

Effective Drafting and Pacelines

Whether or not your goals will ever be in road racing, training on the road and training with a group is essential to maximize your potential in your sport! Training on the road provides an open space, void of technical obstacles, that will allow you to execute an effort to perfection. Road training in groups is a great way to familiarize your mind and body to maintain average speeds that you would not be able to achieve alone (poor man's motorpace).

That is why it is very important to learn the basics of drafting and how to use pacelines to work for you! Now if you have ridden in a group ride you may already know about drafting, and you probably know how to ride in a single paceline, a double paceline and maybe even an echelon. Formations all designed for one purpose; shelter from the wind. That shelter can save you up to 30% of your energy! Now to be 30% stronger in a race, some people take performance enhancing drugs, some spend thousands on aerodynamic equipment but very few take the time to truly understand how to use drafting and the wind to their fullest.

The best riders in the world, pros that are paid millions of dollars to win bike races understand wind. Or do they? The 2003 Vuelta 'e Espania, the third largest stage race in the world was lost for most of the G.C. contenders on a flat, windy day. Most riders thought it would be a relatively easy day after their battles in the mountains and they didn't notice the wind change direction. Even after they realized their mistake and started a desperate chase, their teams didn't have enough horsepower to make up for their lapse of concentration. Time gaps between riders that were measured in seconds for two weeks and more than a thousand miles of racing were measured in minutes in less than 20 miles.

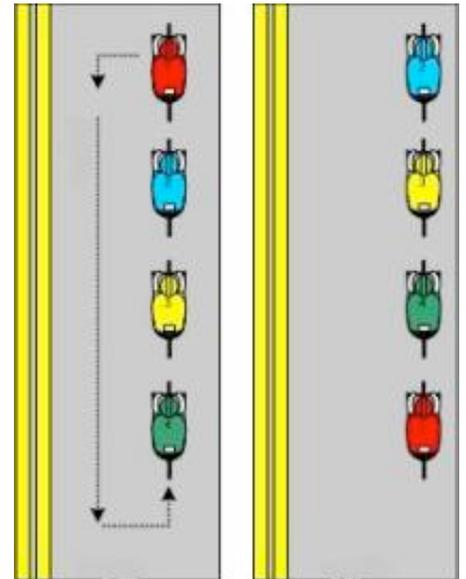
I've always prided myself on my understanding of the wind and use nearly every group ride as "wind training"! In the Midwest, where hills are climbed with power rather than strength-to-weight ratios, understanding the wind is absolutely crucial to making the most of your riding capability.

Here are some basic drafting techniques you may run into on your next group ride:

Standard Paceline:

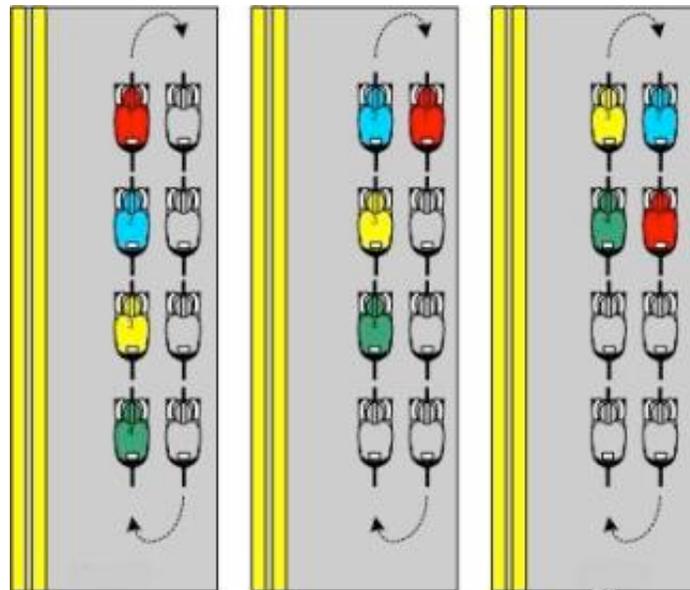
This rotation is designed for headwind or tailwind and allows the lead rider (red) to determine the length of the pull and the speed. When the lead rider has decided to finish his pull he moves slightly to the left and drifts to the back of the pack. Allowing the second rider (blue) to take the lead.

Special Note: Too often people believe that once they pull off the front their work is done and they can rest easy and soon find the entire group riding away from them. Remember that your pull is not done until you have latched on to the tail of the paceline.



Double Paceline:

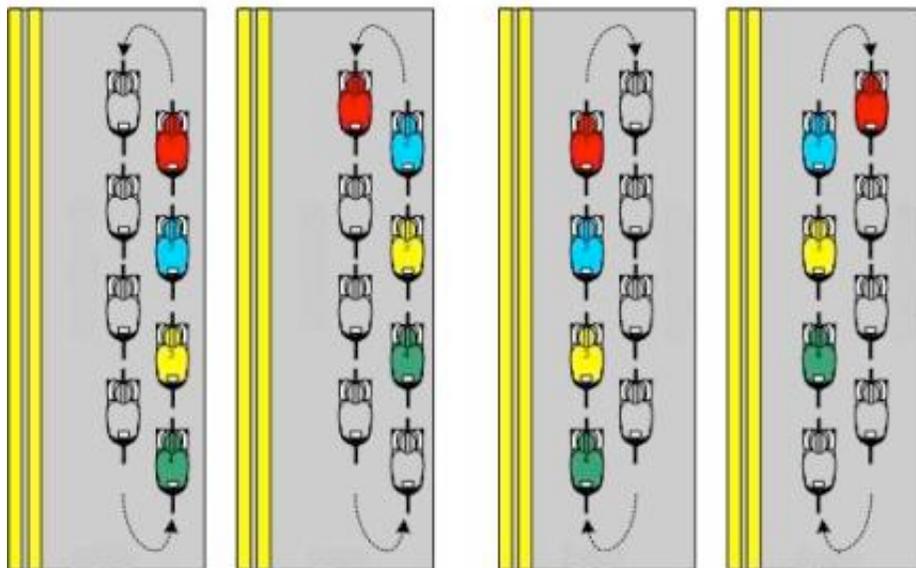
This rotation is similar to the standard paceline except now we have introduced more people and the rotation is a constant. Rather than having the lead rider determine speed and length of pull, the group will constantly rotate in a circular fashion.



Double Paceline (w/ slight cross wind):

It is very rare that the wind hits dead on. In most cases the wind will come at a slight angle. It is important here that the rotation of the group work with the wind so that riders who have finished their pull (grays) and are traveling slower, can block the wind for riders who need to move forward (colors) and use the wind as a boost to travel backwards.

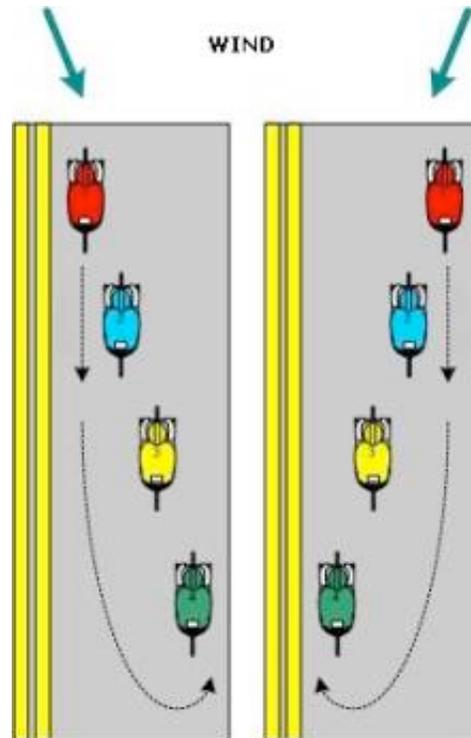
Special Note: It may be difficult to tell out on the road which way the wind is blowing. The best thing to do is look for a flag, trees, or blades of grass to determine direction



Standard Echelon:

This rotation is designed for cross winds, or winds that come in from the sides. In an echelon a rider can experience an energy savings of up to 25%. Not quite as much as a paceline but still enough to make a dramatic difference. The rotation works the same as a standard paceline, the formation however is exaggerated towards the direction of the wind.

Special Note: If you have trouble remembering which way to rotate, always remember that the lead rider will be pointed towards the wind and the people going backwards are always on the windy side of the line.

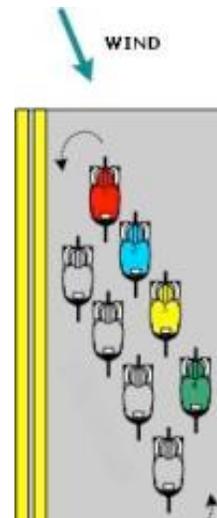


Double Echelon:

Again, this is very similar to the double paceline, just exaggerated towards the direction of the wind. In a double echelon the riders will experience two efforts. 1) When they take the lead of the group (red) and when they have to jump on to the tail of the forward moving group (as grey indicates with arrow).

Special Note: The double echelon can be the scariest for a beginner rider as it requires you to overlap your front wheel with other people's rear wheel. Practice and confidence in your group is the only way to get over these jitters.

Special Note: In a paceline, theoretically, the group could be several hundred people and everyone except the leader(s) would be protected from the wind. In an echelon however, the width of the road will determine how many riders can ride in the group. Remaining riders will be left to form a second echelon, just behind the lead group or struggle in the wind looking for shelter.



Some useful tips on pacelines.

- **Proper distance to maintain between each rider.**
 - Take time to understand what distance you are comfortable with maintaining.
 - Benefits of drafting are best the closer you are. Drafting loses its effect once a bike length & half has opened up between you and the person in front of you.
 - Never overlap in straight pace lines
- **Filling gaps.**
 - If a gap opens in front of you do your best to fill it slowly, if you were to jump across the gap then you only create a gap behind you. Steadily increase speed to fill the gap, as if you were doing an extra pull.
 - If the gap is not directly in front of you, then it is not your problem. Gaps should be filled by the person creating them or the person at the back of the pace line. If you ride around someone to fill a gap, you create confusion and, most likely, more gaps.
- **Etiquette.**
 - Let the pack determine the speed and maintain that speed. Pulling through faster than everyone else or holding the lead for longer does not translate to "a strong rider" but rather the opposite, "silly rider".

USING PACELINES AS A TACTIC IN RACING!

- **Short Pulls. Time your efforts vs. your opponents. Cut your pulls by a few seconds and save more energy.**
- **Fake pulls. Do not pull through as hard as your opponent, let them set the high pace and pull through slightly slower. Your opponent will usually get frustrated, make your pulls shorter, and his longer.**
- **Double Team Pulls. When working with your teammate you can tag team your opponent. Surround your opponent and when your rival wants to pull through the relinquishing rider will make slight increases in speed. Once over taken the following rider will make his pull through fairly long. Your opponent works twice, when you only work once. This requires you to be very sly and getting caught is never pretty.**
- **Drafting uphill; does it work? The benefits of drafting are nil once below 12-14 miles per hour (unless there is a dramatic headwind). On a climb, staying behind another rider is more "motivation" to stay in contact with the leader(s).**
- **In a race the only time that "sitting on" the pace line is acceptable is when it is tactically advantageous for you; outnumbered, team leader not in the break, teammate further up the road.**

SPECIAL NOTE: At the lower levels, rotating pace lines in criteriums is almost non-existent. The constant change of lead and the many turns makes many pace lines unnecessary. Now drafting is still very relevant but pacelines... not so much.