

**T**wo motorcyclists. Two very different riding experiences. The guy in the photo at left is intent on only one thing—shaving tenths of a second off his lap times. The guy below is just out enjoying the scenery on a back road.

Yet these two riders have more in common than you might think.

Call the racer “him.” Call the street rider “you.” He wears full leathers and drags his knee in corners. You probably don’t. He doesn’t have to worry about a car suddenly turning left in front of him. You definitely do.

But the two of you are doing the same thing—braking, accelerating and steering a two-wheeled vehicle on an asphalt surface. You are both subject to the same laws of physics. And you can

This is where racers have an advantage over street riders. Under controlled circumstances on a racetrack, they get to know every corner intimately, and they can refine their techniques a little bit at a time. That’s a luxury you don’t have when you discover that a seemingly innocent bend in the road is actually a decreasing-radius, off-camber nightmare, with a sprinkling of gravel right on your line and an approaching 18-wheeler using every inch of the oncoming lane.

The decisions you make in situations like that determine whether you end up with a good story to tell your riding buddies or an entry in future government reports.

Which is why you might want to pay attention to some of the lessons learned

*BRAKE when upright  
Then Roll*  
racers will tell you, is when you’re upright. Then, when you’ve got your speed under control, you can roll the bike into the turn.

Separating these two actions has obvious advantages on the road. Not only can you pay more attention to braking when you’re just sailing along in a straight line, but your bike is capable of slowing much more effectively under those circumstances.

At the very least, braking in mid-corner will cause the motorcycle to try to stand up, ruining your line. At worst, it could leave you traction-impaired.

An explanation is due here about various braking techniques. In dry conditions, the vast majority of road racers rely solely on the front brake to modulate corner entry speeds. And they gen-

*2 FINGER BRAKING  
VS FOUR FINGER  
MSF*



# LINE DANCING

## What racers know could save your life

By Chris Kalfelz

both fall victim to the same mistakes.

It’s difficult to estimate the exact number of mistakes made on the racetrack, but the federal government keeps a tally of them on the street in the form of accident statistics.

In 1995, there were approximately 64,000 motorcycle accidents in the United States. Of those, almost 40 percent were single-vehicle crashes. Some may have been caused by flat tires or mechanical failures, but most were mistakes—what the FAA refers to as pilot error.

by the guys wearing the knee pucks. The skills they’ve developed could help increase your safety margin on your next Saturday morning ride.

### KEEP IT SIMPLE

*ONE thing at a time*  
If there’s a golden rule for proper cornering technique on the racetrack, it might be: “Do one thing at a time.” Problems generally start when a rider divides his attention between multiple priorities, like braking and turning at the same time.

The time to brake and downshift,

erally do so with only two fingers.

This, as many of you will likely point out in letters to the editor next month, is not the recommended braking procedure espoused by the Motorcycle Safety Foundation.

There are advantages to either way of doing things, and if you’re more comfortable using four fingers on the brake lever, just keep on doing that. Be aware, though, that some of what follows is based on the fact that modern disc brakes deliver massive amounts of braking power, allowing a rider to slow



down effectively with two fingers.

### THE ART OF THE LATE APEX

Braking while upright, then turning, means one of two things—either you have to do all that a long way before you get to a curve, or you have to delay turning until you're well into the corner.

Riding styles differ, but most racers these days do the latter, taking what is known as a "late-apex" line through a turn.

Here's how it works: As you approach a corner—say, a 90-degree left hander—you want to be in the outside part of your lane (see illustration, below). Continue in a straight line, braking and downshifting until you're into the corner. That allows you to take care of these tasks while the bike is upright and you can focus exclusively on slowing down. **COUNTER STEER**

Then, with the braking out of the way, it's time to countersteer. Push on the left handlebar and flick the bike into the corner. The faster you push, the faster you flick.

With today's tire and chassis technology, motorcycles can change direction remarkably quickly—probably faster than you're used to turning on the street. Faster is better because it takes time to turn, and you're covering ground during that time. Less time spent initiating a turn means more time for doing things like avoiding road kill or adjusting lean angle.

That initial flick should take care of much of the turning you need to do for the entire corner, so you can then aim toward the corner exit. This is called "squaring off" the corner.

As you aim for the exit, you'll naturally cut across the lane and approach the yellow line on the inside of the turn. The point of your closest approach to the yellow line is the apex of the corner, and since you'll reach it far into the corner, this is known as a late-apex line.

Note that the apex is not the spot where the bike is leaned over the farthest. That should have happened back where you flicked the bike left. Using a late-apex line, you get the bike turned early, which leaves you free to concentrate on other things.

Many riders make the mistake of diving toward the apex early, which has the



Look where you want to go. Scott Russell did it on his way to victory in the 1995 Daytona 200. It can work for you on the street too.

opposite effect. They pass the midpoint of the corner still aimed toward the side of the road, then have to brake and turn late. This is the formula for running out of cornering room.

Using a late-apex line also lets you respond better to unexpected situations. If you suddenly discover that you've encountered a dreaded decreasing-radius turn or a lane-straddling semi, just maintain an even throttle and ride out the corner. Otherwise, it's time to accelerate—but more about that later.

### LOOK OUT

Every bit as important as anything you're doing with the bike's controls during all this is where you're focusing your attention.

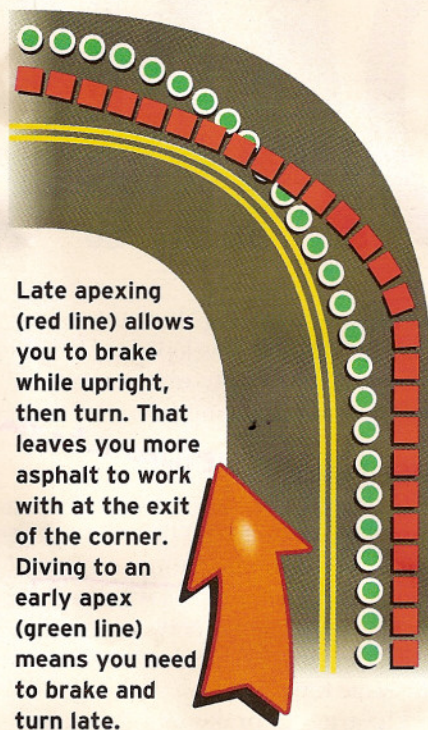
Any racer will tell you that you should look where you want to go, because the bike will go wherever you look. This effect is called target fixation, and it really works.

Even the pros sometimes forget this basic rule. Some of the most unnecessary racetrack crashes occur when one rider goes off the track, and a trailing rider follows him into the haybales. Instead of looking at the exit to the corner, that second guy was focusing on the rear tire of the bike ahead of him...and he followed it right off the track.

On the street, you need to beware of the same effect. Train yourself to look through the corner, picking out the line you want the motorcycle to follow. Otherwise, you can easily end up targeting a sign alongside the road.

This technique isn't just important in cornering. Let's say you're riding along a straight, level two-lane road, approaching an intersection. There's a car coming toward you. At the last minute, the car suddenly turns into your path. Quick, where do you look?

If you fixate on the car, you're practically guaranteed to hit it. Look at the clear path to one side or the other, though, and you might avoid an accident. That's what racers are trained to do when someone crashes in front of them.



**Late apexing (red line) allows you to brake while upright, then turn. That leaves you more asphalt to work with at the exit of the corner. Diving to an early apex (green line) means you need to brake and turn late.**



## WHEN IN DOUBT...

Back to our hypothetical 90-degree left hander for a moment. You've slowed by braking and downshifting, countersteered into the turn and you've got your eyes focused through the corner at the line you want to take.

At this point, the old racing adage, "When in doubt, gas it," has some real-world applications. As unnatural as it may seem, you'll get through the corner better if you roll the throttle on rather than trailing the brakes.

Think of cracking the throttle as buying traction. Rolling on the gas transfers weight to the rear wheel, more evenly distributing the machine's mass to both tires. Braking throws weight forward, overloading the front tire, which is already having to deal with turning forces.

This is where two-fingered braking can be a real advantage. As you release the brake and start your turn-in, you can smoothly roll on the throttle, pick up your exit point and accelerate toward it. That's what the racers do, not just because it's a faster way through

the turn, but because it gives them more control over the motorcycle.

## OOPS

OK, so what do you do when all else fails? You're headed into a corner and you just know you're going too fast to make it.

If you've still got the bike upright, it may not be too late to save it. First, brake—hard—in a straight line until you use up most of the available asphalt. Don't be afraid to squeeze that brake lever. In a straight line, the act of slowing down will transfer weight to the front wheel and help keep it from locking up.

When you get to the point where you're running out of room, LET OFF THE BRAKE and turn. There's no other way to do it.

Then get on the gas to balance the bike's weight. If you're looking through the corner and you've been living right, you might scrape a peg and keep going. If not, you're no worse off than you would have been if you didn't try to turn.

## RIDE SMART

Finally, remember that the street isn't the track. While the skills used by many road racers transfer quite nicely to public roads, the speeds don't.

If you want to hone your skills at speed, you should attend one of the many high-performance riding schools that conduct classes throughout the country. Many schools offer AMA members discounted tuition rates. For details, call (800) AMA-JOIN.

An MSF Experienced RiderCourse could be helpful as well. Many of the skills taught in that course, like looking through corners and countersteering, are identical to the skills taught at the racetrack schools. For the location of an MSF course near you, call (800) 446-9227, or if you live in California, (800) 227-4337.

You may never get closer to a race-track than a seat in the stands, but if you follow these tips, you'll have something in common with the guys out there racing for trophies. And you'll be more confident the next time the road throws you a curve. ■

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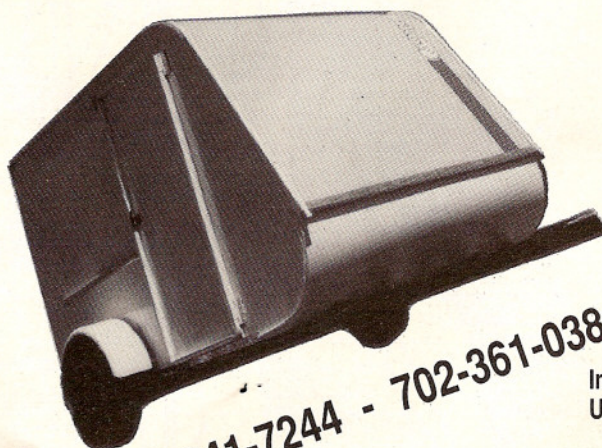
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