RoadSkill: Riding in a Paceline

Years ago, my brother and I played a game on long descents. Neither of us pedaling, one would glide up behind the other and pass him. Then the other would slide in behind the first and do the same thing. We would leapfrog down the hill like that, marveling at the increased speed we'd generate just by drafting. One of my attractions to bicycles has always been their combination of simplicity and efficiency. They are so efficient that, with as little surface area as they have, wind resistance is still a major factor in their performance. I read recently that drafting conserves one percent of your energy for each mile per hour you're moving. So, at 25 mph, you use 25% less effort by drafting. That's a whole lot! A paceline is the art of synchronized drafting. Here's how it works.

You have a line of riders, each close on the previous one's wheel. Every rider is drafting except the first one. The first one "pulls" for 10 to 30 seconds then peels off to the side of the line. That rider then eases up a bit and drifts back to the back of the line, sliding in behind the last rider. The next leader pulls for 10 to 30 seconds, repeating the procedure, et cetera, on down the road.

Ok. That's the basic idea, but there is a lot more to it. Let's follow the progress of one rider, Sally, who starts as the second rider in the line.

Sally hasn't ridden with Fred, the rider in front of her, before, so she's leaving a couple of feet between her front wheel and Fred's rear wheel. If she knew Fred to be a really steady, skilled rider, and if she were confident of her own skill, she might close in to as little as six inches, for the maximum draft benefit.

As Fred peels off, Sally looks at her cyclocomputer, because she knows that the tendency is to speed up when taking the lead. Using her cyclocomputer, she can easily maintain the line's speed.

Knowing another rider is on her wheel, Sally concentrates on keeping her line and her motion smooth. No sudden movements allowed in a paceline!

Beginning a small climb, Sally considers up-shifting and standing to motor over it, but she's not sure she can make the transition without at least a small stagger in her pace, and Alice, behind her, is right on her wheel. Instead, Sally drops down one gear and keeps her effort constant.

Having pulled for about fifteen seconds, and Fred being clear of her, Sally checks her mirror for traffic. It's clear, so she glances back to confirm then swings out to the left with a decisive motion. (See the discussion below about how long to pull.)

Once clear of the line, Sally eases up her pedaling, letting the line slowly pass her. As the last rider, Fred, approaches, Sally begins to pick up her pace, because she's been dropped from a paceline before by not catching the wheel of the last rider.

As Fred passes her, Sally eases in behind him. Without fixating on any one thing, she keeps an eye on the rider in front of Fred and Fred's wheel. Sally knows that a paceline is not the place for sightseeing.

Sally begins to gain on Fred, but she knows not to use her brakes in the paceline and not to overlap wheels with him (which is the fast way lane to roadrash should Fred make a quick turn). Instead, she eases out of the line enough to catch some wind, slowing her down enough to stay behind Fred. Wind resistance. Sometimes it works for you!

As the line picks up speed going down hill, Sally lets more space open up between herself and Fred, because with greater speed comes greater efficiency of drafting and less time to react to any tricky situation that might arise.

So, that's the general idea. There are many additional subtleties and variations, but start with the basics. And don't try it on a heavily trafficked road or with inexperienced cyclists.

How long to pull

Short time

If you have at least eight riders and you are in a situation where you can sustain two lines of riders (a situation quite rare on car roads!) you can create a "double paceline". In this configuration, as soon as the previous leader is even with the second bike in the line (i.e. is completely behind the new leader), the next leader pulls off. This creates two lines, one moving slower than the other. The beauty of this configuration is that even the riders who are dropping back are drafting, except the first one. This is the most efficient paceline and the most difficult to execute. Timing is everything. (Well, smoothness is everything. Timing is everything else!) For example, if one rider pulls too long, a gap opens in the line dropping back, reducing the efficiency of the line. If one rider drops back too slowly, the same thing happens. If a car comes and a single file must be established, it takes much time. If one rider swerves to avoid a pot hole, there may be another rider right there.

Long time

If you are on a road with occasional car traffic that forces you into a single file, you'll want to have no more than one or two riders moving back at a time. With more car traffic you may need to maintain a single file most of the time, having the leader drop back only at moments when car traffic allows it. But if conditions permit, keep the lead rotating. It keeps all riders fresh and keeps the ride interesting.

If your shorts need adjusting or you need a drink of water, wait till you're at the back of the line. The sudden change in your motion in a tight paceline could otherwise spell disaster. At the back of the line you have the freedom to drop back a bit and swerve to your heart's content. With someone on your wheel, you have a responsibility. This is another reason to keep your pulls relatively short. Someone may be anxious to get to the back of the line!

Safety

Because a paceline has, by definition, cyclists riding very near each other, the chances of a misshap are great. Remember, if your front wheel touches the wheel of the person in front of you, you're going down! Do not overlap wheels, and pay attention.

Cars and pacelines are a bad combination. Trucks and pacelines are worse. Use good judgment about the situation and modify your riding configuration to suit. And always, always be alert to traffic!

A bicycle is an elegant machine, using grace and simplicity to extend the power of the bicyclist. A paceline is an elegant extension of the bicyclist, creating a team that multiplies the power of the individual.