the clear space needed around a vehicle to reduce or avoid the risk of a crash.

The crash avoidance space is managed by the rider adjusting the vehicle's speed and position on the road.

A safe, low risk rider, experienced in maintaining a three-second following distance is able to mentally judge a three-second crash avoidance space in front of their motorcycle. If there is a chance that a hazard will enter

your crash avoidance space, reduce your speed to create a buffer.

It is necessary to maintain the crash avoidance space for all potentially hazardous situations, including blind corners and crests.

Always check your mirrors before making any changes to your speed.

Front crash avoidance space

To determine the crash avoidance space to the front of your motorcycle, you need to take into account two key factors: reaction time and response time.

Reaction time is the time you as the rider needs to:

- see the information (the hazard)
- recognise what the information means
- decide on a response
- activate that response.

A rider who is fit, concentrating and alert, and not distracted or affected by alcohol, drugs or fatigue, will still require about 1.5 seconds to react to a hazard.

Response time is the time required to take action to respond to a situation or avoid the hazard. Generally, at least 1.5 seconds is needed to respond.

In most situations, braking should be the only possible response. Swerving is rarely appropriate because it can result in a more severe crash, such as a head-on collision if the rider swerves into oncoming traffic

Therefore, you need a total of three seconds crash avoidance space – a three-second gap between your motorcycle and the vehicle you are following – to react and respond to a situation in front of you. You will need even longer in poor conditions, such as in rain and darkness.

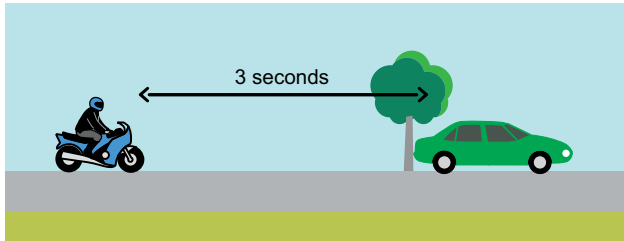
How to calculate your crash avoidance space

To calculate a three-second crash avoidance space when following another vehicle, use this basic technique:

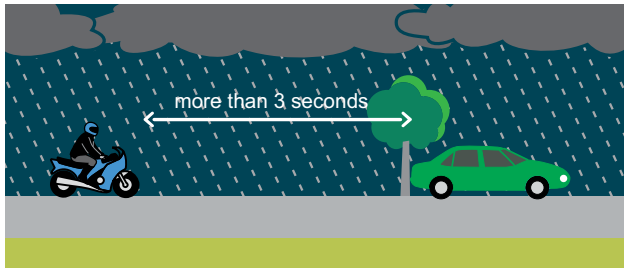
As the rear of the vehicle in front of you passes an object at the side of the road, such as a power pole, tree or sign, start a three-second count of 'one thousand and one, one thousand and two, one thousand and three'.

There should be three seconds before your motorcycle reaches the same object.

Be aware that in most situations cars can stop in a shorter distance than motorcycles.



If your motorcycle passes the point you picked before you finish the count, you are following too closely, and your crash avoidance space is not large enough. Slow down and repeat the count again until the three-second crash avoidance space is achieved.



In poor conditions, such as rain, darkness and on gravel roads, it may be necessary to increase your crash avoidance space to four or more seconds.

To reduce the risk of riding into the back of another vehicle, the three-second crash avoidance space is essential, because the vehicle in front can stop very quickly, especially if it collides with another vehicle or a stationary object.

Rear crash avoidance space

It is difficult to maintain a crash avoidance space behind you because another driver or rider controls the space.

If a vehicle behind is travelling too closely, slow down slightly to increase the space you have in front of you. This will enable you to brake more gradually if you spot a hazard in front, which will also give the following vehicle more time to stop.

Crash avoidance space when stopped

When you are stopped it is important to leave a crash avoidance space between vehicles. Making sure that there is a clear space between vehicles will reduce the risk of a crash from being pushed forward into the vehicle in front or from rolling backwards.

Stop in a position behind other vehicles that allows you enough space to ride around the vehicle in front if needed. This will not always be practical. In some cases it might be safer to stop closer to the vehicle in front, such as when stopped in a turning lane to prevent blocking the flow of traffic in continuing lanes and avoid rear-end collisions.

Reduce speed

You must slow down if you do not have a clear view of the road ahead. Situations where your vision may be reduced include:

- blind corners
- blocked intersections
- crests
- poor weather conditions.

Road positioning (buffering)

A motorcycle rider can legally use any part of their lane.

Traffic and road situations are constantly changing and so does the safest position on the road. Low-risk riders aim to be positioned in the right place all the time.

By actively managing space, surface and sight, a rider can significantly reduce the risk of crashing.

Space

As a motorcycle rider you have very little to protect you in a crash other than your riding gear. The more space between you, other vehicles and pedestrians the better. Position your vehicle on the road to increase your crash avoidance space around all sides of your motorcycle and reduce the risk of a crash (referred to as 'buffering').

Buffering is a simple concept that really just means moving away from hazards.

Surface

You must be aware of the road surface when riding a motorcycle. Paint, oil, water, sand, gravel, pot holes and metal plates are all examples of different road surfaces that a rider needs to manage. For a motorcycle rider, a relatively small change in road position can result in a significant change in the quality of road surface.

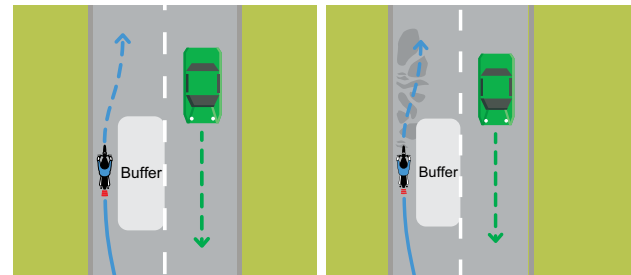
It is best to avoid riding on a poor surface, but sometimes this is not possible. For example, when buffering an oncoming vehicle, the best road position may be the left side of the lane. The left side of the road may be bumpy

and broken up; however, it may be preferable to ride on this surface to get a safe buffer from the oncoming hazard.

If you need to ride on a poor surface to buffer a hazard, slow down and avoid sudden or quick movements.

Sight

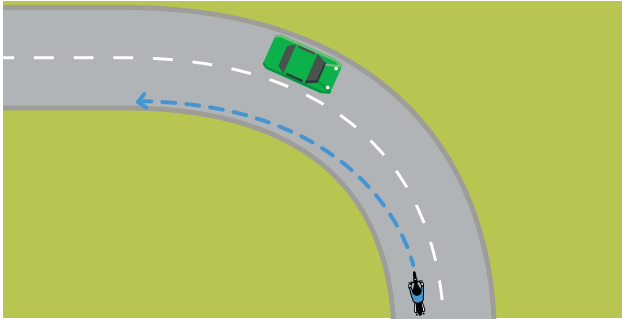
A good road position can allow you to see further and get more information about what is happening up ahead. Generally, the right side of the lane provides good vision of the upcoming road, to the sides and also behind you. However, the right side of the lane is a dangerous position to be in if there is oncoming traffic. Try to choose a road position that provides good vision without compromising your buffer from hazards. This is particularly true when following large vehicles or when taking left bends.



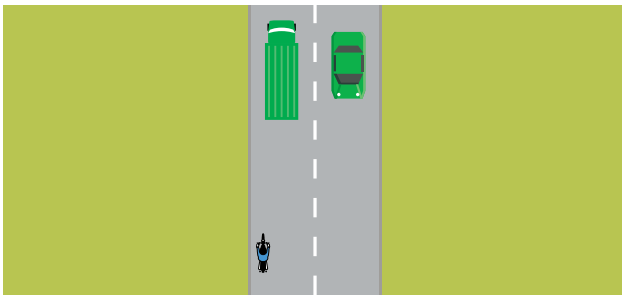
Move away from hazards, like oncoming cars.

If you need to ride on a poor surface in order to maintain a buffer, slow down.

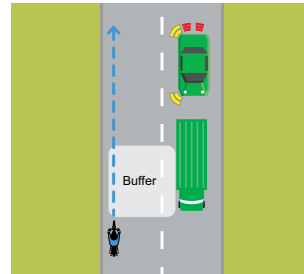
If your vision is limited, slow down and maintain a buffer from hazards.



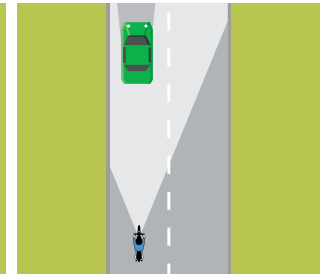
Maintain a buffer from hazards and a good following distance when vision is limited.



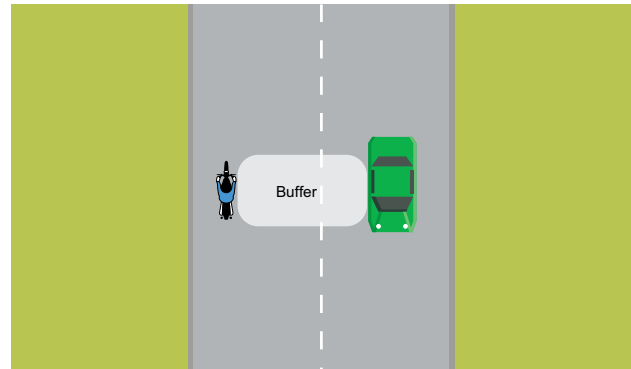
Buffering can improve your vision and make it easier for others to see you. The further back you follow other vehicles, the better you can see around them.



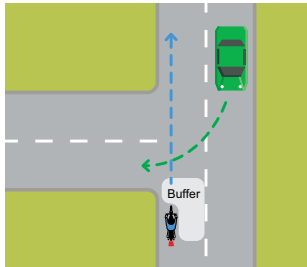
Buffer between rider and oncoming vehicle.



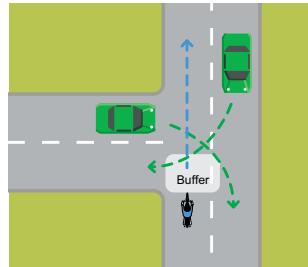
Travelling further behind another vehicle allows you to see around them better.



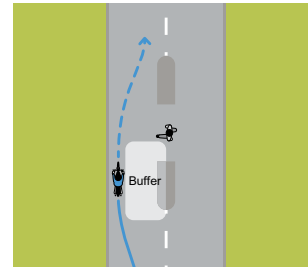
Create space (buffer) between oncoming vehicles.



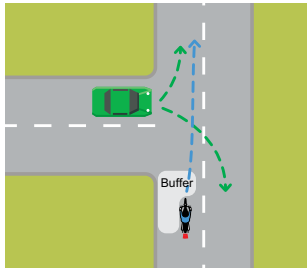
Slow down and buffer when a vehicle could turn across your path.



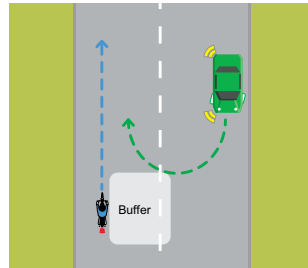
When there are two vehicles, buffer both vehicles and slow down.



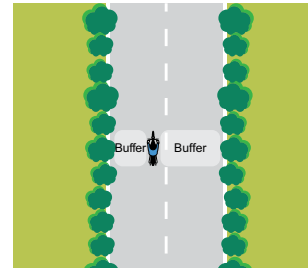
Buffer all hazards, including pedestrians.



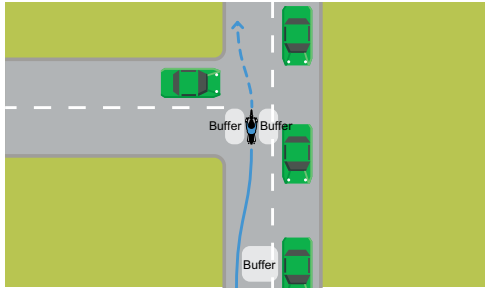
Slow down and buffer when a vehicle could turn across your path or enter the lane you are in.



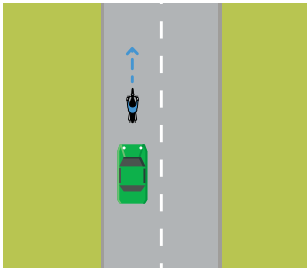
You may need to buffer hazards even when they are on the other side of the road.



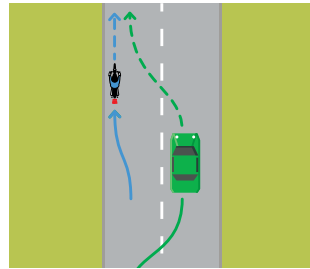
On rural and outback roads and highways, staying on the right side of your lane can provide space from wildlife and improve your vision. However, you must remember to buffer oncoming vehicles and be in the correct position for crests and curves.



In busy traffic you may be in the left side of the lane for most of the time, only moving right to buffer vehicles in side streets.

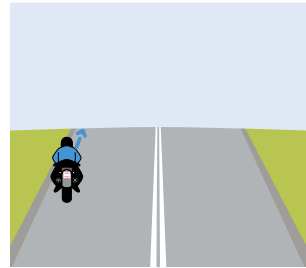


If vehicles on the other side of the road are following close behind each other it is sometimes better to select the middle of the lane.

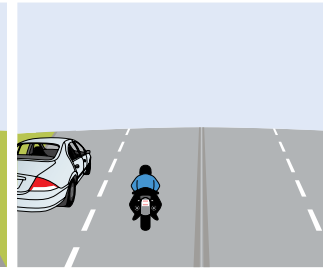


Maintain a buffer from vehicles as they pass you.

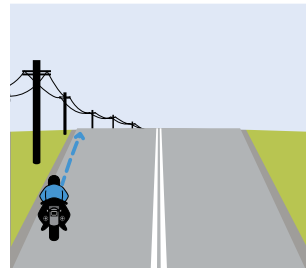
Blind crests



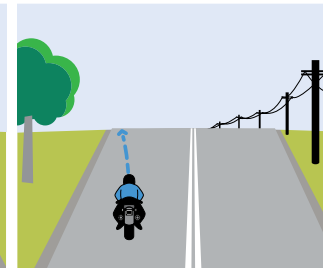
When approaching blind crests, create a buffer from possible oncoming traffic.

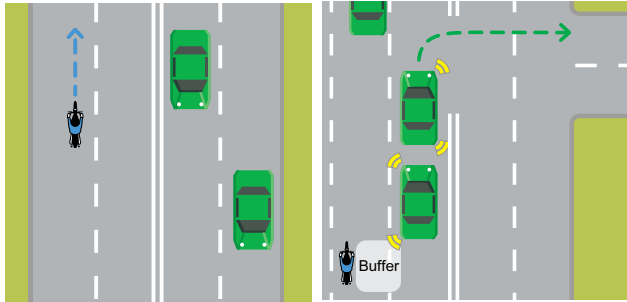


If there is a possibility of multiple hazards, slow down and buffer both sides.



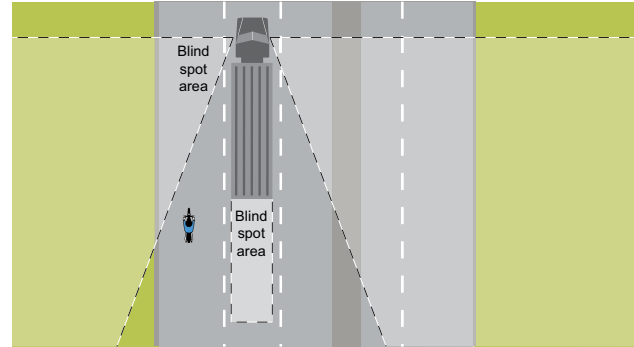
When approaching blind crests, look for clues about where the road goes. Slow down and select a road position to suit.



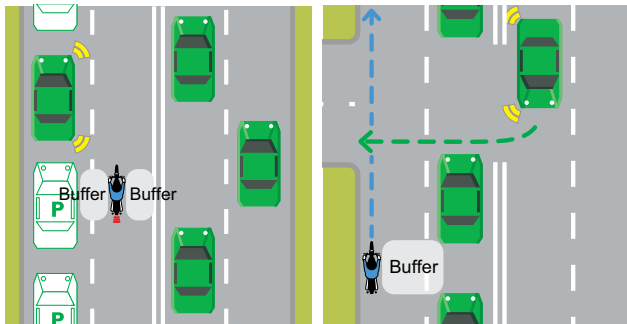


On multi-lane roads, reduce the risk of a head-on crash by choosing a lane away from the oncoming traffic.

Create a buffer from turning vehicles in case not all the vehicles are turning.

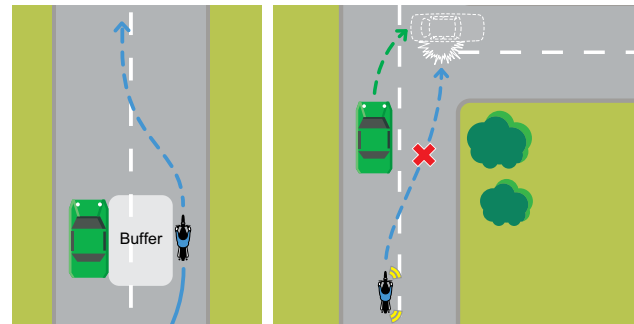


Do not ride beside other vehicles or in their blind spots.



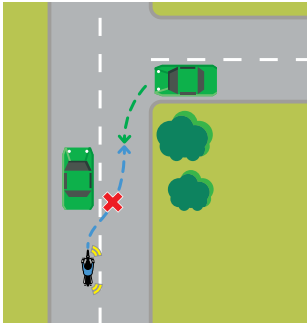
Buffer both parked and oncoming vehicles.

Slow down and buffer slow-moving or stopped traffic; they may be blocking the view of a turning vehicle.

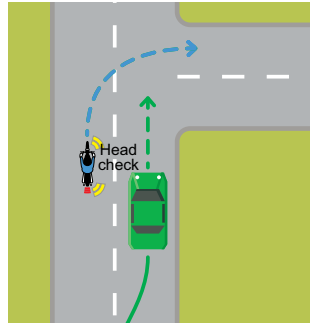


When overtaking, create a buffer from the vehicle you are passing.

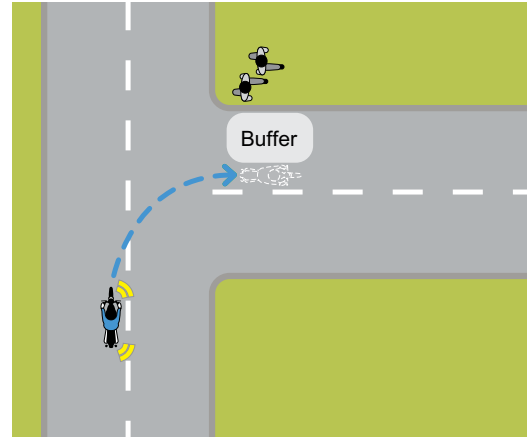
Before overtaking a slow-moving vehicle, check for side streets and driveways that they may be turning into.



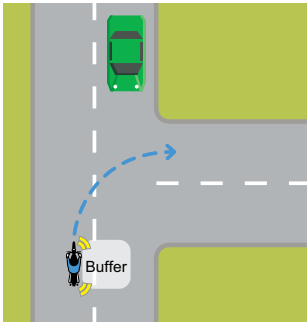
Before overtaking, check for side streets and concealed driveways.



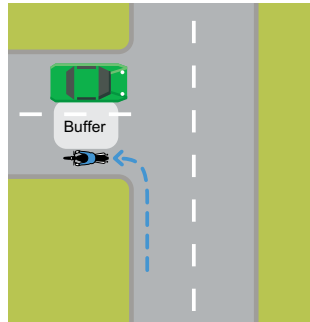
Before turning into a street or driveway, perform a head check for vehicles that may be overtaking you.



If turning right from a single lane, start the turn as near as possible to the far right of the lane or middle of the road, buffering hazards as you exit the turn.



Maintain a buffer from oncoming traffic while you are waiting to turn right.



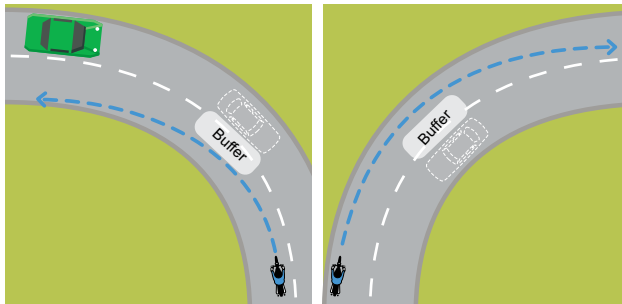
When turning left from a single lane, start the turn as near as possible to the far left side of the road. Buffer hazards as you exit the turn.

When turning left or right you must give way to any pedestrians crossing the road into which you are turning.

Positioning for curves and bends

Starting curves wide will improve your vision. Planning to finish them in tight will help you get your speed right and leave you room for slight errors.

Most importantly, keep away from the area where oncoming vehicles are likely to cross the centre of the road (the head-on zone). Taking curves and bends this way will slow you down a little on the approach but will allow you to accelerate out much earlier when you have a clear view.



On blind left curves, slow down and begin to move left as vision becomes limited.

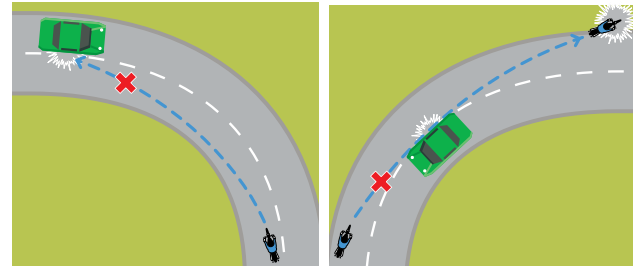
On right curves, slow down and keep to the left until you see the road is clear of oncoming traffic.

When cornering:

- plan to start curves wide for optimal vision
- plan to finish in tight
- keep away from the head-on zone.

The danger of exiting wide

Many riders try to straighten turns, which results in the motorcycle exiting the curve out wide. This is a particularly dangerous practise because it allows no room for error. If the curve 'tightens up' or changes direction, the rider will need additional effort to complete the turn. Furthermore, on right curves the risk of a head-on collision is greatly increased.



Exiting wide can result in a crash.

Turning in too early can result in a head-on collision or a crash on the exit of the curve.

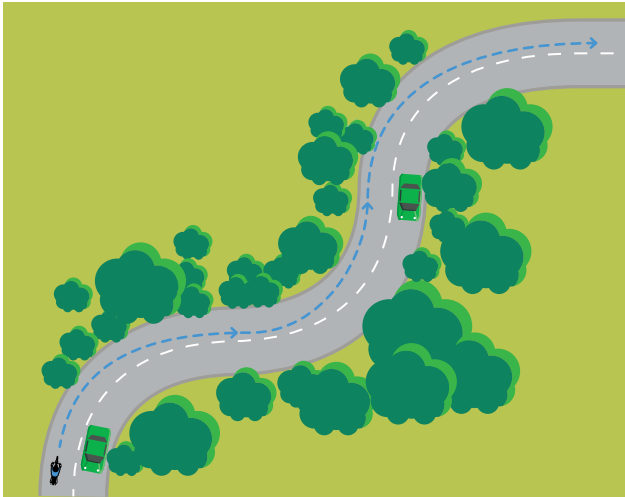
Many crashes happen because riders run wide on the exit of a turn. When a rider finishes a curve wide there is no room for error.

Planning a series of curves

Starting curves wide and planning to finish them in tight allows you to link a series of curves together.

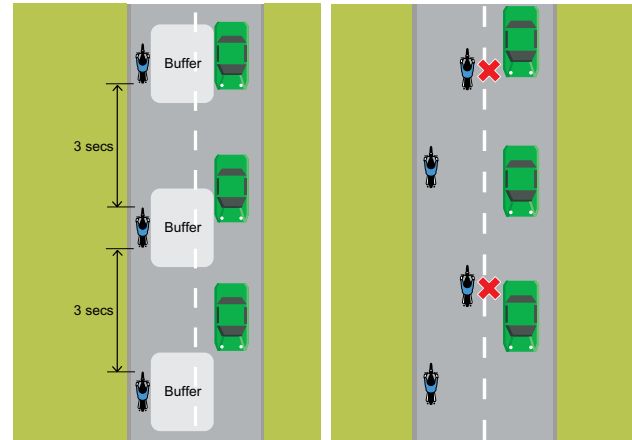
By exiting each curve in tight you will be perfectly positioned for the entry into the next curve.

Planning to finish in tight will position you for the next curve.



If you see an oncoming vehicle, remember, it is very important to create a buffer.

Riding in groups



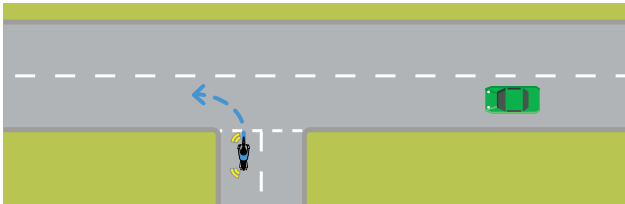
Riding 'single file' allows every rider to buffer hazards, and if a three-second following distance is maintained vision is less affected.

Riding 'staggered file' can be dangerous, particularly if riders maintain a fixed position within the lane. Riders are unable to buffer hazards and vision is reduced by the other motorcycles in the group.

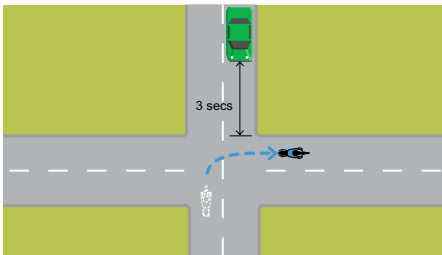
Gap selection

Selecting a safe gap when turning, overtaking or changing lanes is a critical skill to safe riding. Gap selection is also very important at intersections where the chance of colliding with another vehicle is very high if the gap you select is too small.

A safe gap is one that allows you to turn, overtake, change lanes or cross an intersection without affecting the crash avoidance space of other road users.



Choose a safe gap so that other vehicles are not forced to change speed or road position.



Plan to be clear of the intersection for three seconds before other vehicles arrive.

A safe gap ensures that other vehicles do not need to change their speed or position. When turning across traffic, make sure your motorcycle is clear of the intersection by at least three seconds before the approaching vehicles arrive. When joining a traffic stream, select a gap that allows you to reach the traffic speed before the approaching vehicles are within three seconds of your motorcycle.

Overtaking

Overtaking other vehicles is hazardous. You must be able to judge the gap between your motorcycle and an oncoming vehicle, and you must also have enough space between your motorcycle and the vehicle you are overtaking.

When overtaking, maintain a buffer zone between your motorcycle and the vehicle you are overtaking.

On rural and outback roads and highways there are often overtaking lanes at regular intervals that allow you to safely overtake.

Hazard avoidance

When riding a motorcycle, good hazard perception is important and responding to hazards correctly is essential.

A hazard is something that may place you and/or others in danger and is within your crash avoidance space or has the potential to move into that space.

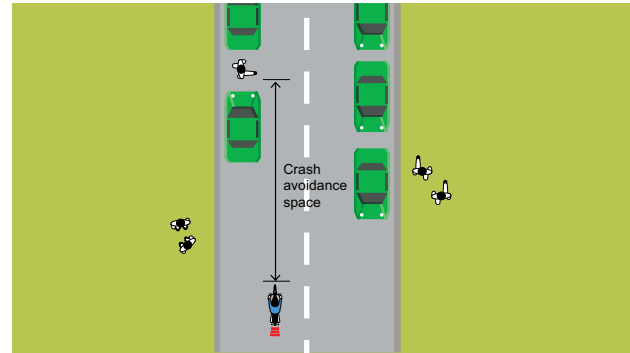
The three-second rule can also be used for situations where there is potential for something to accelerate or steer into the space. For example, a vehicle in an adjacent street could fail to give way and accelerate out. Or a vehicle approaching could turn without warning into an intersection and steer across your path.

Experienced riders are able to mentally judge a three-second crash avoidance space in front of their motorcycle.

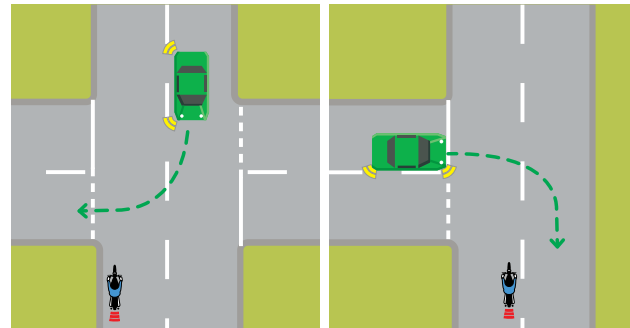
Your increased time allowance means that you can respond before reaching the hazard.

If there is potential for a hazard to enter this crash avoidance space, your response should be to:

- slow down ('setting up' or covering the brakes)
- move away, creating a 'buffer' from the hazard by changing your position on the road or changing lanes.

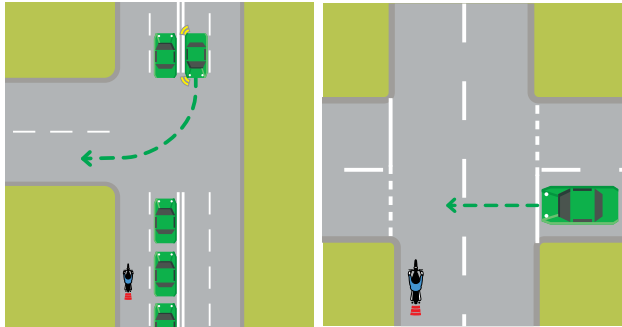


Examples of situations that require a hazard avoidance response



A vehicle waiting to turn in front of your path.

A vehicle waiting to pull out from the left side.



Stopped traffic obscuring vision at an intersection.

A vehicle waiting to pull out from the right side.

Basic riding techniques

The key to good riding technique is smoothness, and the key to smoothness is good preparation and practice.

Riding posture

When you first get on a motorcycle, take the time to adjust the controls to suit your height and build. Correct riding posture reduces fatigue and improves control.

A good riding position should feel comfortable and allow you to use the controls effectively without affecting the balance of the motorcycle.

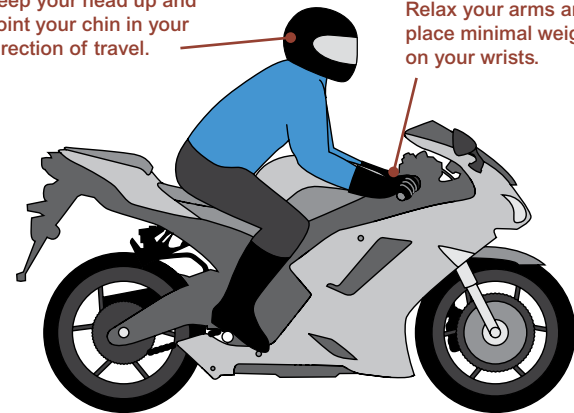
Five key points of posture

To control a motorcycle well, your body must be in the correct position:

- Sit well forward. Sitting too far back on the seat will affect your weight distribution on the motorcycle and could make the steering very light.
- Keep your back relaxed and support your weight with your stomach muscles.
- Keep your head up and point your chin in your direction of travel.
- Relax your arms and place minimal weight on your wrists.
- Grip the motorcycle firmly with your legs and knees.

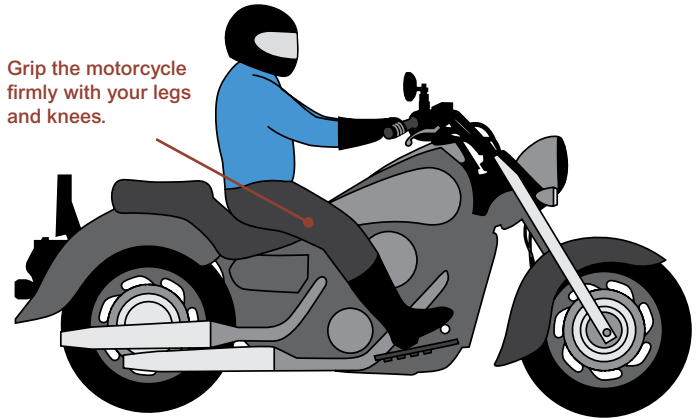
Keep your head up and point your chin in your direction of travel.

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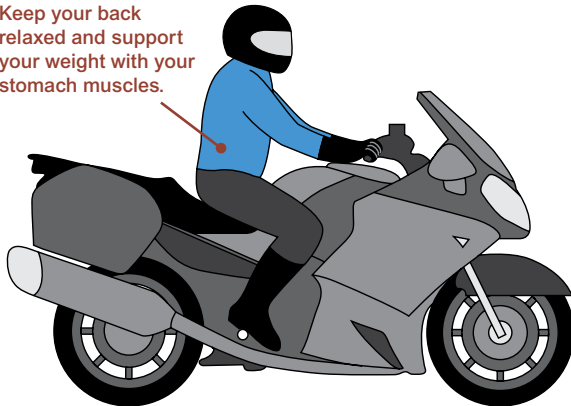




Grip the motorcycle firmly with your legs and knees.



Keep your back relaxed and support your weight with your stomach muscles.



Braking technique

The best braking is achieved when your motorcycle is upright and travelling in a straight line. Be aware of the road ahead and plan your movement as much as possible to avoid braking when cornering or turning.

To stop a motorcycle safely you should always use both the front and rear brakes together.

Correct braking is done in two stages. First, put light pressure on the brake levers and pause ('set up' the brakes). Then progressively apply the necessary braking pressure (squeeze).

Two-stage braking (set up and squeeze) improves braking effectiveness, reduces the likelihood of skidding and provides better control. When releasing the brakes, ease them off gently to maintain the stability of the motorcycle. Easing off the brakes gently is particularly important when entering curves.

Harsh or excessive braking pressure may cause skidding and a loss of control, particularly on wet or gravel roads.

If the front wheel begins to skid due to incorrect braking, or in an emergency situation, quickly release the front brake and then reapply it gently.

If the rear wheel skids, release the rear brake gently and then reapply it gently.

Steering technique

A motorcycle can be steered using a number of different inputs. Handle bar pressure, body weight and changes in speed all have an effect on a motorcycle's direction of travel. Good riders use a combination of these inputs to achieve smooth and precise turns.

Handle bar pressure

A motorcycle can be steered by direct steering or counter steering.

With direct steering, the motorcycle goes in the direction to which the handle bars are turned.

With counter steering, the motorcycle goes in the opposite direction to which the handle bars are turned; for example, a slight forward pressure on the left handle bar will make the motorcycle turn left.

Direct steering is only used for very low speed turns, such as U-turns and turns at intersections. Counter steering has more effect as speed increases.

Body weight

How a rider uses their body weight will have a significant effect on a turning motorcycle. Leaning with the motorcycle in a curve allows the motorcycle to be more upright, thereby giving the tyres better grip and the motorcycle greater ground clearance. With low speed turns, leaning out from the turn can help balance the motorcycle.

Changing gears

Your motorcycle should always be in a gear appropriate to the speed that you are travelling.

When changing up or down gears (up-shifting or down-shifting), you should always plan to do so smoothly and when the motorcycle is in an upright position (not while cornering or manoeuvring the motorcycle).

Effect of speed

The faster a motorcycle is travelling, the harder it is to turn. Reducing speed before turning is essential. After turning, wait until the motorcycle begins to straighten before accelerating. Accelerating will stand a motorcycle up and too much acceleration will make the motorcycle run wide.

During very low speed turns, such as U-turns, a gentle use of the throttle, clutch and rear brake can be used to control speed.

Leaning with the motorcycle in a curve

In curves, point your chin through the turn and scan the road with your eyes.

- Head and eyes level with chin pointed in the direction of the turn.
- Arms relaxed with slight pressure on the inside handle bar.
- Body weight on the inside of the turn.
- Knees firmly gripping the motorcycle.

Avoid using the front brake on a curve, which can make the motorcycle run wide.



Head and eyes level with chin pointed in the direction of the turn.

Arms relaxed with slight pressure on the inside handle bar.

Body weight on the inside of the turn.

Knees firmly gripping the motorcycle.

When learning to ride, or practicing as a new rider, the conditions you practice in are important. It is recommended that you select a low-level traffic area to start and only move to heavier traffic areas when your confidence and ability improve.

Summary

This section has explained the principles of low-risk riding and how to reduce the likelihood of being involved in a crash. After reading this section you should know:

- how to calculate a three-second crash avoidance space
- the two stages of effective braking
- the most appropriate road position to take based on space surface and sight
- how to steer a motorcycle
- the most effective riding posture
- how to plan a series of curves.

Your notes:
