

A Pace Line Primer

Tony Myers, Athletic Training Services

One of the key skills in road riding is drafting. Put a team of several drafting, communicating riders together and you have a pace line. A team of riders can go much faster than a single rider by working together, sharing the work and taking advantage of a little physics. At speeds over 12-13mph you are doing more work to overcome air resistance than you are to pull your weight, assuming level ground. When speeds approach 18-20mph the effect of air resistance becomes overwhelming to a solo rider. Head winds and cross winds add to the net effective velocity. Drafting creates a wake (or a “zone of silence”) behind the front rider. When you are in this wake or “draft” you need less power to maintain the same speed. The draft is everything. By drafting another rider one to two feet behind, one will use 10 to 20% less energy; drafting a bigger rider is like having a tailwind. A rider that can draft well can ride with much stronger riders; that’s the effect, the strength, the value of a pace line TEAM.

The basics of learning to draft:

Initially draft someone you’ve ridden with before, as you’ll already be familiar with his or her riding habits. Start by getting a steady speed going, just about as fast as you might ride once you’re warmed up and want to push a little. Get behind your leader, with a three to four foot gap between your front and his or her rear wheels. Try to look at the rider in front of you, not just the wheel. Watch his brake and notice his shifting patterns in order to anticipate changes in speed. Look over his shoulder, move left a few inches to see past, watch the bike and rider ahead. Keep a high cadence, and maintaining the three feet will be easy. A three-foot gap will give you just a little drafting benefit. Use the rear brake to keep from getting too close, and ease up, but keep pedaling, as you brake gently. Once you’ve mastered comfortable drafting you’ll need to lessen your dependence on braking to control the distance and speed, using pedal speed and catching air to brake (read more about this below).

Once you’re comfortable with three feet, close the gap to two feet. At this distance, you will get a real decrease in the effort needed to go at a certain speed. You can stick to a stronger rider for quite some time if you can ride two feet off the wheel ahead.

When you get good at a two foot gap, work on closing the distance to as close as six inches. This takes a lot of attention and practice behind a very steady rider. You can stay with anybody if you can draft at six inches.

Most important, don’t ever overlap the wheel in front of you. You will hit the pavement, either slowly or real quickly, if the rider in front moves to avoid a road hazard and you get your front wheel clipped.

The basics of a pace line:

A pace line is a group of riders who draft each other in a single or double file line. The lead rider takes the brunt of the wind, allowing the riders behind to rest. After a short time, the lead rider moves to the left side (in the U.S.) and the line of riders advances past with a new rider on the front. Under the best of circumstances, the more riders in the line or on the team, the shorter the time the lead rider pulls.

In a pace line, the cyclists usually ride single file, with an appropriate gap between each rider. Experienced riders will keep a foot or less behind the rider ahead. New riders should try to keep one to three feet from the rider ahead. As mentioned under drafting, watch his/her body and rear brake, not just the wheel. To keep a proper gap the rider should first ease the pedaling rather than use the brake to adjust the gap. If you need to slow, try sitting up to “catch some air”. If you must use the brake, do it gently with the rear brake, so the rider behind doesn’t have to slam his brakes on. If you keep pedaling while braking, it is very easy to maintain a gap. The goal is smooth transitions of speed; remember these transitions will “travel” down the pace line.

The rider currently on the front is responsible for the safety of the other riders: keeping a steady pace, avoiding potholes, and looking far enough ahead to see how the road, traffic, and stoplights will affect the immediate future of the line. The lead rider will gently drift to one side of small obstacles, and point down to the proper side to show a HOLE is coming up right away. In the lead position you must work harder than as a solo harder to anticipate your line. Like speed transitions, directional transitions will “travel” down the pace line unless they happen too

quickly: if the lead man fails to notice a hazard until the last second, then moves quickly to avoid it, the man behind him is likely to hit the hazard. Anticipate!

Rotating the pace line:

Before the leader gets tired, he checks traffic behind, signals with a hand motion to the left and slowly moves to the left, letting the next rider pull alongside. Then the former leader eases up and drifts toward the back. Never jerk to the left, and don't slow down and then move left. Don't stay on the front until you're tired, or you won't be able get on the back. As the rider drifting back nears the last rider in line, He begins to speed up, maybe standing to stretch the legs, and as the last rider passes, the former leader moves right, onto the back of the line.

The second rider is now on the front, keeping the same speed. He rides straight, points out road hazards, and after a minute or so, moves left, eases up, and drifts back. Do not feel tempted to increase the speed when it's your turn to pull. You have nothing to prove, so keep the speed the same. Here's the irony of speeding up the line: when it's your turn to pull in a rotating pace line you'll go up front as the freshest person on the team. Taking off with extra speed will drop the guy who just pulled you as he attempts to catch the rear of the line for some rest.

Get ready to move left before you get tired, then move left without slowing. With two or three riders, take one minute pulls, with more riders, pull less. In a six rider pace line, the leader moves over almost as soon as the previous leader drifts out of his sight. When riding with stronger riders, take a shorter pull. Keep the rotation going, but don't feel the need to prove anything.

If you're new to pace lines and drafting, stay at the back and let a gap open up as each former leader nears you, so he can pull into the line in front of you. When you feel comfortable with the pace, feel relaxed and steady, join the rotation, ride steady and find out how well you can go at this faster pace.

When you are on the front, you are driving and steering the riders behind. When you approach an intersection with a stop sign, you drop your left hand and signal a stop to the riders behind. Never run stop signs. If a stoplight is ahead, obey the light. If it is turning yellow, STOP! There might be enough time for you to get through the intersection, but if the last rider is forced to follow through a red light, then you've put him in danger. It's always the last riders who get hit by cars at intersections.

When learning to ride a pace line, you may be hanging on the back for dear life, doing all you can to stay with the group. If you are spent, and can't hang, ask for an easier speed; "Please slow down" will work. "Can we go slower?" is good. " If the pace line pulls away from you, try a little begging. If you are drifting off the back, make a huge effort to get back on a wheel. Then yell "attende moi!"