

## **Hills are Your Friend** (*“like hell they are, if you are heavy like me”*)

I have often been asked the 2 questions: How can I climb better? How can I descend quicker?

There is a one word answer for both, **Body Weight**.

All the riding and drills in the world won't make a 100kg big framed hulk a tidy and quick climber. That is the sad reality. As an example past top Tour De France riders; Armstrong 5 ft 10" 71.5kg, Indurain 6ft 1" 79.5 kg, and across the field, last years tour rider's had an average statistic of; height 5 ft 10" weight 63.6 kg!

### **What is a hill?**

According to MCVCC life member Bryan Layton, describing terrain on tours that he ran; "If it doesn't have a name its not a hill".

According to American Coach and writer Fred Matheny, "If you need to change into your small chain ring and it takes a minute to get up, it's a hill" (The race across America definitions would not have Round Taupo as a hilly course!)

The one I like is "If it takes 4 minutes to get up (sorry climb) it's a hill", but I think Fred's small chain ring qualifier is a good one, with his 1 minute climbs being more of an undulation..

You Choose.

### **Introduction:**

To climb better, the very first and last influence is the rider's body weight. **The better one's power to weight ratio the better one will climb.** The converse applies to descending, the heavier you are, the faster you can descend provided of course you have no fear and use no brakes. Descending will be covered in another paper.

Mostly, recreational cyclists don't give up their lattes and donuts at Papakura's "McCallums", or the Highland Park's "Bamboo Garden" so the next tricks are to **improve your power and optimise your technique.** This paper is about technique and suggestions will not make climbing easier, but you may climb faster, as carrying your normal weight you will be just as stuffed at the top as you had been when less strong and travelling slower.

You need to accept that everyone has a **Genetic Ceiling** <sup>(1)</sup> which means don't expect all riders to climb with the same style or rate, when you have hit your ceiling that's the best you will get. That's why some riders hammer the flats and headwinds to "soften" the hill climbers for the hills that they find the more difficult part of the ride.

### **Bike set up and Position:**

The best option for recreational Road Cycling is to have your bike set up as neutral as possible (not as a sprint bike, not as a timetrialling bike, not as a hill climbing bike), as from this position you will best manage all of the riding options on your ride.

I like to ride with my cleats as far back as they can go, the probable starting point for all riders with a size 40 shoe or larger. This is to reduce loss of power through the ankle

flex of larger feet. If your feet are 50's (paddles) then you may need to consider re-drilling your shoes to get the cleats far enough back.

The commonly quoted seated position for climbing hills is to ride with your backside to the rear of the seat and the seat down a titch if you know you are going to be riding a predominantly hilly ride. For lighter riders climbing in the standing position "dancing the hills" may be the preferred option. But remember whichever your choice is, for steep climbs, **it is important to keep your weight centralized over both wheels**, to maintain control and avoid tyre squish, rear wheel slipping, or front wheel lifting.

### **Tyre pressure;**

Also if you know you are going to be mainly climbing, the front tyre could be a few psi harder than your normal pressure to reduce the squish effect (a resistance caused usually when you are standing or weight too far forward), the last thing you need. I ride with tyres at about 100psi front and back, so if we are doing Aririmu, Gellings, Bombay hill, Ponga Roads etc, with 100kg body weight, I would adjust for the risk as I stand often and have about 107 psi in the front and still 100 psi in the rear. (brand / model of tyre taken into account.) If in doubt stay neutral with your pressures.

### **Holding the bars and Breathing:**

Hands should be reasonably relaxed on the brake grips, with your head up, sighting which angle you are going to take the next camber (lean of the road, see later comment). To ensure you don't develop tension, try shifting your hands around up on to the top bar.

Some riders have climbed on the drops (Pantini) so your choice of position is yours.

Generally the steeper the climb the more upright you should be and the hands will be the furthest back on your handlebars for grip. This has the affect of giving your lungs the least constriction for your breathing.

A common misconception is to pull the handlebars as leverage to assist the climb. **It is far more effective and less energy wasting to push against the handle bar or brake-hoods than to pull.** This enables you to bring in your weight to assist your upper body muscles

Remember riding in a rhythm is considered helpful if you find hills a challenge, conversely riding in surges if you are light and adept, can add to the frustrations of the others not so light.

Breathing should be from the diaphragm as in swimming. Some riders get benefit from aligning their breathing pattern with their cadence, it's worth a try.

### **Gearing:**

As you see the climb approaching it is wise to change to your small chain-ring and make your rear cogs harder to compensate to the same effort. It will save the embarrassment of scrunching later on. If you go to your easier gears (big cogs at the back too soon whilst still in your big chain-ring, there is greatly increased risk of "throwing" your chain off and forcing a stop.

Select a gear you think is appropriate for a large portion of the climb, probably over-spinning **a bit** at the start of the climb, but a gearing you can expect to get into a rhythm with. Therefore, avoid riding big chain ring at the front to either of the two biggest cogs on the cluster on your wheel.

Don't be afraid to select very easy gears to fit to your bike and Shimano 9 speeds, Compact gearing sets, and the fitting of Mountain bike componentry are options to get real easy gears. But, to quote a well known National Champ, "every time you change easier, you go slower", so don't let the easier gear be a lazy driven option, let it be sensible to your power to weight ratio. Some riders opt for a "bail out" gear at the bottom of their range. Why is this? Well most rear clusters are sold to you as standard sets in configurations of 11 tooth (or 12 tooth) through to 24 or 25 tooth. For more mature riders and for really steep hills this does not give you a low enough gearing.

Because I am older and rarely use a 12 tooth I have opted for a 13 tooth locking ring and with a 9 speed Shimano get a 30 tooth for my easiest gear on a standard Ultegra set up.

Remember the heart is a stronger more resilient muscle than your quads and gluts so to maintain a "spin" for as long as you can and use this muscle. Find **your** rhythm.

Don't go anaerobic (red zone, breathless, dizzy, and legless). It is actually better to divide the hill into sections and ride each section a little harder than the last one, with your supreme effort achieving and crossing the top, but still staying out of the red zone.

#### **Heel down, or toe down.**

Different champions have used both options and whilst Armstrong has the current credit for heels down, some of his famous efforts have occurred when he changed to toe down and adopted a semi sprint position forward on his seat. The present lauded option is heel down through the bottom of the stroke followed by imitating scraping the ground across the bottom of the stroke.

#### **Stand or sit:**

Sitting is the best option for attaining a spin, but standing gives the additional options of using body weight to augment the muscle thrust, and arms to lever against the leg thrust on the pedals. When you stand hands will shift to the brake levers and legs will rotate still without going rigidly straight as if one was seated. On really stiff hills, being heavy, and coming from a generation when standing to climb was more the norm, I do 30 strokes seated then 30 strokes standing on the steeper slopes. Remember push against the grips, don't pull.

When I stand, I change to one or two gears harder, then back to the spinning easier gear each time I re-seat.

You need to do this to avoid the momentary stall caused by the act of standing which inevitably results in the rider behind running into your wheel. For this reason It is also recommended that your drafting distance be widened a foot when following someone up a climb and warning others if you are gong to stand..

**Balanced weight over your wheels:**

At all times it is essential to keep your body weight centered on the bike, but most particularly when standing. This is to reduce or eliminate tyre squish at the front, yep you will hear it and be able to see it, or wheel spin at the rear. When standing therefore, the position is fairly upright "stand tall" as distinct from being bent over the handlebars or front wheel.

If your weight is too far back your front wheel will bounce and lift or even flip you backwards. If you climb West Road from the Clevedon side you will fail if you don't balance your weight!

There should be little upper body movement. So don't bob or throw your torso around (climbing all over your bike), it simply wastes energy (but champ Tour De France rider Eddy Merckze rode like this and was enviably successful.)

**Road cambers:**

If the climb is turning left it is usual that the short route around the inside of the corner is the steepest therefore in NZ it is advisable, traffic permitting, to ride a line closer to the center line. If the corner is turning right, ride a line very close to the berm (left edge) of the road for the easiest line. Twilight and Ardmore Quarry roads are examples where this technique applies. Because of this it is never more important to give the "car back" call so all of your mates up front can scuttle back to the left side of the road for safety if they are riding the cambers.

**Using Your Smarts:**

If you are a slow climber, start your climb at the front of the pack so that as the climb proceeds you may stay in touch with the back of the pack.

Bounce the undulations and use a built up speed to carry you over the tops. Ness Valley is undulating if you do this, but a series of hills if you don't. It is a good place to practice bouncing undulations.

Don't forget to drink and eat.

When many top the hill they settle back for a breather, this is a time for the slower climbers to bring out their aggression, carrying it through the descent before having your breather and meal, on the next flat.

**Power Improvement:**

***"when you spin a smaller gear, with a fast cadence the work is divided into more pedal revolutions. Each Quad and Glut has to work more often but at a lesser resistance. As a result your cardio vascular system is stressed but your quads and gluts spared.***

***It is easier to train your body to tolerate high aerobic load than a high muscular load. So pedaling fast makes sense. As a bonus it is easier on the knees."*** <sup>1</sup>

An example <sup>(2)</sup> of payback on effort, i.e. climbing as fast as you can without going anaerobic ; I believe the gradient selected for the example on the incline gives the speed possible on the descent.

*"Say you have an 8km climb (I have converted the 5 miles to km's) followed by an 8km descent you might think it is easier to conserve energy on the climb but then catch up by a blast down the other side with gravity's help.*

*If you climb at 16 kmph, pedal hard and descend at 66kmph it will take you 37 mins 30 seconds to cover the 16 km (10 miles).*

*If you climb 19% harder, **but not anaerobic**, at 19kmph then tuck and coast at 58kmh the distance will only take 33 mins 34 seconds, or almost 4 minutes faster."*

### **Resistance Training / Cross Training**

Should you do weights at the gym to improve your climbing? possibly, but maybe try the following two options first.

Swimming is a brilliant cross training exercise to improve breathing and oxygenation.

Pilates is excellent cross training exercise for improving your core strength. Both will help you climb faster, not easier but faster. Remember Body Weight loss is the only thing that will make climbing easier!

Drills such as hill repeats will benefit your power, but improving your power is another subject on its own. Some Hill work drills are not for the benefit of hill climbing but for developing core strength, although obviously there is a cross over. Just as there is from driving yourself into head winds not only makes you stronger for the flat but improves your power for hill climbing. An example you may have witnessed, are the triathletes whose core cycling is timetrialling, that are often to be seen on Sandstone doing repeats pushing very hard gears at a very low cadence. This mostly is not hill climb training, it is strength training, good for K2 to last the distance, but not to climb the K2's famous hills quicker, great for Ironman strength development.

Stationary training on your wind trainer hard gears at a cadence of around 60 can help train climbing muscles.

In your weekly rides increase climbing volume about 10% per week until you reach around 125% of the accumulated vertical climb for an event.

### **Body Weight Loss:**

One of the fastest ways to loose weight through exercise is simply to run it off, yep have ago without the bike.

#### References

- 1 Fred Matheny American Coach of many years, Publication "climbing for Roadies"
- 2 Roadbike rider (RBR) web site references since 2005
- 3 carmichael training systems web site
- 4 Own experience and training received