



Image\_Carson Blume

# the importance of LITTLE THINGS

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If you've been around bike racing long enough, you've seen "A Sunday in Hell", Jorgen Leth's documentary about Eddy Merckx's ride in the 1976 Paris-Roubaix, and you've heard the announcer make gentle fun of Eddy for adjusting his saddle height several times between his arrival at the venue and the start, and then once again during a slow-down in the race. Before you laughed with the announcer though, I hope you remembered that Cannibal Eddy won 5 Tours de France; set a World Hour Record on a diamond-framed, spoked wheel bike that was not broken until Francesco Moser did so on a disk-wheeled "funny bike"; and won enough spring classics to fill several magazine pages. Eddy's seemingly goofy obsession with saddle height was important to his success. Only riders who care about such things and act on their concerns win consistently.

Many riders say they want to win races, but do they really? We must distinguish mature from childish wanting. Wanting something doesn't just mean dreaming about it or asking your daddy to get it for you. It means that if you know a way to get it, you do what needs to be done, and if you don't already know a way to get it, you look around or ask around until you find one. Many riders who say they want to win bike races could more accurately say that they'd like to win a bike race if it's not too much trouble, or maybe if everyone else would just get out of the way. The problem for these childish riders is that others

who have the maturity to hurt more or go to more trouble to get things right will beat them. Riders who truly want to win are devoted to doing all the little things right.

## BIKE AND RIDER WEIGHT

Bike and rider weight are important for climbing races, but do the last 1 or 2 pounds matter? Uphill speed is proportional to the power a rider makes for the length of the hill divided by the weight of the rider with bike and kit. Given 2 riders with the same ability to push on the pedals, the lighter one climbs faster. Let's consider an example: A group of 6 riders has broken away and comes to a hill that takes about 3 minutes to climb and is followed by the sort of open descent where a rotating group will open a gap on a solo rider. A heavier rider knows this is crunch time so he moves to the front for the climb. If he can make the same power for 3 minutes as one of the lighter guys, how much heavier can he be and still hold on to the group? Let's say the other 5 riders get to the top of the hill lined out but still together and climbing at 15 mph. The pack is about 35 feet long and takes a bit less than 1.6 seconds from first to last rider to pass a given point. That means the difference between being able to be first over the top and being at the back is 1.6 seconds in a 3-minute climb, or about 0.5%. If rider plus kit and bike weigh about 170 pounds, 0.8 pounds (364 grams) of extra weight is all it takes to take a rider who would be cresting at

the front and have him or her crest at the back of the group. Another half pound is the difference between cresting next to the last other rider and being 10 feet off the back and out of the draft. Riders often ask me what they can do to improve their climbing. My first question is always whether they are already in an appropriate range of body weights for their height and riding goals.

Weight matters in a sprint as well. Acceleration in response to a given force is inversely proportional to the mass accelerated. A heavier bike plus rider accelerates more slowly with the same applied power. While a few pounds of bike or fat makes less difference than a draft, all else being equal, the heavier bike and rider combination ends up a few inches behind. He or she needs to make more power to get to the same place at the same time as a lighter rider plus bike. One can't simply lose more and more weight and sprint faster and faster of course. Some weight is the muscle that will power the bike and losing it will make one slower. Other weight though is fat or muscle that doesn't power the bike. Losing that fat or muscle makes the rider faster up hill and in a sprint.

#### ROTATING WEIGHT

A lot of fuss, some of it justified, is made about rotating weight. Weight at the tire or rim of the bike resists acceleration almost exactly twice as much as weight that does not rotate. A tire that is 10 grams heavier provides extra resistance to acceleration as much as a saddle that is 20 grams heavier. The weight of spokes is somewhere between 1 and 2 times as difficult to accelerate as non-rotating weight. Weight in the hub is essentially the same as non-rotating weight when it comes to acceleration. During steady-pace riding, even up-hill, rotating weight has the exact same impact as non-rotating weight.

#### DURABILITY IS OVER-RATED

Riders who want to win bike races must achieve a realistic race weight and then train to at least come close to matching the power and endurance of the other competitors. Then they should race in light-weight kits on the lightest equipment they can afford. I know many people would like me to say that the equipment has to be durable as well, but I disagree. A wheel that needs truing every 200 miles is fine if used in races of less than 100 miles. A wheel that is "bomb proof" and never needs truing or a brake lever that doesn't crack when crashed on is heavier than it needs to be. Parts that are subject to catastrophic failure with catastrophic results, like forks and pedal spindles, should be durable. Parts that can fail gradually without injuring the rider or that only break in crashes are fine.

Riders looking to shave weight should consider their kits as well as their bikes and bodies. Heavy shoes, underseat bags, pumps and cartridges slow one down as much as an equal weight of flab or bike frame. Carry the emergency gear when training of course, but leave it off when racing.

#### WIND RESISTANCE

In a flat or windy race, aerodynamic drag makes as much or more difference than excess weight does in a hilly race. That's why experienced riders are quick to join pacelines or echelons or find the protected side of the pack, and also why they own and wear skin-suits in any race where they won't need pockets, and why they pin or tape their numbers flat with religious dedication. Time-trialists use special helmets and more and more often, road racers as well as time-trialists use shoe covers to reduce drag. A well-designed pair of deep-section wheels or a disk makes more difference than months or years of training. Frames that come too close to the tire and interfere with the laminar flow of air over the tire increase resistance enough to lose a race.

All of these aerodynamic issues are tiny compared to the impact of a good bike fit. A rider who makes the same power in the drops or on the tops will go 1/2 to 1 mph faster on the drops, and yet numerous riders cruise around on light, expensive bikes with

fancy wheels routinely riding sitting up because they can't comfortably ride on the drops. Adjusting the bars high enough that the drops become the lowest comfortable, sustainable position will do more for riding speed than another \$1000 worth of wheels.

Pedaling cadence, remembering to tuck whenever one can feel or hear wind, and coasting whenever possible will make more difference than aero-equipment and several months of training. Efficient cadences are impossible without the right cogs and chainrings. That's why winners put on different gears for hilly versus flat races. The rider who can keep 90-110 rpm throughout a race, not counting the sprint, has an advantage over the rider who spins out on the descent, or bogs down on the climbs. Nutrition and hydration are more important than the choice of bike or the training plans. Again, winners must be obsessed with details, not just in equipment selection and training, but also with when they sit on and pedal the bike and what and how much they eat and drink.





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### BIKE STIFFNESS

Stiffness or compliance of parts is another thing that can win or lose races, but stiffer is not always better. It is true that the stiffer the frame, cranks and wheels, the more of a rider's power can be delivered to the road and turned into speed, but the sharp sort of rattling a rider experiences when riding a stiff bike over rough pavement is also fatiguing in a way that decreases the power a rider can make later in a long race. That means that while a stiff bike may be more efficient in shorter races, a bike that is compliant enough to absorb some shock will actually be faster in a longer race on bumpy roads. Individual riders will have different tolerances for shaking and will thus appropriately choose stiffer or flexier bikes for the same events.

### SUPERSTITIONS AND CONFIDENCE

There are many factors that affect the speed a rider can make on a bike. Weight, bike fit, aerodynamics, training, nutrition and hydration, among other things, all contribute to performance. The importance of the psychology of the athlete also should not be underestimated. A rider who believes that he or she has a shot at winning will ride harder in pursuit of that goal than one who doubts. If a rider knows that

a behavior or a piece of equipment contributes to his or her success, that rider will try harder when using that behavior or equipment. This is true even if the intervention has no physical or physiological benefit. That's why I encourage riders to develop routines and follow them. If one knows that a routine works, it doesn't matter why: It will make one more confident, and that is an advantage in itself. A rider who believes that wearing red socks helps him win should wear red socks.

### ARE YOU SERIOUS ENOUGH TO WIN?

When competing against peers, one cannot win without getting lots of little things right, so serious racers pay attention to those things. In fact, attention to detail and how a rider puts the desire to win into daily action are good measures of seriousness. That can translated to 2 questions: What does a rider do with information available and how hard does he or she strive to gather more information? The serious racer, knowing that a particular behavior or equipment choice could affect the outcome of a race, makes the choice that improves the chance of a legal win, no matter the cost or sacrifice demanded. Serious racers do indeed "buy speed" because they know that equipment, coaching and bike fit make differences larger than

the differences that separate those who stand on the podium from those who watch from the crowd.

The serious racer sets out to learn how any possible choices will affect race outcome. He or she knows and moves towards or stays at his or her ideal race weight, has different wheels for flat or climbing races, has a skin-suit and a variety of gears and tires for different courses. He or she obsessively pursues an ideal bike fit that maximizes performance by balancing aerodynamics, power production and comfort.

The serious rider relentlessly pursues information from books, fellow riders and coaches that will help him or her win and then acts on what he or she has learned, because little things matter. *OR*

**SCOTT SAIFER, M.S.** and the coaches of Wenzel Coaching have been helping individual riders identify the factors that will allow them to improve their personal performance in competitive and non-competitive cycling, running and triathlon events since 1994. Our attention to detail has helped close to 2000 athletes to develop their athletic potential. Let us help you. Visit us at [WenzelCoaching.com](http://WenzelCoaching.com) for more details.