

Safety Tips, by Ben Hochberg, ABATE of Colorado's Rider Education Division

STOP!!!!

Did you know that Colorado law requires your street-legal motorcycle to have a brake? That's right – one single brake, on either wheel. I hope your bike has brakes on both wheels!

Bikes that have brakes on both wheels have separate controls for each one, although some bikes have braking systems that connect the brakes on both wheels and actuate both brakes even if you operate only one brake control. These are called “linked” or “integrated” braking systems, and are meant to compensate for riders who are unable or unwilling to brake properly without this feature. But even if your bike has linked or integrated brakes, you should know how to brake properly, as though your bike didn't have these systems, in case you one day find yourself riding a bike without this equipment and you have to stop it quickly! (Check your owner's manual to see if your bike has linked or integrated brakes.)

Did you ever notice that most bikes have a more powerful brake system on the front wheel than on the rear wheel? Some have a disc brake on the front and a drum brake (usually less powerful) on the rear. Others have two disc brakes on the front and a single disc on the rear. Why is that?

It's because when you apply braking force, the weight of the motorcycle shifts towards the front of the bike. Therefore there is more traction available for stopping going toward the front wheel, and less traction is now available for the rear wheel. The rider can now apply more braking force to the front wheel with less chance of a skid than before the braking began. (And consequently, the rider can now apply less braking force to the rear wheel prior to losing traction and skidding.) So it's necessary to have the better braking system up front in order to take advantage of the additional traction that becomes available once braking has begun and the weight of the bike starts moving forward.

So we see that most of a bike's ability to stop lies with the front wheel brake. But, by what percentage? The answer to that varies, and involves many factors. In good conditions (dry, clean road surface) under extremely hard braking, the percentage of braking ability for the front wheel of a bike can be as much as 100%, with zero percent available for the rear wheel. If you have ever seen a bike doing a “stoppie” you know what I mean – the rear wheel is actually off the ground – no braking happening there! (Caveat: “stoppies” are not a good braking technique! This example is for illustrative purposes only.) Road racers seldom use their rear brakes at all, because when they brake, they brake to the maximum, and there is no weight at all on the rear tire and therefore no traction available for braking.

But most of us aren't road racers. Most of us should use both brakes, under most conditions. Some of us are afraid to use the front brake to maximum effect, or to use it at all. Not good! We should be able to stop our bikes as quickly as they can be stopped, for safety's sake. This skill involves knowing how much front brake to apply in combination with how much rear brake to apply at the same time. And that takes training and practice. Many people who take training are amazed to find out how much front brake can be used and how fast a bike can actually stop if you do it right. The front brake should be applied progressively (not all at once, by grabbing the lever). And as the weight of the bike

moves forward, more brake can be applied. This happens continuously during the stopping procedure. And as it happens, less rear brake force can be used. It's easy to skid the rear tire when lots of front braking force is applied.

These guidelines assume a flat, level, clean and dry road surface. In other conditions, other factors apply. Other conditions include slippery road surfaces, carrying a passenger, and un-paved roads. Modifications to your braking technique apply in such instances.