Safe Braking

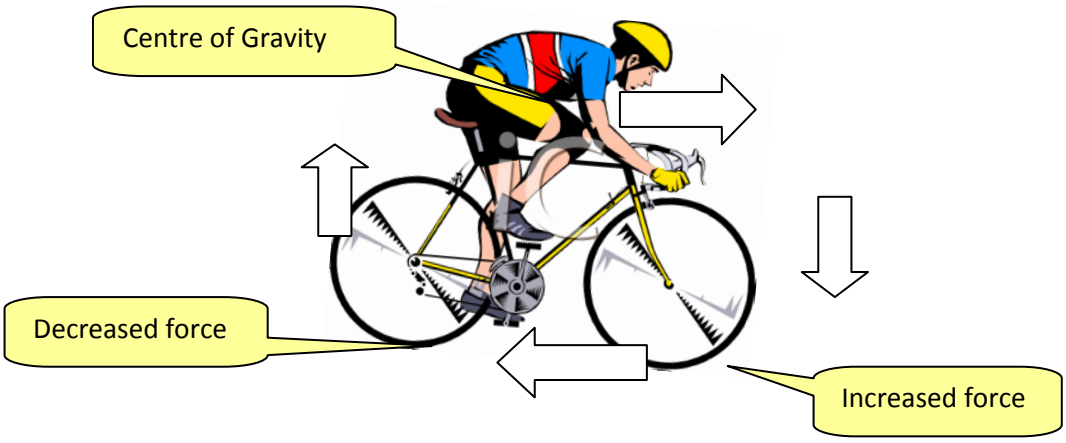
Introduction

Using the brakes is an essential technique that must be learned by practice. However it is helpful to understand the mechanics of the process.

Basic Principles

We have two brakes on the bike, each of which has a different role to play in stopping the bike. When either brake is applied the combined weight of rider and bike is transferred forward, increasing the load on the front wheel and decreasing it on the rear wheel. This can be easily be seen by walking beside your bike and applying the brakes. The tendency is for the front wheel to grab and the rear wheel lift off the ground.

While braking, it is very easy to skid the back wheel as the mass of bike and rider is transferred forward. The weight on the back tyre decreases and ***there is less grip between the back tyre and the road***. The weight is transferred forward, ***increasing grip at the front tyre***. As a result it is more difficult to skid the front wheel when braking hard.



Front Brake

The front brake is the main means of stopping in an emergency. On dry bitumen, with good tyres, you can apply a much greater braking force to the front wheel without skidding. Therefore it is the most important brake when an emergency stop is needed

Rear Brake

The rear brake can exert relatively little braking force in an emergency before the rear wheel locks and skids. However, the rear brake still has an important role to play. Applying a light braking force to the rear wheel helps the control the bike and keeps it straight. It also acts as a signal to you that you may be over braking - if you feel the rear wheel skidding, ***ease the pressure on both brakes***.

Emergency stopping

Both brakes are required for effective emergency stopping. Apply maximum pressure to the front brake and a lighter pressure to the rear brake. Keep your body low and move your weight back on

the seat as far as possible to increase the weight over the rear wheel. If the rear wheel begins to skid, reduce the pressure slightly on ***both brakes***.

Wet, slippery or loose road surfaces

In these cases, you must use the front brake carefully as it can be very difficult to recover from a front wheel skid. The rear brake will be more important in these cases to help reduce speed. Scan the road ahead to avoid the need for heavy braking in these circumstances.

When travelling very slowly

When travelling at walking pace or slower it may be better to use the rear brake to stop.

Down hill

Try to keep your speed under control by applying and releasing the brakes regularly rather than dragging the brakes on the rim. When cycling downhill on a winding road, use the straights between the corners to shed speed before the corners, especially if you are not familiar with the road.

Braking and cornering

Where possible brake as you approach the corner and avoid braking through the corner. When you must brake heavily through the corner apply the brakes sensitively and look for "escape routes".

Practice

Don't wait for an emergency to learn "on-the-job". Find a quiet piece of road, make sure that there is no one behind you and practice your emergency stopping technique. Pick a landmark on or near the road and practice emergency stopping from various speeds to get the feel of the bike. Start with a 3 to 1 ratio of force applied to the front and back wheels.

Maintenance

Keep your brakes well maintained. Check the adjustment frequently especially after removing or replacing a wheel. Also, under or over inflated tyres will affect stopping distance especially in an emergency.

Look ahead

Get used to continually scanning the road and verges to look for obstructions, pot holes, animals, vehicles, etc. Look ahead for sand, gravel, loose surfaces, oil patches and other changes in road surface conditions. Avoid the need for an emergency stop as far as possible.

<u>Above all else ride to suit the road and conditions.</u>

By Richard Stewart for the Fraser Coast Bicycle Users Group 05/07/2010