

# CLIMBING

## Weight

Carefully consider what you take with you - bottles and so on.

After lightweight frames, consider also tyres, seats and bars. Top range groupsets can save you half a kilo. But, a rule of thumb suggests to save 100 grams, you'll pay \$100.

## Body Weight..

The best climbers build is a scrawny upper body and powerful piston legs.

Strength helps but bulk doesn't. It's much cheaper to reduce body weight than bike weight!

Riding more helps you lose kilos, so does avoiding unnecessary calories. According to exercise physiologist David Swain, if a 75kg rider loses 4.5kg, while maintaining power output, he'll save 2 mins on an 8km climb.

## Sit or Stand ?

For most riders, standing increases the heart rate by about 5 beats per min, versus sitting and going the same speed. Lighter riders usually stand with less pulse penalties since they're supporting less weight. That's why 56kg riders like Marco Pantani stand more than big guys like Jan Ulrich.

Bobby Julich (3rd on GC, '98 TdF) .... "I tend to sit most of the time while climbing. When the road suddenly gets steep that's a good time to stand. I also stand when attacking or accelerating. But otherwise I stay seated because my heart rate remains lower"



Courtesy J. Barber and F. Ruggeri



## Gearing

If your favourite pro climbs using a 39x21 tooth gear, why are you tackling similar grades in the 23? The average pro generates over 400 watts in a 35 min climb; the average club racer 300. If the pro generates 25% more power, why use a gear only 2 teeth easier ?

Maintaining a high cadence (pedalling speed) on long climbs requires the correct gearing. Use a 27 tooth big cog, or swallow your pride and go for a triple crankset - you'll keep your cadence above 80rpm, save your knees, and climb faster than if you were slogging away in the 23.

### Technique - Standing:

Learn the feel of how to balance properly whilst standing. The optimum body position is fairly well forward over the handlebars and holding a rhythmical pedal cadence. When you get this right, it's rather like slow running. Some people would say that you should 'dance' on the pedals. To get the power into each pedal, you weight to be pushing straight down - first on one side, then on the other. The big mistake is to rock your body from side to side. The correct technique is to rock the bike from side to side, so you bring each pedal under your body's weight at the right moment for the down stroke.



*What's the secret to climbing? Chris Carmichael (Coach to Lance Armstrong);*

" Energy costs are greater when standing. I'm always trying to keep Lance's butt in the saddle. But he's powerful. When you climb out of the saddle, rock the bike and keep your body straight. As the pedal drops, your body weight should be over it.

The right leg is up but it's coming around to drive down. The bike will move to his left and his body weight will fall on the right pedal."

### *The #1 way to climb stronger*

Eliminate the weakest spot in your out-of-the-saddle pedal stroke--the bottom. As your foot reaches its lowest point, think about trying to "scoop" it down and up. This prevents your foot from just dropping as dead weight. If you're doing it right, you'll feel as if you're running on the pedals.

### Technique - Sit and Spin:

Deciding when to stand on a hill, while near maximum effort, generally comes down to perceptions of effort. When you're seated and your legs are bogging down from lactate in the primary working muscles, it's time to stand. This shifts the workload to a different group of muscles, but will also make the heart rate and effort rise, especially for bigger riders. Joe Friel, Training Bible

The larger frame person may average about one mile per hour quicker sitting than standing. 'Spinning' may add up to two more miles per hour. The perception that standing is faster, is because it is harder work, but standing for long periods is very tiring.

However standing allows the use of a different set of muscles. It's like having a second engine available. You can't use them both at the same time, but you can alternate them. Stand for short steep sections, rather than engage a lower gear. For very steep slopes, if you haven't a low enough gear to sit comfortably, you'll need to stand simply to get sufficient force into the pedal. Finally, when you need to accelerate, stand. Rebecca Bishop 1998

### *What's the single most important thing about spinning?*

Keep a lower gear than you are normally used to. With a lower gear, you work your endurance system more than your muscular system. I spin on flats and climbs about 25% more than a masher--100-110 rpm on flats, 75-85 rpm while climbing. A masher might go 80-90 rpm flat, 50-70 rpm on climbs. For gearing, I prefer a 12-23 cogset on really mountainous stages. On flat or rolling stages, I'll use an 11-21.

*Unidentified Pro Rider June 2000 Bicycling magazine*

**TIP;** While your spinning up climbs, think about relaxing your upper body. Muscular tension in the arms, shoulders, and face uses energy better spent for turning the pedals. Watch tapes of Julich, LeMond, Armstrong and notice how relaxed they appear even when the crunch is on. Compare their style to yours on a local climb.

After the 2000 Tour de France there was an interview with Chris Carmichael, Lance Armstrongs Coach to announce that a totally new method of training had been developed. Because of Lance Armstrongs cancer Chris Carmichael had to give Lance very low intensity training and discovered that this low intensity training gave a huge improvement in Lances performance, consequently winning the Tour De France.

Thomas hell on wheels Hellriegel, Ironman bike extraordinaire does long slow very gentle hills! Arthur Lydiard has advocated for many years long slow distance for training. Why are they doing this? It works but why does this work? The reason appears to be as follows. If you do lots of easy training, you end up doing more hills and if you did hill work gently how many hills could you do? Lots and Lots right?

If you do them at the moderate intensity you normally do them at, how many could you do? 5, 10, 15 20? Why is this significant?

Well, if you do your hills gently, you do more hills and that makes you a lot stronger.

So one of the most interesting things about hill work is that you initially need to do hills gently to get the strength that you can use later on. The reason for this is that when you are going up a hill at moderate intensity you are using 2 systems, the muscular system and the cardiovascular system. The muscular system is doing quite a bit of work and so is the cardiovascular system, youre puffing as you climb the hill. The problem with this is that the cardiovascular system is the system that creates that primary and most significant stress on the body, which fatigues you quickly. If you have the cardiovascular system involved a lot in your hill work then it will be very very hard to do too many hills. And it takes a lot more time to recover from.

But what if you could remove the amount of cardiovascular effort required?

So, the hills gently. This removes the cardiovascular stress with most of the load going onto the muscular system. Then you could do more hills and get much stronger. As you got towards the end of the program, then do moderate and high intensity hills as you traditionally do. Imagine how this final training would go with all that initial extra strength already done. So the bizarre thing is that to go fast you need to do hills gently but you have to do 2, 3, or 4 times the number of hills you have ever done before. So you dont cycle 10k to get to the base of the climbs, you drive to the hills and then go and ride in the hills. You become a mountain goat.

Mistakes that can be had are doing too many hills too hard and getting shattered, or doing hills gently but not enough of them.

#### Putting it all Together...

Eventually, a long climb becomes a delicate question of conserving energy and muscle power whilst still climbing quickly. Don't start the climb too fast. Settling down into a nice even pace is important. Once the climb is going well, you can add a bit of speed. Climbing well is not instinctive, and you will have to try a lot of different techniques before you hit on the ones which will work best for you. So there is no substitute for getting into the mountains and tackling those climbs as often as you can.

*Rebecca Bishop 1998*

*Q. Lance, what's your climbing secret?*

A. Lance: I'm unorthodox. I'll do whatever I need to get over the top with the leaders. That usually means getting out of the saddle. A lot of guys stay in the saddle because it's more comfortable. But standing is more natural for me, especially when it's intense or I have to make a big effort. If the important riders are with you, you know they're going to make the effort to get back to the leaders. Use them to draft.

