

CYCLING PERFORMANCE TIPS

Hills/Climbing Tips

Climbing is a power-to-weight activity. World class climbers generally have less than 2 pounds of body weight per inch of height. (For example, if you're 70 inches tall (5-foot-10), you would weigh less than 140 pounds.) Since achieving this weight is difficult for most of us, here are a few tips for hill climbing. If hills intimidate you, or are your weak link, take it easy. Go 5-10% easier than you think you can as you get into the climb. Conserve. You can always pick it up later.

STAY SEATED AS MUCH AS POSSIBLE

Although you develop more power while standing (you are taking advantage of all your upper body weight pushing down on the pedals), you also use 10 to 12% more energy as your pelvis isn't in contact with the saddle which means more work for your core and back muscles as you pull up on the unweighted pedal. The net effect is more energy used (less efficient) to climb standing versus to climb seated.

On short climbs, the length of a football field or less, it makes little difference. But on longer climbs, stay in the saddle and spin at 80 - 85 RPM. This is particularly so if you are heavier as standing puts just that much more weight on your leg muscles, while sitting uses the seat to help take the extra upper body weight off your legs. Staying in the saddle will:

- burn less energy - heart rate is approximately 8% lower for any set speed
- use your bigger gluteal (butt) and hip muscles to your advantage

Want to train for climbing hills while seated?? Here is a drill you might consider. Go hard up short hills while seated. Find a climb that's moderately steep and takes about 30 seconds to crest. Hit it hard at the bottom in a fairly large gear. Beware of letting your cadence slow by the top. Use a gear that lets you pedal at 90 rpm or more all the way up. Start with two or three reps and increase as your strength improves.

That having been said, on long, fairly steep climbs, it may provide a break to alternate sitting and standing to employ different muscle groups. Just before you stand, shift to the next smaller cog, then shift back when you sit. These gear changes will help you maintain a steady pace during cadence changes.

And if you are going to stand, let the bike rock side to side under you - an arc of maybe 6 inches side to side. And don't lean too far forward. Stay back so that your weight is directly over the crank.

BODY POSITION

Being bent over in the drops is the most efficient position on level ground, but hills are different as there is much less aerodynamic resistance. You actually get the most power sitting up as high as you can.

- **HAND POSITION** Comfort overrides these comments, but for seated climbing, most riders prefer to keep their hands on top of the bars, perhaps 2 or 3 inches from the center stem. A wide grip on the top of the handlebar reduces breathing restriction. And remember to drop your elbows and relax your upper body.

For out of the saddle climbing or aggressive climbs (where you are accelerating or attacking on the saddle) put your thumbs on the hoods and rest one or two fingers on the levers or wrapped around underneath. And when you get to that descent, most riders will go to the drops (keeping your wrists straight) for the aerodynamic advantages although others prefer the hoods for the feeling of control. But not the top of the bars as your hands will be too far from the brakes.

- **UPPER BODY STILL AND CHEST OPEN** Keep your upper body quiet - the bike should rock under you (try pulling up on the handlebar opposite of the leg on a down stroke). Too much movement wastes energy. And your shoulders should be back and "open". If not, you are constricting your chest and cannot breathe efficiently.
- **SIT BACK ON THE SADDLE** When you slide back on your seat, you gain a leverage advantage on the pedals. The only time you would want to slide forward is for a short sprint on a small rise.

WHEN YOU MUST STAND - pedaling while standing

If you must stand, remember it's hard to pull up because you aren't in contact with the saddle -- there's nothing to brace your hips to pull against -- and you will to power into BOTH the down and up strokes (12 to 5 o'clock on the down stroke and 7 to 10 o'clock on the upstroke). You should use your body weight to help you push down. Let the bike move fluidly under you. Don't force it. The bike should rock rhythmically side to side in an arc of about 6 inches (judged by the movement of the handlebar stem). This gives each leg a direct push against its pedal and makes the best use of your weight. This will help to maintain a smooth stroke and your momentum. Don't lean too far forward. If the nose of your saddle is brushing the back of your thighs, you are just right. Farther forward and you will press the front tire into the pavement and lose power. Stay back a bit and find the front-to-back sweet spot. This helps center your weight over the crank to drive the pedals as described. And remember to shift up a gear or two just before you stand to take advantage of the extra power you gain from standing (but which you can't maintain for any length of time).

Remember that if you are in a group, you need to consciously protect those behind you when you stand to climb. How you stand on a hill is very important - do it wrong and the

guy behind might suddenly be on the pavement. The issue is the brief deceleration that can occur as you change from sitting to standing incorrectly, which, relative to other riders has the effect of sending your bike backwards and can cause the following rider's front wheel to hit your rear wheel.

On short, rolling hills, the trick is to click to the next higher gear (smaller cog), then stand and pedal over the top with a slightly slower cadence. This keeps quads from loading up with lactate because it helps you pedal with body weight. In fact, it can actually feel like you're stretching and refreshing your legs.

The correct way to stand:

- It is good etiquette to announce "Standing!" a couple of pedal strokes before you do so.
- Stand smoothly as one foot begins its downward power stroke - don't lunge, keep your effort constant.
- As you come off the saddle, push your hands forward a bit. This helps to ensure that the bike won't lose ground.
- When returning to the saddle, continue pedaling evenly and again push your hands forward to counteract any tendency to decelerate. This will gain several inches and put the seat right under you.

You can practice your technique with a friend during a training ride. They can ride behind and let you know when you've got the hang to it. That's when the gap between their front wheel and your rear wheel doesn't narrow each time you stand or sit.

FIND YOUR SPEED AND RHYTHM

Climbing should always be done in your comfort zone. Ride at your own pace - Know your limits and listen to your body. If you become anaerobic, you won't recover, so let faster riders go. It's a common mistake: Trying to keep up with better climbers on the lower slopes, then reaching your limits and losing big hunks of time. Take it a bit easier and you have a much better chance of catching them later. You don't want to over exert and go anaerobic. If you're nearing your red line on that hill, slow slightly, breathe deeply and continue at a speed within your ability.

Use the right gears and shift early to balance the work of your muscles and aerobic system. New riders often make the mistake of pushing their muscles until they cannot push any more. When they decide to shift to an easier gear -- if they have one -- it is often too late. The muscles are exhausted and unable to continue.

KEEP THAT CADENCE UP

Think about this. If you ride up the hill in two minutes at 60 rpm, you've divided the total work into 120 pieces (consider each revolution of your pedals as a unit of work). But if you spin at 90, there would be 180. As you've done the same elevation gain, but now

broken it into smaller bits, there will be less work (and strain on the knees) with each revolution. (And if you do have knee problems, take a break and stand during hills - which will change the biomechanics and give your knees a break).

Gear down before the hill. The goal is to avoid producing large quantities of lactic acid and then pedaling through the pain. You want a sustainable rhythm. Try to keep your cadence above 70 -- any slower puts excess stress on your knees. The optimum spin rates for efficient pedaling are somewhere between 70 and 80. One rider reported that he actually went faster as he increased his cadence in a lower gear. For example, he would maintain 6.5 mph at 50 rpm in one gear and then, as he geared down, he found he maintained 8 mph at 70 rpm without a perceived increase in effort. If you find that things are going well, you can always shift to a harder gear later.

Try to find the cadence that would let you "climb all day". You are pushing too hard if you:

- can't keep a smooth pedal stroke
- are panting or breathing irregularly

Ride your own pace. The energy you save may help you catch someone who started too fast near the summit.

BREATHING

If you start to breathe irregularly, take a deep breath and hold it for a few pedal strokes. Try synchronizing your breathing with your pedal stroke - start by taking a breath every time one foot (your right one for example) reaches the bottom of a stroke. Then try 1 1/2, and finally every two strokes. You will actually deliver more oxygen to your system with a [controlled rate](#) than an irregular panting or gasping one.

OFF SEASON WEIGHT TRAINING

Cycling-specific weight exercises in the off-season are a great way to improve your climbing power. Two or three sets of 15-25 reps, twice a week is a good general program. The emphasis should be on the legs and back (step-ups, lunges, squats or leg presses). Focus on higher reps and medium weight to develop muscular endurance and minimize the risk of injury - and adding sets of "standing jumps" (standing in place and jumping as high as one can for 20 or more times) after your weight workout will give you the explosiveness to catch your buddy off guard in the spring. And don't forget to stretch to maintain flexibility.

TRAINING FOR CLIMBING - DO SOME HILLS

After you've developed a good strength base in the weight room, the absolutely best way to improve climbing is to get back on the bike in the Spring and work on climbing. Find some rolling hills and use them like intervals with short bursts of climbing followed by

spinning on the flats. Start with hills that take about 15 seconds to climb at a cadence of 90 rpm. Once you have your season base, you might add climbs of 10-15 minutes in a bigger gear that you can maintain easily at 70 rpm - but not if you have a history of knee problems.

If you are going to be riding hills as part of an event or a tour, you might consider building up weekly climbing volume to around 125% of event climbing volume. If it is a one day event, aim to climb at least 60% of event elevation change volume on several rides. For example, if the event has 10,000 feet of climbing, you must climb 6,000 feet in training in one day, several times.

And don't forget to train for technique as well.

- Find a hill that's 1/4 to 1/2 mile long - not too steep.
- Find the gear that lets you spin at 100 rpm all the way to the top.
- Keep your breathing steady. If you start panting, the gear is too high.
- Then find a higher gear that reduces your cadence to around 50 rpm, but again without causing you to have labored breathing.
- Now the exercise:
 - Climb the hill in the low gear with a fast cadence. Work on spinning smoothly.
 - Coast back down and then climb the hill in the higher gear (slow cadence) concentrating on applying an equal force all the way around the pedal stroke.
 - Repeat the cycle (4 total climbs)

WATCH THAT WEIGHT

We all know that lighter riders climb faster than heavy ones. So remember to watch the weight - both your own and the weight you are carrying on the bike. It costs a lot to reduce the weight of your bike by a pound, but that extra water bottle or weight in your fanny pack could easily add up to a pound and really add up on a ride over hilly terrain.

GROUP RIDING TECHNIQUES

One trick for weaker climbers in a group is to move near the front of the group near the start of the climb and allow others to pass as the climb continues. In that way, you will be near the back at the top but won't get dropped and have to fight back to close with the group.

Save a little for a short sprint over the top of the hill -- shift up and stand to accelerate and make up some distance.