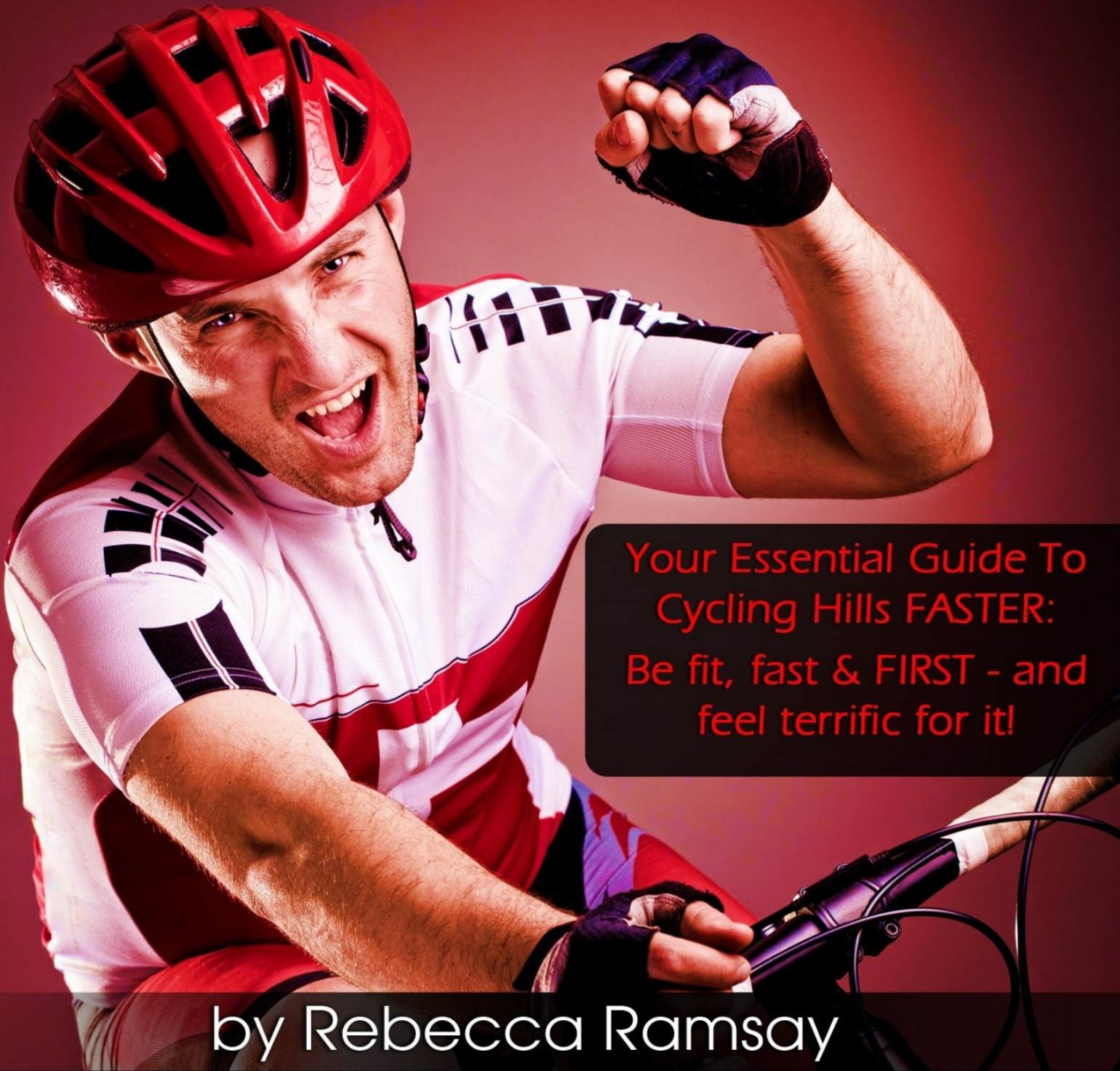


# Climb Like A Pro!

FOR ALL LEVELS OF CYCLISTS AND TRIATHLETES



Your Essential Guide To  
Cycling Hills FASTER:  
Be fit, fast & FIRST - and  
feel terrific for it!

by Rebecca Ramsay

*includes 10 supercharged hill climbing workouts*

Climb Like A PRO! Your  
ESSENTIAL Guide To Cycling Hills  
FASTER: Be Fit, Fast & FIRST and  
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# Introduction

Dear Reader,

Congratulations on investing in your cycling fitness with **Climb Like A Pro! Your Essential Guide to Cycling Hills FASTER: Be Fit, Fast & First *and Feel Terrific for it!***

This is yet another of my written guides, this time to do with one of the hardest areas of cycling: climbing hills faster. Indeed, from the feedback you've given me through my blog and via surveys I've done, "cycling hill climbing" is what you've told me you want most. So, inspired by you...here it is!

If you struggle with hill climbing and want to get faster, then this guide is for you! We start at the very beginning by putting hill climbing into perspective and understanding the critical importance of "power to weight." We then look at ways to lose total weight from your bike, improve bike setup, improve technique on various hills, and discuss training specifically for climbing faster.

From here, we discuss the delicate subject of weight loss and how to go about realistically losing weight whilst building a leaner, stronger you. Lastly, we'll look at the critical aspects of mindset and tactics to achieve all your climbing goals, as well as race others and win on climbs!

I also include 10 specific hill climbing workouts for you. These are tough workouts, and not suitable for complete beginners to the hills. Please use with caution, as these workouts are some of the toughest interval sessions you can do on a bike — but awesome fun! Applied correctly, with adequate recovery, these workouts can transform your fitness in a matter of weeks.

It is worth saying here that climbing is what I know best. It is the subject I struggled most with in the beginning, but eventually became my strength the more I applied myself. My childhood vision of climbing like a pro has never



left me, although I was truly saddened by the recent professional drug scandals.

What you won't get in this guide is anything to do with how to use a heart-rate monitor or power meter. I keep things as simple as possible by relying on the basics to make you the best uphill climber you can be. Hint: you already have the tools! Above all, I hope you have an enjoyable read, and get out on your next hilly bike ride with a whole new climbing perspective to explore!

Sincerely,

**Rebecca Ramsay**

Former professional cyclist

Certified Personal Trainer

Blog: <http://easycycling.com>

P.S.: My other e-books which have been recent best sellers on Amazon Kindle, might be of interest:

[The Time Starved Cyclist's Training Formula: How to find time to ride 100 miles - and not get divorced!](#)

[Cycling Turbo Training for Beginners: a quick-start guide to cycling indoors to explode your fitness fast!](#)

(Includes 20 indoor cycling workouts).

# Chapter 1: Faster Hill Cycling – a perspective

The truth is most of us struggle to cycle up climbs. Climbing faster does not mean a climb gets easier; quite to the contrary — it will always remain a rather uncomfortable challenge, no matter your fitness level.

You might be relieved to know, though, that the rider that cycled past you on a climb recently indeed feels all the discomfort you are feeling. The only difference that stands between you and him is climbing knowledge *gained through experience*.

In other words, the rider in front of you has simply **done more of it than you**.

You see, I am going to reveal to you a massive secret that most pros or top elite riders will rarely tell you. When you analyze the physical training or racing build-up of the best cyclists in the world, it's not the amount of mileage he has done that makes the difference, although that's important. It is *the number of hills* and/or mountains he has climbed repeatedly or raced in the weeks and months leading up to the key events that makes him or her *unbeatable*.

Winning cyclists know that to get stronger than everyone else, you have to work harder than the competition. That does not mean training day in and day out toward irreversible fatigue, but rather to train *smarter* — *and get in the hills*.

Elite riders go where other riders will not. They go where it's uncomfortable, i.e., they immerse themselves in the hills and mountains and repeat this tough training over and over until they are the strongest, fittest and fastest they can be. They know that getting out of their “comfort zone” is where they'll see the biggest gains in fitness. And there's no better place to do that in cycling than riding up hills...constantly!



Okay, you may not be aiming to be an elite rider, but the point I want to reiterate is that repetitive practice in the hills will get you good in the hills. In addition, if you dedicate yourself during most of your cycling to ride a few hills on every ride you do from now on, you will most likely *explode your fitness, too*, and see some stunning personal bests in events just a few months from now — no matter your age or level of fitness.

The take-home point here is that cycling often in the hills is your secret training weapon to being the best you can be on a bike. Don't feel afraid and avoid the hills; embrace them. *Make the hills your best friend!*

### **You can do it:**

Before you start this guide, what I want you to see is the possibility of being much faster than you are today. Your ability to climb faster is all in you. You just need to realize it is **not your ability that is lacking**, just your understanding and probable lack of practice.

And this is why I feel so strongly about writing this book and getting my message to you. I want to show you that you too can transform your fitness, ride a hill fast *and feel terrific for it*.

### **Understanding efficiency:**

However, there is much more to climbing than just cycling in the hills constantly to get faster. To be your best and climb much faster than you've ever done before, you have to first understand that climbing is **a skill**.

Like any skill, it has to be broken down into smaller parts and each part worked upon. It is the sum total of the improvement made to all these parts which contributes to your overall climbing speed up a given slope.

In other words, the next secret most pros rarely tell you is that to climb faster, you must not only practice in hills often, you also need to become more efficient.

**“Efficiency”** is the golden key that underpins faster climbing. It is made up of the following five major parts, or as I have devised them, *pillars*. I call

them “pillars” because without one of the pillars, you’ll always ride slower than you should. Just like a chair that loses a leg: it can still stand, but is rather unstable or inconsistent at best.

### **The Five Critical Pillars of Cycling Climbing Efficiency:**



1. The sum total of your weight: (you and your bike)
2. The sum total of your bike setup: (comfort level)
3. The sum total of your training: (speed up the climb, power output)
4. The sum total of your technique (gears/cadence/position when riding)
5. The sum total of your mindset (coping strategies, tactical execution)

Your power-to-weight ratio is the sum total of your efficiency in all five pillars. In other words, your power-to-weight ratio is simply all the power (in watts) you can produce from pillars 2-5 above, divided by your total weight (in kilograms/pounds) from pillar 1.

To improve the ratio, you need to either increase your power output, decrease your weight, or both. When we talk about weight, we need to factor in both you and your bike because that is the total weight you have to haul up a slope against gravity.

For example, to demonstrate the importance of power-to-weight for the

specific task of climbing a hill, let's take two riders setting off at the foot of a climb at the same time to see who will get to the summit first. Now for demonstration purposes, let's assume the riders have the same bikes, both in mass and in mechanical components:

- Rider 1 has an average power output of 300 watts up the slope.
- Rider 2 has an average power output of 250 watts up the same slope.

On first impression, you'd probably think the more powerful Rider 1 would beat the less powerful Rider 2. Indeed, if this were on a flat road, like in a time trial, and all things being equal, you'd expect Rider 1 to beat Rider 2.

However, as soon as they start to go up a slope, the two riders have to overcome gravity. And anytime you have to overcome gravity, weight becomes significant. Indeed, as we use the power-to-weight ratio equation (power divided by their weights), we can see that Rider 2 is "potentially" faster than Rider 1 up a given slope.

- Rider 1 weighs 95kg; Rider 1 P/W:  $300/95 = 3.1$  watts/kg
- Rider 2 weighs 75kg; Rider 2 P/W:  $250/75 = 3.3$  watts/kg

The take-home point is this: whenever the road goes up, even just a slight rise in the road, your power divided by your weight immediately becomes significant in how well you perform. It is not your absolute power that counts when going uphill, but your power relative to your bodyweight that makes the difference. This is why this guide focuses on maximizing your power output and takes a realistic yet performance-based approach to losing weight.

Along with good hill strength/power training and a realistic weight-loss program, you also need to develop an efficient climbing technique and to be able to apply it to different types of climbs. Applying and adapting these techniques can add power up a long climb.

### **Comfort is key:**

Also remember that good technique is near-impossible to learn if you do not initially have a comfortable bike position, or enough gears on your bike. You'll be surprised how much getting a comfortable biking position for hill

climbing is overlooked, and how even more power can be gained by small shifts in bike position.

And, finally, even with all these five pillars in place, if you don't have a positive mindset (a positive mental outlook) when faced with a hill or mountain, you'll ride much slower than you should. Mindset and tactical awareness for hill cycling (and in cycling in general) can often be the make-or-break of winning a simple race with a few friends to the summit of a local hill. For example, if you really want to get to the top first, you'll put everything into the climb and use all your power, technique and tactical awareness to win.

### **Riding at your optimum:**

As you can see from Diagram 1, there is an orange area centred where all five pillars in the middle of the diagram converge. I call this area your optimum climbing efficiency. This is what you are aiming for: efficiency in all five pillars. This is when you are climbing your best, with harmony between bike, body and mind. I call this harmony your “good flow feel” throughout the guide.

Good flow feel is the unique feeling you get when everything, although uncomfortable, feels right. You might have heard riders say, “I was on top of the gears” or “I owned the climb”...these are all good feelings produced from riding efficiently near our limits, but in control. Once you find this good flow feel, it is then a case of holding it in this optimal range for as long as you can up a climb. As soon as you fall out of this optimal range for various reasons mentioned in the guide, you quickly lose efficiency, and slow down.

With the help of this guide, you too can find this optimum range and good flow-feel on a climb. The key is to listen and respond to internal bodily cues and test techniques repeatedly in hills to find where your limits lie and what works best for you. Oftentimes, breakthroughs in climbing faster have less to do with numbers and more to do with you and how you feel.

### **What goes up must come down — a word on descending:**

If you put in all this effort to climb faster, you should also learn to descend

well, too. Getting faster at descending is a whole skill in itself that, again, takes much practice. Yet it is amazing how many good climbers (even pros) often neglect this critical skill. Descending, in my opinion, is part of hill climbing, simply because what goes up, must come down. There are not many hill events where you ride to the summit only. Most hilly events go over many hills and mountains and that is why I've included it in this guide.

### **Keep realistic and focus only on your own results:**

It is important to understand you shouldn't be comparing your weight loss or power gains to anyone else. It's impossible to know if the rider you are comparing yourself to, or the chart you are comparing with, is accurate. Yes, on the road, you may often see a leaner rider fly past you, like Rider 2 in the example above. Indeed, it would be easy to jump to the conclusion that you'd need to lose a lot of weight (20 kilos!) to be better than him.

You see, it's so easy in cycling to jump to unrealistic and often erroneous conclusions. A more realistic approach than "losing 20kg and aiming to beat Rider 2" would be to start by losing a little weight and adding a little power. One could easily lose three kilograms (instead of 20) and increase one's power by just 20 watts in about 90 days. This would give a power-to-weight ratio improvement of about 3.4 watts per kilo and make him faster than he previously was up the climb — a good realistic improvement, **irrespective of the other rider!**

You see from the example above how I am getting you to focus entirely on your own improvements? You are then in control of your training, not other riders, charts, or the scales controlling you via "comparison-itis"! The major take-home point is it's *wholly important to focus just on improving yourself. Everything else, like racing friends successfully, will naturally fall into place with appropriate practice and realistic guidance.*

Now that you have a firm perspective on getting faster at hill climbing, let's get started with *Chapter 2: Lighten Your Bike: What to Make Lighter?*

## Chapter 2: Lighten Your Bike – what to make lighter?

As you saw in Chapter 1, it is your power-to-weight ratio that indicates how fast you'll cycle up a hill. Improve this ratio and you go faster. As the power-to-weight equation shows, to get faster up a given slope, we have to gain power and/or lose weight.

In this chapter, we'll look at the “weight” part of the equation to reduce your total weight for hill cycling (Pillar 1).

The quickest way to see climbing improvements is to lighten your bike and equipment. By making your bike lighter, you are quickly optimizing it for faster hill climbing. Your goal is to do two things:

1. Shave weight off any object that is required to move you forward.
2. Lose as much *deadweight* as possible. By deadweight, I mean any parts that do not assist with your power output moving you forward up the climb.

Don't worry. I'll cover all the bike parts you can lighten or remove in just a moment.

The reason we start with decreasing weight off your bike is that this is where you can see some immediate results — and feel great about it! Indeed, I think you will agree that there is no better feeling than having a shiny, lightweight racer to test out in the hills! The only drawback is the **cost**; small weight savings can be very expensive.

This is why, *in addition* to seeing how you can lighten your bike, you should consider making a start with losing body weight. As you probably know, this takes longer to see improvements, but it will pay off because some of the *biggest weight savings can be found by losing body weight!*

For this reason, I've dedicated Chapters 7 & 8 (same topic, just split into two) to putting The Truth About Cycling and Weight Loss firmly into perspective to start you on the proper, **realistic** track to losing weight for faster climbing.

### **Making your bike lighter:**

Now I'll warn you that you can get obsessed with how much bike parts weigh and spend a near-fortune in money and time making your bike lighter. If you can afford a top-end lightweight racer and the components, great! But if you are working with a budget, then you first need to think carefully about *what bike parts you want to make lighter*. We'll cover this in detail shortly.

Initially, it is also important to consider how much weight you want to lose off your current bike versus your budget. I say this because if you simply switch out parts with no set weight in mind, you are likely to overspend.

For example, if your present bike weighs 11 kilograms and you want to make it 7 kg, you are potentially looking at buying a whole new bike, simply because at some point you'll have to swap out every component.

My point is, be clear on what it is you want to do: either upgrade parts to make your current bike a bit lighter over time, because that is all you can afford, or go whole hog and buy a new, lighter bike.

### **Factors other than lightness to consider:**

As well as lightness as your top priority, you also need to consider the **strength, durability** and **comfort** level of your bike components. The entire bike and its components should ideally fulfill these criteria — especially if you are a heavier cyclist.

You are looking for a light bike that can last the course of your hilly or mountainous event, not fall apart halfway through. An easy way to assess the strength and durability of a bike is *to go with reputable brands*.

Reputable brands for your road bike include, but are not limited to: Pinarello, Trek, Cannondale, Look, Ribble, Specialized, Giant, Raleigh, Boardman, Bianchi, Cevelo, Felt, and Marin.



*The comfort* of a bike, however, is down to personal preference. Nowadays, you can have the option of **test riding** a bike, to see which one initially suits you. Light bikes and the dangers of counterfeits:

Because good quality lightweight bikes cost a lot of money, you need to buy from a reputable dealer. Quite a few top bikes are counterfeits of the real brand. Keep away from buying directly from the Far East if you don't know the manufacturer, even if the price and images look highly attractive. The danger is not only in losing your money to a non-trusted entity, but the false claims made about the quality of the materials. Rogue manufacturers have usually saved money on lesser quality material than that claimed in the advertising. This makes your new bike completely unsafe to ride — if you receive it at all!

### **What is considered a light bike?**

According to the UCI rules (Union Cycliste Internationale manual of regulations), road-racing bikes are not to be less than **6.8 kg** (at the time of this publication in 2013). Most manufacturers nowadays build bikes to this rule.

A road bike generally is considered “light” anywhere from 6.8 to 9 kg. Anything over 9 kg is generally considered “heavy.”

When we consider buying a lighter bike, we start by choosing the frame, forks and wheels. Then, it is best to look at the groupset and pedals. After this, you need to consider removing “deadweight” items, depending on the requirements of different types of rides.

Let's now go in order, starting with choosing a lightweight frame:

### **How to choose a lightweight frame:**

When buying a lightweight frame, there are various materials to consider. Remember, a good quality frame is as much about how comfortable you feel with it as it is lightness, strength and durability.

Tip: if you are comfortable on a bike, you'll usually climb well against the

clock. On the other hand, if you are continually uncomfortable, you'll go slower than you should. I cover a lot more on the vital aspect of bike setup in Chapter 3.

Getting comfortable starts with getting the **right size bike frame** before anything else. I don't cover frame sizing in this guide, as each manufacturer is different, but you must take the time to get the right frame size for you. Get this wrong, and the applecart is already tipped in favor of slower, uncomfortable cycling.

If you are unsure about frame size, start at your local bike shop and see if they will get you measured. If the local bike shop can't help (which is highly unlikely), they should be able to refer you to a professional bike fitting service elsewhere.

Tip: Always remember, *a slightly heavier bike that is comfortable (sized correctly) most likely will ride faster than a lighter bike that is uncomfortable (sized incorrectly)!*

## **Which road frame material is best?**

Again, finding the "best" frame or climbing-bike material is very much open to personal opinion. However, in saying that, I have ridden all four types of bike material and can give you a solid rundown of the advantages and disadvantages of each.

The four main bike materials these days are:

1. Carbon fiber
2. Aluminum
3. Steel
4. Titanium

### **1. Carbon fiber frames:**

Without a doubt, the best road bike material for performance cycling is carbon fiber. Carbon fiber is the best because it is known to be lightweight, strong, durable and smooth to ride, saving you much energy and making you

faster over the course of a hilly or mountainous ride or event. Carbon fiber gives a “solid” feel as you ride uphill, responsive to every pedal stroke.

For these reasons, carbon fiber makes for an excellent all-round road bike. The drawback, though, is price. It will set you back \$1,500-\$5000 (£800-£3000) for a lightweight carbon-fiber frame alone, but this is usually money well spent.

## **2. Aluminum frames:**

Aluminum frames can be almost as light as carbon fiber frames and bought relatively cheaply. The drawback with aluminum frames is the handling and comfort. An aluminum frame tends to be more unforgiving than carbon fiber. This is because aluminum is much weaker and requires more of it than carbon fiber to keep it strong. This can make for a harsh, tiring ride where you can feel every bump in the road.

An aluminum frame might be good for a short hill climb, but over the course of a long distance mountainous event, this harshness can be exhausting.

Moreover, on a descent, a harsh frame can feel “whippy,” losing you substantial time as you slow down to keep the “nervosity” under control. The question with aluminum frames therefore boils down to personal comfort and handling, something you can only test and try for yourself.

## **3. Steel:**

Nowadays, you can get a competitive lightweight, comfortable steel frame at a price that’s reasonable when compared to carbon fiber. The drawback is that steel becomes weaker the thinner and lighter it becomes, and therefore flexes more. This flexing is why steel frames make excellent touring bikes on the whole, but the lightest steel frames can become fragile due to this. Nevertheless, do note that reputable brands go through rigorous testing, so in most cases, you can get away with a super-lightweight steel frame for performance cycling.

Tip: Flexing can also cause you to lose power up a climb depending on your body weight. If you weigh more than you should, you’ll flex the frame more than a lighter cyclist would. Again, all of this comes down to personal

preference and testing over time to find what feels right and works for you.

#### **4. Titanium:**

Titanium is about as light as aluminum, but gives a very comfortable ride like steel. The drawback is that titanium is prohibitive in price. If you see relatively cheap titanium frames, they are probably a composite of some other material, usually carbon fiber.

Titanium frames are known to be great all-day comfortable riding road frames, but for specific climbing overall feel, carbon fiber gets my vote.

#### **Forks and headset:**

When you are choosing a good set of forks, go with a fork that matches the frame. Choosing the wrong fork can ruin the road handling.

Tip: Only the manufacturer understands exactly how well your frame responds and therefore which forks match that particular frame.

With forks, remember that quality (strength and durability) is more important than lightness. Usually, if you go with the manufacturer's spec and you've invested in a good quality frame, you'll get an equivalent lightweight fork.

The best frame-fork combination is the "threadless" frame-fork combination, because the headset weighs next-to-nothing and is often stronger and stiffer — useful when out in the saddle up a climb and descending.

#### **Choosing lightweight wheels:**

When investing in a set of road wheels, lighter does not necessarily mean faster. For fast climbing, especially over successive hills, you need to invest in a good quality set of road wheels.

A good set of quality wheels must work seamlessly with the frame to reward you with good flow-feel, or harmony between you, your bike, and the climb. In other words, there is little point in investing in an expensive frame set up upon cheap wheels.

The wheels, like the frame, are really important to get right for fast climbing (and descending) over a long distance. Too heavy, and you'll never quite reach your optimum on a climb. Too light, and you risk them falling apart.

Some of the lightest wheels are made of aluminum, but this does not mean they are the fastest. In fact, the lightest aluminum wheels are ironically not what you want, simply because they can give a harsh, uncompromising ride and are vulnerable on descents.

The best quality wheels for climbing are carbon-fiber-rimmed wheels, because like the frames, carbon “gives” as you cycle, yet they are strong and light enough. A more subtle difference between the very lightest aluminum wheels and carbon-fiber wheels is that carbon-fiber wheels can give you a little extra “hold” (inertia) after every pedal stroke. These tiny differences can conserve you energy and gain you time over a long 100-mile mountainous event.

As mentioned, wheels uniquely sold for climbing tend to be more fragile and often have low maximum rider weights. However, the latest lightweight carbon wheels are much more reliable, are able to cope better with normal conditions, and climb exceptionally well. However, the maximum rider weight is still a key thing not to exceed.

Again, it is key to test out wheel combinations with your frame type to see what works for you and keep these points in mind.

A few examples of quality wheels:

- Shimano Dura-Ace C24 Clincher Wheelset 9000
- Fulcrum Racing Zero Clincher Road Wheelset 2013
- Mavic 2013 R-SYS SLR Clincher Road Wheelset

### **Tires: what are clinchers?**

Tires are an important consideration, not so much for the lightness but for puncture resistance and rolling resistance. A good quality tire will, on the whole, puncture infrequently. In addition, a good quality tire should be able to hold a lower rolling resistance, which means you'll move faster up the

climb. Nowadays there are two types of quality road tires, called “clincher”:

- Clincher tires that require an additional inner tube.
- Clincher tires without inner tubes, also called “tubeless” tires.

For riding long distances over hilly terrain with no puncture backup team, I strongly suggest you go for clincher tires that require standard inner tubing. Although clincher tubeless tires are supposed to roll better than clinchers with inner tubes, there is no proof of this. In addition, if you use “tubeless” tires with no team backup, you’ll have to carry a spare tubeless tire with you. This can be cumbersome and will also weigh more than carrying a simple inner tube in the back of your saddle repair bag.

Tip: You need to double-check the wheels you buy are compatible with the type of clinchers you choose! You should find both clincher wheel versions to choose from.

### **Low rolling resistance:**

To get a low rolling resistance, you need to pump your clincher standard tires up to about 120 psi. In addition, make sure the inner tube valve is tightly closed, so no air can escape over the course of your bike ride.

That having been said, you may have to take some air out the tires to increase rolling resistance, depending on the conditions. If it is raining, you should take air out of a tire to give a better grip on the road. This means compromising a little on your climbing speed to be safer on the descents.

A good, strong set of road tires will also give you descending confidence. No point being two minutes faster to the top if you lose three minutes on the descent because you have no confidence in the tires.

If you go for the lightest inner tubes, you might be in for disappointment. Lightweight inner tubing usually means less thickness and the potential for more frequent punctures. If you’ve got a long, hilly event to ride, you want good quality tires with standard inner tubes over lightness. The gain in lighter inner tubes is minimal versus the time lost for roadside repairs.

Some examples of highly recommended quality road tires:

- Continental Grand Prix 4000S Road Tire
- Schwalbe Ultremo ZX Evolution V Guard Folding Road Tire
- Michelin Pro Race 4s.

Examples of good quality inner tubes (I would be hesitant with any inner tube which says “light,” but this is down to personal preference):

- Continental Quality Road Inner Tube
- Schwalbe Road Inner Tube

### **Groupsets and weight savings:**

You can save quite a bit of weight through choosing a decent groupset. Shimano and Campagnolo are the market leaders. Campagnolo is by far the most expensive groupset in the world and closely rivals Shimano Dura Ace on performance, and in some cases exceeds it. I would class Campagnolo Record as a luxury item.

As a comparison, Campagnolo is the Ferrari of groupsets, and Shimano Dura Ace is like a BMW. In other words, Shimano Dura Ace is less expensive, but has a reputation of being more reliable. There are three top models for Shimano groupsets, in order of least to most expensive:

- Shimano 105
- Shimano Ultegra
- Shimano Dura Ace

**Shimano 105** is a very good quality groupset for beginner road racers. It is also the choice for many for winter bikes, as the groupset endures winter rides relatively well, compared to the more expensive models. The drawback is in the gear-changing efficiency, which is less smooth than the next two models up. The Shimano 105 groupset is also a little heavier when compared to Ultegra.

**Shimano Ultegra** is not that much heavier than Shimano Dura Ace, yet the price difference is a big jump. If you want a superb, durable, smooth-



changing groupset, but that weighs slightly less, then go for Ultegra!

**Shimano Dura Ace** is the top-of-the-range groupset and the lightest. It has the highest performance but replacement parts can be expensive. In particular, things like chains and brake pads can wear easily.

### **Saving weight through sprocket changes only:**

You can save about 100 g by choosing all titanium Shimano sprockets over standard sprockets on the back wheel. This is a lot, considering how small they are. You can really feel the difference up a climb with titanium sprockets on a back wheel.

Tip: You can change to titanium sprockets even if you have Shimano 105, *as long as you have the same number of sprockets* e.g. 10 speed compatible.

### **Gears — which gears to choose?**

We'll discuss whether to choose a double chain ring, triple, or compact chain ring at length near the end of Chapter 3, under the “gearing setup” section.

### **Which pedals, and how to save weight:**

Tip: Many catalogues advertise a light bike but leave the pedals off. The pedals can add about 0.5 kg to the whole bike, so make doubly sure you are comparing equal bike parts if choosing straight “off the peg!”

If you want to climb faster on a road bike, I strongly recommend you move from using flat pedals to the modern clipless shoe-pedal system. The fixed attachment of foot to pedal helps train a smoother pedal action and is therefore overall more efficient than cycling with flat pedals alone.

The biggest advantage of the clipless pedal system is the leverage of power you get when pulling up on the upstroke in hills. You'll find that with this fixed foot system, you naturally use the upstroke more on hills than on the flat terrain.

Additionally, you'll find when climbing in and out of the saddle, you definitely need a firm foot attachment to keep the pedal action smooth and

power output as consistent as possible. This means you can be noticeably more efficient, and therefore faster up a climb, than using flat pedals.

In turn, this efficiency can save you energy if you've got successive climbs to ride — so, overall, your time for a hilly, or mountainous course should be faster.

Another key benefit to using the clipless pedal system is you can accelerate quickly if needed on hills (or on the flat) without your foot coming off a flat pedal. This is needed on particularly steep parts of climbs and/or if you want to race a friend and attack with surprise; you need a solid foot platform on which to quickly accelerate away.

Flat pedals just can't give you the same power leverage. Indeed, this is why all professional riders use the clipless pedal system, and why I highly recommend it for your cycling.

The only drawback is you have to learn to use the clipless pedal system. This may sound scary, but once mastered I can almost guarantee your cycling, and especially your climbing, will be taken to a whole new level.

### **Choosing the right shoe/pedals for climbing:**

The best pedal system for climbing are those pedals which give you the best power leverage along with lightness and reliability:

LOOK, TIME and Shimano Road SPDs, Campag, and Speedplay are top brands to invest in for good quality pedals.

The best pedals in my opinion for climbing are LOOK Carbon Keos. In fact, the whole Keo range is excellent. LOOK is the market leader in road pedals. The latest LOOK carbon Keos are extremely light and reliable. They are also the choice of most road racers.

Speedplay pedals are extremely light, too, but because of the free-floating lateral movement and smaller size, you can lose quite a bit of power up a climb. Be warned, just because the titanium "lollipop" pedal is light, it's not necessarily the best for climbing!

## **Getting rid of deadweight items:**

Any item you don't need to take with you in the hills should come off the bike. It is amazing what bits we lug around with us on a lightweight road bike. If they are not needed for the ride, then remove them to save energy and go faster for longer:

- Lights.
- Battery packs.
- Batteries in saddlebag.
- Bells.
- Pannier racks unused.
- Empty panniers.
- Any extra kit not needed for the ride.

Some exceptions...

You should never take your bike pump or spares off your bike to save weight. For obvious reasons, you don't want to get caught out, even up a short climb! You can now buy small handheld plastic lightweight pumps that work quickly and efficiently to pump up tires when out on the road.

You should never climb without some form of windproof, so even if a jacket feels bulky, it is a necessity for riding in the hills. I highly recommend a lightweight windproof, so it can fold up small in your back pocket.

## **To carry or not carry water bottles?**

Once you've made or bought a lighter bike, you have to remember to add the fuel you take with you! A good way to think about this is to realize every other cyclist in an event or on the same hilly ride is in the same situation. If you go without to get ahead, you'll pay for it sooner or later if the event is long or hard enough. Two big bottles are about 1.5 kg in weight (750 ml x 2, where 1 liter is 1 kg weight). Unfortunately, whichever way you look at this, there is no easy way to lighten your fluid load.

Keeping hydrated is absolutely essential to your climbing performance, especially on those long hot summer days in the mountains. Remember, only

a small loss of 2% body weight due to dehydration can cause a whopping 20% loss in biking power! So, it is absolutely key to keep hydrated by carrying all your fluids with you.

The best solution I've found is to carry two big bottles of fluid *on every training ride you do from now on*. The trick is to get used to this extra weight as soon as you can, and learn good hydration strategies. You'll be amazed how quickly you adapt to two big bottles and soon won't even know the difference. You need to practice good hydration by sipping fluid every 10 minutes, from the beginning of the ride to the end. This way, you'll ward off the dire consequences of dehydration.

### **How much food should you carry?**

Similarly, how much food you take in the form of gels, bars and sandwiches has to be carefully considered. Most riders tend to carry too much, as is evident by all the gels, fruit and bars left over in pockets at the end of an event!

On the other hand, when starting out with these events, it's best to err on the side of too much fuel than too little!

Tip: if carrying food for a long hilly ride, look to carry all your food in your jersey back pockets. You want a jersey with deep pockets. Otherwise, you may have to add a handlebar pannier to the bike. Nothing wrong in this, but remember, this is all extra weight to lug around a hilly course.

Only by riding loads in the hills and testing can you workout what you personally need to consume per hour on the bike. It takes time to know these things, so be patient with yourself.

### **Swapping out lighter parts if not buying a new bike:**

As you are probably aware, saddle, stems, bars, seat post, pedals, levers, brake callipers, pumps, etc., can all be substituted for lighter parts. If you have a good frame, fork, and wheels, then it's relatively straightforward to upgrade these smaller parts and save some good weight.

Tip: when replacing items with carbon fiber, make sure they are not “carbon-wrapped” metal items — these can be even heavier than the original parts! Again, always buy from a reputable dealer and double-check weights.

### **Final words:**

The first and quickest step in reducing your total weight is to make your bike lighter! Once you’ve done this remarkably fun step, you should have a shiny, new, incredibly lightweight racer ready to ride. Feel good?

Next, let’s get on the bike in Chapter 3 to make your new bike as comfortable as we can for uphill cycling.

## Chapter 3: Optimum Bike Setup – position & gears for hilly rides

How well your bike is set up has much to do with how fast you'll climb. As you saw in Chapter 1, one of the critical pillars of cycling efficiency is being comfortable on your bike (Pillar 2). By bike comfort here, I am referring to your bike setup: bike position and gearing.

If you are set up correctly, you should feel comfortable on your bike. When you are comfortable, you can **relax more** and focus all your energies toward one goal: climbing a hill fast!

Moreover, bike comfort is the foundation that underpins your climbing technique (discussed next in Chapter 4). You can't progress with your technique if you are somewhere uncomfortable sitting on your bike.

Remember what we said about finding good flow-feel in Chapter 1? **Good flow-feel = comfort = more efficiency = faster climbing!**

So it all starts with getting the right bike setup. Let's get started.

**Give yourself time and test, test, test...**

Getting the right position on a bike can take time to get right. Give yourself the space and time to concentrate on this. Don't rush. If you rush this step, then you risk being more uncomfortable on the climbs than you should be.

When you get a new bike, it's best and easiest to adjust saddle heights, etc., on an indoor trainer. Not only does it give a nice fixed position, you can fully focus in your living room to get the bike set up perfectly.

Now, using the indoor trainer for bike setup is good for an initial bike setup. However, remember, the real test of how well your bike is set up is out on the road. I can almost guarantee your bike position will need tweaking from your

indoor trainer position. The road gives an entirely different feel, so expect some differences and adjust accordingly.

These differences mean that the **biggest test of all** is getting out on the bike and test-riding it. Expect this to take a few bike rides to get right.

Tip: As you test and tweak, mark your heights or adjustments as you test, so you have reference points to work from. Nothing worse than setting up a new bike position when you've got no former measurement references!

There is a whole subject of setting up your bike and it is easy to get overwhelmed. This is why I stick to a tried and tested method, but it may not work for everyone. If you can't get the position about right, then please seek help via your bike shop or a professional bike-fitting service.

Here are the five steps I use to get a new bike set up correctly for a long hilly bike ride:

Step 1: Finding the correct bike position the best you can, initially indoors.

Step 2: Do the "hover test" outdoors to test balanced weight distribution.

Step 3: Take the bike to a nearby hill to test steps 1 & 2.

Step 4: Further adjustments for long hilly or mountainous bike rides.

Step 5: Gearing setup — making sure your gears are set up correctly.

Tip: once you've found the best position, then *change it infrequently!*

Tip: As well as your usual spares, carry a couple of Allen keys with you for any problems you encounter out on the road. (I mean one or two, not a whole heavy stack of Allen keys!)

### **Step 1: Finding the correct bike position:**

Tip: Always start with saddle height position before any other position, as this is your **primary reference point** for all other changes.



While at home, set your saddle height to a height where you can sit in the saddle, clipped into the pedals wearing your normal gear. You might want to use a wall or door for support, or ideally, have the bike fitted to your indoor trainer.

Try to straighten your leg until the knee is locked and the leg is completely straight. This test ensures you'll have the right amount of knee bend when cycling normally. For the locked-out leg position, your ankle should noticeably drop to be equal or just below the horizontal line of the pedal, ideally with a slight feeling of stretching in the ankle. To illustrate this, see my photo below:



If you cannot straighten your leg, the saddle is probably too low. If your ankle doesn't deflect down, it's most likely too high. Adjust in the correct direction (up or down) by 3-5 mm and retest until you can achieve the correct height.

You can also check your saddle **fore-aft** position by using a **simple plumb line** (string with weight on it). Your crank should ideally be horizontal, with the foot in its natural position. The plumb line should ideally follow a vertical line from the front of the kneecap, down through the ball of the foot (see my example below). If it deviates from this by a large amount, you may need to consider adjusting your fore-aft saddle position:



Next, you need to pedal to check overall cycling leg position with arm reach. Look for a smooth pedal action with stable hips. Use a mirror to help you get feedback on how you are pedalling and how you feel. Knees should be in, hips stable, and very little bobbing up and down.

The following picture shows a good, balanced cycling position:



You can also check your saddle position *relative to your reach* on a bike. As a general rule of thumb, when you bend your elbows between 90-120 degrees, your knee should slightly overlap your elbow.

If the elbow and knee are too overlapped, then either the saddle probably needs to go back, and/or your stem is too short. In my picture above, my saddle is about as far forward as I would want it to be without losing efficiency. It's a little on the limit, but I find this is a very comfortable reach.

If your elbow can't reach your knee at all, then the saddle is most likely too far back or the stem is too long.

Remember, these tests are a *general rule of thumb*, and you may find you are more comfortable riding with a position that deviates from the examples above.

The bottom line is how you feel when cycling along the road. Above all, you need to find a comfortable, relaxed position that **works for you!**

## **Step 2: Basic flat road “hover test” for balanced weight distribution:**

Find a quiet road or lane — ideally a long stretch of road with **little to no traffic**. When riding along the road, take your hands off the bars, so they “hover” slightly — but safely — above the bars. Try to hold this hover for as long as you can, but no more than 15 seconds. **KEEP YOUR HEAD UP!** Never let your eyes off the road ahead for even a second, and wear your helmet — yes, even for what seems a minor test ride!

This test helps **identify how well your weight is spread across the bike**. If you are set up right, your weight should be spread evenly as you cycle whilst hand-hovering. If all is well adjusted, you should ride unhindered in a straight line for up to 15 seconds with relatively few balance or wobbliness problems.

If you are unable, or have to work at keeping the bike balanced for even a few seconds, then most likely you need to adjust your bike position to look for a more even weight distribution. This is a critical step, so don’t miss it! However, I reiterate: please use caution when doing this exercise for the first time.

### **Adjusting for the problems:**

If you are bobbing up and down, which makes you grab the bars, then usually this is a saddle height issue.

If you find you fall forward each time onto the bars, this could indicate a reach issue. This happens as you lean too far for the bars, tipping your weight forward over the saddle — in which case, the saddle fore and aft needs to be corrected.

Then, look at the stem adjustment. If the saddle position is good, the stem might still be too far away. Adjust accordingly.

If you are finding all the pedal force is directed onto the tips of your toes, and it’s causing you to fall or slide forward over the saddle, then cleat adjustment needs to be slipped back towards the balls of the feet. This should give a more balanced and improved output of power.

Equally, if the pedal power is directed behind the balls of the foot (center of the foot) the pedal action may not feel smooth, so an adjustment will be needed to move the cleat forward towards the ball of the foot.

### **Zero in on good flow-feel...how it should feel on a flat test ride:**

Once you get the riding position right, or thereabouts, you'll be amazed at how natural it all feels. As you cycle along the flat, you should start to zero in on good flow-feel. You want everything moving in harmony between bike, body and mind.

Remember, if you feel relaxed and smooth on the flat terrain, you've found efficiency in your preliminary bike set up.

Next is to get that exact good flow-feel up a hill, which links Step 3 below with Chapter 4's hill technique:

### **Step 3: Testing bike position by riding a hill:**

Next, take what you think is a good enough riding position on the flat and test it up a local hill. The reason for testing your position on a hill is that a gradient slows down your cycling and increases your effort level, so it tends to *exaggerate* any flaws in bike position!

Tip: Think riding in "slow motion." Any small improvement you can make on a climb with your position (or technique as discussed in next chapter) will add up to significant time on a climb! So it is in your interest to work hard in this area, for big improvements can be made quite quickly.

After a gentle warm-up, cycle up a 4-5% gradient (moderately steep) climb at a reasonable effort, while you are able to maintain about 70-75+ rpm. The hill should be a consistent gradient and take about five minutes or so to ascend in the saddle.

Ideally, a partner should be following you. If your partner observes your hips "rolling" and you pointing your toes at the bottom of the pedal stroke, chances are your saddle is **still too high**. If they observe your knees moving outwards in a pronounced manner, and your leg barely straightens at the

bottom of the stroke, chances are your saddle is still **too low**.

This should tie in with your own observations: if you are bobbing up and down on the power stroke, pointing your toes at the bottom of the stroke, and lacking power, the saddle is too high.

### **The effect you are aiming for:**

**Observed:** Your hips should be as stable as possible and your knees should have little or no lateral movement. Only the legs should be moving around with a **quiet upper body**.

**From the saddle:** you should feel a very slight dead-spot at the very bottom of the stroke; you should not have to lift your foot at the top of the stroke (it should roll over the top without effort) and you should not bob on the saddle or feel like you're pushing yourself off the back of the saddle.

To achieve this, drop or raise the saddle by 2mm at a time, and repeat the hill until the bike position feels right!

In essence, you should seek to be steady, stable, smooth and relaxed when pedalling up a climb.

Tip: From now on, good flow-feel should be the cue or reference point you need to continually look for when climbing any hill.

### **Step 4: Adjusting further for long, hilly bike rides:**

Once the bike position feels right and you've tested it and feel confident in its setup, the final step (if applicable) is to think about tweaking your position for a long bike ride out in the hills or mountains.

As we've seen, the first consideration is to think about comfort. A long climb can kill your back and cramp your breathing if you are hunched over bars that are too low.

Think about raising the bars to give you a slightly more upright position. Not only will this help take the pressure off your lower back, but also open your rib cage, which should make breathing much easier.

On longer hills or mountain climbs, you may find you continually want to shift your bum back into the saddle for more leverage. If this is the case, a more comfortable option is to simply shift the saddle back a few millimeters so you are sitting on the seat properly.

Remember, if you move the saddle back, sometimes (i.e., not in all cases) the height of the saddle has to go up to accommodate the shift in weight distribution. And, as you move the saddle back, make sure you are not overstretched with back and arm reach.

If you suffer any kind of backache in the hills, another solution is to tip the nose of the saddle downward by one or two degrees. Change this slowly and never by more than a few degrees, or you'll be sliding off the front of the saddle too much.

### **Step 5: Gearing setup — how to make sure you have enough gears:**

One of the first mistakes you're bound to make when you head for the hills or mountains is not having low enough gears on your road bike.

If you don't have enough gears on your bike, the slope will force your cadence to drop out of your optimum. You'll slow down and start "mashing" the pedals instead of letting them turn over efficiently. Anytime we strain up a climb on the bike, we are effectively robbing ourselves of energy, time and overall efficiency.

The solution is to have enough gears to choose from in the first place. Unfortunately, road racing bikes are made for racing cyclists, and the gearing you'll get from most bike shops is set up for flat road cycling. So, as soon as you hit a hill, you quickly find you are out of gears!

### **The difference between low gear and high gear...**

Before we start, though, I'd like to clarify quickly what the difference is between a high gear and low gear. We often hear these terms used when related to gearing and it can be confusing:



**A low gear** (think low numbers when driving your car: first gear) is used for going up the steepest of hills. Your lowest gear on your bike is the **smallest** distance along the road when cycling one pedal revolution.

**A high gear** (think high numbers when driving your car: fifth gear) is used for going at speed, when descending, or booming along the flat. Your highest gear on your bike is the **biggest** (longest) distance along the road when cycling one pedal revolution.

Tip: You usually change DOWN to a lower gear and change UP to a higher gear. Think numbers; you can't go wrong.

Here is a quick rundown of the gearing choices you have to add low gears to your bike:

**Standard double chain ring:** If you have a road bike with a standard **double chain ring** on the front, as mentioned you'd most likely need to adjust your gears for the hills. You can adjust the **inside ring only** to, say, a 39 front tooth ring, or even a 38 and not even change the back cogs (back cogs are called "sprockets").

However, if you know you have a very steep hill to climb, you can also substitute the bigger sprockets for lower gears. The combination of a smaller front ring and larger sprockets on the back of the bike will give you low enough gears for the majority of steep climbs.

**Triple chain ring:** The triple chain ring gives you a third inside ring that is even smaller than the inside ring found on many standard doubles. This effectively gives you more gears to reach for when climbing a steep hill. Essentially, it gives you a **better range of gears** from the highest gear to the lowest gears. The lowest few gears are lower than you can get via the standard double.

For this reason, a mountain bike, hybrid, or road bike with the triple chain ring is ideal for the majority of us for climbing up mountains or all-day touring in the hills.

**Compact double chain ring:** You can also opt for what's called a **compact**

**chain ring.** This is a double chain ring that already comes with smaller rings. The idea is you have overall lower gears to climb with, and it means you don't have to change to a triple for those lower gears.

### **Compact or triple? Which is best?**

There is heated debate over whether a compact is better than a triple. My tip to you is to always **go on what works for you** and never be swayed by others' opinions, especially when it comes to what you personally prefer for cycling a hill.

Without getting too bogged down, the main advantage of a compact chain ring is the fact the gears are spaced without too much overlap. It means you are not "duplicating" gears as you shift up or down. This makes gear-changing quicker and more efficient. Also, fewer gears (as compared to a triple) **mean a lighter bike.** This is why quite a few recreational riders and racers opt for a compact instead of a standard double or triple chain ring.

*However,* a triple has its advantages. It might be slightly heavier and make changing gear a little more cumbersome with its three front chain rings, BUT a triple has a slightly **larger range of gears**, with one or two more lower gears than a compact can usually reach. So if you want extra gears to fall back on for those steeper climbs, a triple will usually see you right.

A triple chain ring gives you many more gears to choose from than a compact. From a climbing perspective, this can be an advantage, because you have more gears to choose from for the gradient you are in. In other words, you can select a specific gear for nearly every slope, which means more efficient climbing.

The compact, on the other hand, has fewer gears to choose from and can be a big jump from one gear to the next. This means on a climb, you can sometimes be rather restricted in the gears you choose, and this means risking some inefficiency in making do with the gears you have, even though you are reaching lower gears than you might with a standard double chain ring.

So, as you can see, it is really **down to personal preferences**, your climbing strengths, and what events, races or rides you are choosing to focus on.

## **Gearing: what not to do.**

Some riders say you should put up with higher gears and push them until you get fit enough to feel comfortable with them. This couldn't be further from the truth and goes against the grain of learning efficient riding from the beginning. (We cover cadence and technique in more depth in Chapter 4).

In my opinion, if you take this approach, you risk not learning to spin appropriately on a climb and **constantly feeling inefficient**.

The best strategy is to learn proper riding technique **with lower gears set to your ability level** and **work your way up**. There is absolutely no shame in starting out with a triple, or taking part in an event with a triple as *an experienced cyclist*.

Tip: Having the choice to spin the gear “just that bit more” will always be faster than straining up a climb. In other words, you should err on the side of having a granny survival ring, even if it's a little bit of extra weight, rather than struggling like a dog at the end of an event and losing huge amounts of time. So choose wisely!

## **Final words:**

Now that you have a comfortable riding position for the hills, and know you have the correct gearing, it is time to ride the hills in Chapter 4. In the next chapter, we look at improving your hill technique for various types of climbs...

# Chapter 4: Cycling Hill Climbing – techniques for various climbs

As previously covered in Chapter 1, cycling fast up a climb and getting into good flow-feel is highly dependent upon the five critical pillars of climbing efficiency: sum total of cycling technique, sum total of weight, sum total of bike setup, sum total of mindset, and tactical awareness.

The latter four you can usually manipulate yourself through training and diet, but the first — cycling technique (Pillar 4) — **has to be learned**. In other words, if you cycled more hills, but left your technique to chance, you'd get faster, but you'd be a long way off riding that hill to your full potential.

For example, it's rather like taking yourself down to the swimming pool and thinking that if you only swim more, you'll get faster. True to a certain extent, but if you were to learn to swim with better technique, you'd be a much faster swimmer in nearly half the time. This is why competitive swimmers spend hours perfecting technique to get faster!

Hence, learning and practicing technique to climb faster on a bike *is no different and every bit as vital* to increasing your power-to-weight ratio for much faster climbing.

## **How we learn efficient climbing technique to get faster:**

Technique is all about the way you climb to find good flow feel, or optimum pedalling efficiency. It's about manipulating three variables: your **gear choice**, your **cadence** and your **bike position**.

Your goal is to learn basic hill climbing technique as soon as you can by manipulating these three variables. Once you've learned the basics, you then build on your technique by riding different types of hills, continually trying to reference in, or “zero in,” on your own good flow-feel.

As soon as you are confident in your technique for a variety of types of climbs, it is then a case of training for specific leg power (Chapter 6). However, it is counterproductive to train for specific leg power if you don't first have the correct technique in place.

This is why getting comfortable with the right bike setup (as we discussed in Chapter 3) and then learning an efficient climbing technique are critical to your climbing development before progressing further.

Let's get started. We first start with understanding cadence and why "spinning" is better than "mashing" for climbing. We'll then discuss the two climbing positions used when cycling and how to climb as efficiently as possible. Finally, we go into detail with the hill climbing techniques for the most common types of climbs: a long hill, a mountain, and a steep power climb.

### **Understanding Cadence: which is best — mashing or spinning?**

As it is efficiency we are looking for on a bike up a climb, then you need to err on riding with a higher cadence, or "spinning" more than "mashing" a high gear. It may seem more comfortable to push a big gear because your heart rate seems lower, but a bigger gear uses more muscular force to the pedals and therefore uses up more energy. If you push a big gear up a climb, you therefore fatigue quicker than with a higher cadence.

Moreover, bigger gears on a climb mean you can't respond smoothly to the changing gradient. If you are racing, this means you can't easily keep up with, or respond to, the change of pace in a race.

If you climb with a slightly higher cadence, you'll be using less muscular force and using more of your fitness (cardiovascular system) to get you up the climb.

I know it's hard in the beginning just getting up a climb, let alone fiddling with cadence. The key, as we saw in Chapter 3, is to make sure you have **low enough gears** to begin with — and then use them when you need them most!

An excellent cadence up a climb of medium gradient is in the range of about 75-85 revs/minute. Forget anything Lance Armstrong did, as his extreme

spinning technique at 90-100 rpm up 10% climbs is almost impossible to replicate for any length of time — and I think we all know why!

Be realistic with what you can do, add those extra gears, and up your cadence by 5 rpm. You can adapt to about 10 rpm over a couple of seasons. *Adapt progressively*. Practice on the flat as well as on your climbs. You can also practice spinning on the descents to really “spin out” a gear after a tough climb.

## **Understanding the two standard hill climbing positions:**

There are two basic cycling climbing positions you’ll need to learn for climbing. The first is the sitting-in-the-saddle climbing position, and the second is the standing-out-the-saddle “dancing” technique. Your goal with these two positions is to make them as efficient as possible — keeping to a good cadence, as we’ve just discussed.

### **1. Sitting-in-the-saddle cycling position.**

As you probably know, the “seated in the saddle” cycling position involves remaining seated in the saddle as you climb. It is the most **economical** and **natural** way to climb, and it’s therefore used for the majority of your climbing. For this reason, it is important to make this climbing position as efficient as possible by being **as relaxed as you can!**

To be as relaxed as you can, it is imperative to adopt a good, open, upright, relaxed riding position. Many cyclists hunch over the bars when climbing, as if there were some aerodynamic advantage. The mistake is to clench the bars hard and tense up the upper body instead of relaxing completely.

Below is an example of a relaxed, in-the-saddle seated position:



You must sit more upright and relax the entire upper body so all the energy is channelled into your legs for the climb. In the beginning, you may find you have to consciously do this, but I can tell you if you can simply work on getting the seated cycling position more relaxed, *you'll go faster!*

For longer climbs, hands are usually resting relaxed on the bars, shoulder-width apart. Sometimes, to get an open chest position, cyclists put their hands nearer the hoods. This is fine so long as you are relaxed and not overstretching in any way.

With an open chest and relaxed upper body, you'll breathe more efficiently. Breathing is critically important for climbing because it's hard work, and you need every bit of advantage you can! Any restriction in the belly area, either by tight clothing or a hunched position, and you are severely compromising your climbing efficiency.

To breathe efficiently, the main action is to focus on breathing from the stomach, not from the upper chest as commonly thought. When climbing hard, the best advice I can give you is to consciously let go of tensing your belly and "bellow it out." This will make you focus on deeper breathing from the stomach, not shallow breaths from the upper chest.

As breathing is a highly specialized topic and an important area to learn, I highly recommend you read [Breathe Strong, Perform Better, by Alison McConnell.](#)

## **2. The standing position when climbing**

If you are a beginner, I strongly advise you master the seated position for all your climbs before learning the standing technique for any length of time. The out-the-saddle climbing position **uses up more energy** than being seated, so in the beginning, use it sparingly.

As you have no doubt found, you use this position if you run out of gears or hit a steep section of a climb. You are naturally forced out the saddle and may need to hold this position for quite some time before sitting back down. You also use the standing position to relax your leg muscles for a while from the seated position, which can help considerably when on a long climb.

The other time you use the standing position is when you need to **respond aggressively** in a race, either by attacking, or accelerating to keep up with riders on a climb. We'll talk more about these advanced moves in Chapter 9.

The first step in learning an efficient out-the-saddle position is, again, to be as relaxed as possible. The movement from seated to standing should be **seamless**. The pedal action also needs to be uninterrupted. This is why you may find it more efficient to change up a gear to maintain a smooth cadence and consistent power output from the seated position.

Here is an example of a relaxed out-the-saddle cycling position:





As you can see, your hands should be lightly gripped on the hoods and the bike should move from side to side naturally beneath you. You should feel like you are “dancing” on the pedals, even if the effort feels hard.

Once you can do a relaxed transition from seated to standing, the next step is to learn to hold the position! You are looking to maintain a steady pace up the climb.

Now, this is where a lot of cyclists have problems. In the beginning, it can seem awkward, because you won’t have the right pace and the bike feels like it runs away from you way too fast, forcing you to sit back down, out of breath.

Another mistake is to think that getting out the saddle necessarily means “accelerate,” as this is what we instinctively do when getting out the saddle on flat terrain. Remember, getting out the saddle in most climbing situations is used for *maintaining* your climbing power output as the road gets steeper.

If you find the bike runs away from you too fast and you are forced to sit back down, then your **cadence is probably too fast** (and your **gear is too low**). Click up to a higher gear so the cadence (and bike) feel more in control. Now aim to hold this higher cadence and position for a short stretch...then increase the distance you can hold it, until you can hold it for any length of time.

Wearing a pair of fingerless summer cycle gloves is imperative for efficient climbing when out the saddle on a hot day. Don't just rely on handlebar tape; both need to work together to prevent you from over-gripping the bars when the going gets tough.

Remember, all energy has to be channelled to the legs, not through your hands by overtensing.

### **Basic hill climbing technique.**

In this section, we look at how to climb a standard hill. By “standard hill,” I mean a hill no longer than five minutes in length and about 5% in gradient. It shouldn't be so steep you are forced out the saddle — it just needs to be a moderate, consistent gradient.

As discussed in the beginning of the chapter, when you climb a hill, you're looking for an optimum between three variables: the gears you use, your cadence and the choice of position, at any given point on a climb.

I like to break a hill into **three main sections**: the beginning, the middle, and the summit section. Each section requires a slightly different climbing technique.

Let's take a closer look as we cycle up a standard climb. The following can be used as your template for efficient climbing for most hills.

### **The beginning section of a hill:**

#### **1. Gearing:**

When approaching a hill, make sure you're in a lower gear than you think

you need. Changing down into a lower gear ensures that you conserve energy at the foot of the climb. It's pointless to blast off at the foot of a climb, only to have your energy die throughout the middle and top half of the climb!

Your goal with all climbing is to learn pace: go easy at the bottom, so you have enough left to ride well in the last third — or race your best at the top of the climb.

You'll be surprised how slow you need to go at the foot of the climb to ride a personal-best up it...start out easily!

## **2. Cadence:**

This is your pedal frequency (revs per minute, or rpm). You'll find your cadence drops as you ride uphill from the flat. If you are in a low enough gear, you should find your cadence fairly high (i.e., spinning) before settling into a slightly lower cadence as you settle into a good rhythm and move into the middle part of the climb.

## **3. Position:**

Remain seated on a climb if you're new to cycling up hills. It's best to always get the seated position sorted and used to before learning the standing technique. Most cyclists will remain in the seated position for the first part of the climb to keep conservative. Getting out the saddle always uses more energy. Your goal with all your cycling is be as conservative as you can, so remain seated here, get into a good rhythm, and enjoy the challenge ahead!

## **The middle section of a hill:**

### **1. Gearing:**

Once you're moving into the middle section of the climb, you have two choices: either step up to a higher gear, or remain in the gear you are in. You really want to be in maximum cruise mode on this section. This is where your anaerobic threshold training comes in (covered in the next chapter). You want to be able to cruise fast up this section, but not so fast you "blow up," i.e., go into the red. Practice here will improve your **pace judgment** at threshold pace, as will knowing the climb well.

## 2. Cadence:

Moving from beginning section to mid section, your cadence will drop somewhat. That's fine, because you've taken that into account with using a lower gear. You now want to hold onto this cadence and not let it drop any further. If this is done correctly, you'll immediately feel "on top of the gear," which means in control of your gear versus enough cadence: it feels hard, but it **feels right**, and you've settled into good flow-feel!

## 3. Position:

This now depends on the slope and how strong you feel. You can alternate between seated and standing to rest alternate muscles, although again, this is really reserved for advanced cyclists. If you're new, just continue riding up in the seated position and focus on riding relaxed with good flow feel.

### The summit section (last third):

This is where you can make or break a climb, especially against other riders! Really, this is where most cyclists suffer the most **because they've gone too hard at the beginning** or even in the middle part of the climb. They suffer because you go past them! (More on racing in Chapter 9.) It is the last part of the climb where you need to dig the deepest. You need to muster all your energy to push to the summit.

Your goal all along has been to be at your fastest nearing the summit of the climb. If you've paced it right, you'll be passing many cyclists about now. Or, if you're not racing, then you should feel it's time to get out the saddle and give it your all as you climb to the summit!

## 1. Gearing:

Again, you could increase to a higher gear and start to accelerate as you see the summit of the climb. It depends on your fitness level and experience, but if you know the climb well and you've got enough in reserve, then now's the time to change up to a higher gear or two and push faster up to the summit.

## 2. Cadence:

You maintain your cadence even if you change to a higher gear as you approach the summit. Over the top of the summit, you start to push harder to increase your speed, so your cadence should be increasing. As you go over the summit and start the descent, this is when you are at your fastest and cadence should be really high, although by this time you may want also want to change to big chain ring and recover!

Hard? You bet! Summit accelerating is the hardest part of climbing, but then you're executing what most aren't willing to do: **set out at the foot of the climb slower than you think you should**, so that you have enough in reserve to storm passed everyone in the latter part of the climb.

### **3. Position:**

You can either get out the saddle to accelerate or remain seated. Most racers, once fit, will get out the saddle to accelerate over the summit.

Tip: Notice I say “over” the summit. If you are racing, then it is key to be your fastest just beyond the summit. This is because 99% of riders only aim for the top, and usually plan to recover at the top. If you want to be devastating, then aim to be your fastest cresting the summit and push hard on the first part of the descent. Hard? It's excoriating, but I can tell you it can win races.

### **Easier said than done.**

In reality, hills have varying slopes, and the challenge is always to try and find good flow feel on every one. You'll find that as soon as your cadence drops too far, your speed decreases and good flow feel is lost. It's a fine balance that comes with much practice.

Now you can see why I don't talk much about heart rates and power numbers — because efficient climbing is much more about you, your technique and how you feel than anything else! Just following numbers and basing all your training around numbers is therefore restricting. All you need is a stopwatch or speedometer, and you've got the tools necessary to be the best climber you can be!

### **How to climb a much longer climb — a mountain climb:**

Many riders are intimidated by riding the big mountain or Alpine passes. The thing to remember is that when you climb a mountain pass, you are not racing up them like pros in the Tour de France!

Tip: Racing up a mountain pass is completely different from pedalling up them at your own pace!

In addition, if you are just starting out, it is best to start from **halfway up**. This way, you can learn what longer climbing is all about without overextending yourself — or worse, not being able to finish the climb.

It takes time to build the necessary confidence and fitness to cycle from the very bottom of a big mountain pass to the very top. It might take a season or two, but with progression comes the reward of one day being able to climb a full mountain or Alpine pass.

My point is, don't ever think you can't do it — *you absolutely can!*

## **1. Gearing:**

Make sure when you head to the big mountains, like the Alps, that you have enough gears on your bike. Remember, comfort with the right bike setup is imperative for efficient climbing. As mentioned, a road bike bought straight from a bike shop usually won't have enough lower gears for long mountain climbing. You may need to add bigger sprockets at the back — say, a 27 or 30. Or, even better, opt for a triple chain ring. (See Chapter 3 for more details on gearing.)

When climbing a mountain pass, you use the same template as climbing up a standard hill: split the mountain into three sections, and aim to get to the end of each section as efficiently as you can in a comfortable low gear.

## **2. Cadence:**

Choose low gears and look to spin up, no matter how slow you think you are in relation to anyone else. Do not be discouraged by cyclists passing you. Focus on your own ride in your own time.

Look to turn over the gears in the highest cadence you can. You don't want to

overspin, but you definitely do not want to be mashing big gears. Remember, it is much more efficient on a climb to spin your gear more than push a big gear. You have to last the distance, so use a smaller force to the pedals and turn them over more frequently.

Tip: Remember, the goal isn't speed to begin with; it's about reaching the top in the best state possible — pacing comfortably and enjoying the ride is everything!

### **3. Position:**

In the beginning, you want to sit as much as you can, and rise out the saddle only for steep sections or to loosen tired muscles. Climbing a pass is never easy and always feels like a challenge, but you should be able to maintain a steady pace for the entire climb.

Tip: as already mentioned, out-the-saddle position uses much more energy than sitting. You only have so much out-the-saddle energy, so reserve this for when the road is very steep near the end. Base most of your climbing around the seated position for a long climb.

Always look to warm into a climb when setting off. It usually takes the first half an hour to settle into the climb — be patient and keep a positive outlook in these early stages. At the end of each third, you can stop and stretch off, or simply carry on into the next section if feeling good.

With mountain climbing, you sometimes also need multiple incentive landmarks to help break up the enormous task ahead — perhaps it's a village, a bridge, a tunnel, or even a lake.

If the climb is really tough, then break the route up further by using the kilometer markings along the roadside. Look to get to each one! Keep the pedals moving around and always look to be as relaxed as you can be, looking for good flow feel and enjoying the views.

### **Look to recover where you can!**

On a long climb, the slope is going to change constantly. You may even find

there are flatter and even downhill sections on a climb where you can stretch your legs and spin out tired muscles. Also, look to take it easy on the hairpin bends where the road can be relatively flat. You can pace your ride like this.

Tip: Once you get good at mountain climbs, you can eventually use the hairpins to accelerate away!

The toughest part of most climbs is the last third. For Alpine passes, this is usually the last few kilometers to the top. What makes it worse is when you can see the top but it seems it never comes any closer. Focus in on your riding and aim to get to each switchback/hairpin as it approaches — soon enough, you'll have made it to the top!

Above all, take a good sense of humor and enjoy the unique feeling of reaching the top. After all, that is what it is all about — *personal achievement!*

### **Remember to fuel on long climbs:**

It is imperative with longer climbs, especially if it is going to take hours to climb, to take enough food and water with you. Make sure you eat and drink regularly all the way to the top. Take all your spares, and at the minimum, a waterproof jacket for the descent.

### **Immerse yourself in the best cycling school there is:**

As you can see, the technique in mountain pass climbing has more to do with pace judgment and mental awareness than anything else. The mistake is to think that you have to somehow be extremely fit and know your limits before climbing an Alpine pass. Quite to the contrary, the mountains teach you everything from pacing to mental strength, and give back superior fitness as you ride them. Indeed, cycling in the mountains is one of the best cycling schools you'll ever get if you want to transform your cycling, body and mind!

If you decide you want to race, then there is no other way but to go train in the high mountains to get as strong as you can, both mentally and physically.

Tip: Nothing can compare you for the hard school of mountain climbing on a



bike...so, with that, bite the challenge and rise to new heights. *You can do it, and I know you'll never look back!*

### **How to climb short, steep, power climbs:**

Steep “power climbs” usually take less than two minutes to reach the top. They are abrupt hills that require a high absolute power output to get up the climb explosively.

### **Gears and cadence:**

You ride in a relatively high gear with an increasingly fast cadence. It should feel like you are winding your power up as you climb. It feels like you are taking big steps quickly to get to the top.

Most “endurance climbers” can’t turn such a big gear so quickly. It is therefore a devastating technique against climbers who don’t have the anaerobic capacity to blast away. (This technique is discussed more in Chapter 6.)

You should hit near-maximum effort (power output) going over the hill, with a cadence that increases further as you roll over the top of the hill, and for a brief time down the other side, before you have to recover.

### **Position:**

Usually cycled powerfully out the saddle. You’ll probably know if you are good at these explosive climbs because you’ll always be able to stomp up them without difficulty. You are also likely to be good at sprinting on the flat too.

Endurance climbers hate these explosive hills and know they either have to get ahead or hope the climb is just long enough to be able to catch you up near the top and not let you get away too far.

If you are passed often or left behind by more explosive riders on these climbs, it is usually a sign your strength probably lies in climbing the longer efforts. It is usually clear which type of cyclist you are the more hills you climb and the more cycling you do with others.

**Final words:**

This chapter has been all about learning to find good flow-feel with executing the most economical techniques up three types of climb. We then discussed ways to apply this to a mountain climb and an explosive hill climb.

Next, we look at how to descend a hill. You might wonder what this has to do with hill climbing — well, what goes up efficiently, *must come down* efficiently, too...

# Chapter 5: Descend Like a Pro – smooth, fast, and in control

Descending can sometimes be the key to faster climbing, especially in races with successive hills or mountains to ride! Many races go over the tops of climbs, so I feel it is imperative to not only climb well, but also to descend well to maintain or gain on your climbing advantage. By understanding how to build descending confidence by learning to brake and take turns smoothly, you'll not only get faster, but descend safer, too.

If you're new to cycling, or even been cycling a while, descending can cause a lot of angst. But let me put your mind at rest; it's not your ability or "nerve" that is lacking here, just your descending experience.

Descending fast and in control has nothing to do with "bottle" — it's all to do with executing super technique, concentration, and being relaxed as you go.

All in all, you need to practice repeatedly to get better. There's no such thing as jumping on a bike and "being fast" at descending. It's a skill that has to be kept up-to-date, just like driving a car. If you've come back to cycling after some time away, your descending skills **will be rusty**, so take your time to build up your skill again. Your confidence will soon be back.

In this chapter, I cover the basics of descending confidently and in control, for when you can descend confidently and in control, as mentioned, you go that bit faster!

## **Above all, stay in control:**

No matter your ability, there is a rule you need to abide by at all times when descending: **you must keep well within control of your speed down a hill.** This means not taking risks, or even trying to keep up with faster riders.

*Tip: Ride your own descent at all times, no matter how slow that might seem in the beginning.*

## **Simple trick — get familiar with your descents:**

One of the first things to bear in mind when descending in a group is those that know a descent well will more than likely be faster than you! So if you don't know a long descent, it's best to recci it a few times beforehand and **get to know it**.

This is one of the big reasons why the “local boys” seem to be fast descenders (as well as climbers!) — usually it's just the simple fact they know the roads much better than you!

## **Watch out for new equipment and descending:**

The same goes with your new lightweight racer — get to know it. No matter how excited you are to ride your new bike, never dash down a descent if it is brand new. Take your time to see how the brakes respond and always keep in control.

It goes without saying you should **wear a helmet securely** AND check that your brakes work before setting off down any descent.

## **Relax, relax, RELAX!**

You absolutely have to **go with the flow** on a long descent. **Let the bike descend — let it run**. Try not to hold onto the brakes all the way down. Much of this nervousness is due to not trusting your bike. As soon as you learn to relax and **trust your bike**, you'll immediately find you're a lot smoother and faster!

## **Hands need to be on the drops (if using a road bike).**

Using the drops gives you much better stability when descending, especially when braking. It's also more comfortable than gripping the brakes from the hoods, which will make your fingers ache after a short time.

Getting down on the drops allows you to get into a more aero position, but remember to keep your head up at all times. Keep your knees close to the top tube, elbows in, and get your torso as low as you can without impeding your

vision.

You're looking to establish a **solid “unit”** between yourself and the bike by lowering your torso and compacting yourself as one with the bike. This unit then gives you more control on a descent, especially when you start to inject more speed.

Here is an example pic of me at high speed down a mountain descent:



### **Pedal if you can, otherwise keep legs aero:**

If the road isn't that steep, you should pedal a high gear. You need to keep good speed down a slope, so pedal where you can. When the slope is too steep, put your pedals fore-and-aft horizontally, so you're more aero with knees in.

Tip: Sometimes, when the road is very bumpy, put pedals horizontal to each other and lift your bum slightly off the seat. Use your knees as “suspension” to absorb the bumps — keep hands on drops. This can gain you much time AND comfort in an event or race where the descent is horribly bumpy...you just fly over the bumps like a pneumatic drill!

### **Read the road and keep looking up ahead:**

This might seem impossible to begin with, but good descending starts with looking far down the road. *Looking as far as you can down the road* does three important things:

1. Helps you set up your line: Looking up ahead is key to lining yourself far enough ahead to set up a tight “line” into any corner. I’ll talk more about line and corners soon.
2. Helps you anticipate and respond to road situations: You always want to be anticipating the road situation far ahead, because you’re going much faster than you ordinarily do. You need to be ready for any eventuality. This is why **concentration is so important!**
3. Helps you keep a straighter line on the road: If you always look just one meter ahead of you, you are more likely to nervously “S” your way down a slope. Looking way ahead down the road keeps you on a straighter path, making you go faster down a slope.

### **Practice and “do your homework”:**

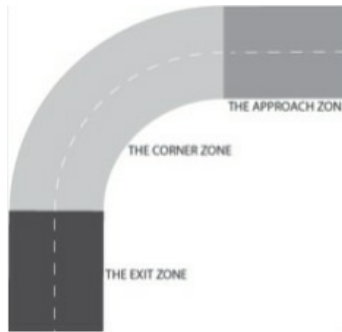
As I’ve mentioned above, good descending is about practice! If you want to be faster, or even competitive, you absolutely need to go round and round your local descents to get to know them.

Much of cycling well in the hills and mountains therefore comes down to how much homework you’ve done!

### **Fast cornering on a descent on a bike...**

Get this wrong and you can lose substantial time all the way down a long descent...so here goes:

There are roughly three zones when taking a corner: — see the picture below depicting a simple 90-degree corner. The white dashes are the center of the road:



1. The approach zone
2. The corner zone
3. The exit zone

### **1. The approach zone.**

#### **Braking on approach:**

Lightly apply braking down the straights so that your speed remains constant and you always remain in control. Make sure braking isn't applied too hard, or you risk not allowing the bike to flow with you downhill.

On the approach to the turn, start sitting up and braking about 100 m or less before the corner. Sitting up immediately into the airflow when you brake causes some drag to slow you down. It also gets you ready to shift your weight to the outside of the saddle during the turn:



Above, I am preparing for the turn: *shifting my weight to the outside and looking ahead.*

A lot of cyclists misjudge when to brake before the turn. The biggest mistake I see is when riders brake far too early before the turn, wasting much speed and time coming up to the corner that is sometimes at least 200-300 m away!

If you want to be fast, you have to take a lot of speed in the straights, then apply solid braking before the turn. This takes confidence in your braking, but it comes with practice.

It's also a good idea to change to lower gears on approach, in anticipation of a slower speed in the turn, and then accelerate up to speed again on exit.

**Apply your braking lightly.** When you're nervous, you can brake too hard, lock up, and skid one or both wheels, causing you to lose control of the bike. It takes a few bike rides to get used to what your brakes feel like under pressure.

For this reason, find out what the brakes can do for you on a flat piece of road. For example what does it feel like doing an emergency stop? Try it — then you'll know what “give” there is in the brakes before accidentally locking them up on a descent.

**Use the front brake more than the back brake (in dry conditions).** Do you know which brake is the front brake and which is the back brake? You need to know, because the front brake has much more powerful braking than the back brake, and will lessen your chance of sliding when braking hard or coming up to a turn.

On a long descent, the rims really do get hot, so phase in the back brake on the straights, but watch not to use the back brake too hard coming up to corner.

Also bear in mind, **if the roads are wet**, you should phase in the back brake more to compensate for less harsh braking on the front.

Setting up your line before the turn:

As you come up to the turn, not only do you have to brake effectively, but you also have to set up your line.



To do this, make sure you're as far over to the outside (or "wide") of the road as possible within safety limits and not crossing the center of the road.

Going to the outside of the road will help you have **better visibility** as you process where the **apex** of the corner is and start looking for the exit.

*Note: The apex is usually the center of the turn. Hitting the apex allows you to take the straightest line and maintain the highest speed through that specific corner. It is also the tightest part of a corner.*

*As mentioned above, it's important to use the front brake rather than the back brake when approaching a corner, so that you don't lock the back wheel on approach to the corner.*

## **2. The corner zone.**

The key to smooth cornering is to always **look for the exit of the turn**. As you release braking hard on approach, get your head up and look well ahead — right round the turn TO SPOT THE EXIT.

As soon as you spot the exit, ONLY focus on the exit and let the bike follow you round to your focus point. You should find you automatically bank the bike in line with where you're looking, taking a smooth line round the corner.

It's important to note that for safe cornering on a bicycle, you should always turn after the apex of the corner. Why?

- So you can see the exit and be sure not to run out of road.
- So you can be ready for any surprises coming up in the opposite direction!
- So you come out of the turn and down the next straight with more speed than you came into it!

See diagram below showing how to take a basic 90-degree corner on an open road (text clarification below if it is difficult to read from pic):



## The Approach Zone:

- Brake with front brake (if dry conditions)
- Set up your line: go wide!
- Spot the exit!
- Change down to lower gears

## The Corner Zone:

- Ease off braking
- Turn **AFTER** apex of corner!
- **Keep eye on exit**
- Inside pedal up 12 o'clock

## The Exit Zone:

- Change to higher gears
- Get out of saddle
- Accelerate up to speed!

Know, though, that the quickest way round a turn is to aim for the apex. **BUT remember, you usually won't have this opportunity to use the entire road!**

**Braking in a corner:** brake as much as you need before you reach a corner, **but never brake heavily IN a corner!** This might sound insane, but braking hard in a corner has the potential to make your wheels slide away from under you as you bank to turn.

You won't be able to go round a corner without some braking, but the less

braking you do, the faster your exit speed from the corner — *as long as you're in full control.*

Tip: **trust your bike tires** in the corner. Let the bike wheels flow and feel them grip for you as you bank your bike. You'll know when you get this because you'll go, "Wow, that was smooth..."

It's personal preference whether you stick your knee out as you ride round corners. As a cyclist, there isn't really any advantage either way.

Finally, remember to keep your inside crank and pedal up at the 12 o'clock position. This prevents the pedal from clipping the tarmac as you bank the bike round the corner, which is easily done!

### **3. The exit zone.**

If you've carried good speed through the turn, you'll find the exit exhilarating.

As you come out of the corner zone, you change to a higher gear (if you changed down to lower gears on approach), get out the saddle and **accelerate** up to speed and charge down the next straight.

### **Final words:**

And that is it! Now, all you got to do is practice your descents applying the above in mind on every descent you do from now on. Start with one aspect — say, braking — and then add cornering, and soon enough it will all fall into place, right when you need it most. Obviously, there is more to this once you start racing down the mountains, but for now, this is probably enough to keep you going.

Next, in Chapter 6, we look at how to train specifically in the hills to build leg strength for faster climbing...

# Chapter 6: Basic Training Principles for Faster Hill Climbing + 10 Supercharged Hill Climbing Workouts

In this chapter, we look at how to develop specific hill climbing strength to get stronger at climbing. By understanding the underpinnings of training knowledge, we can devise workouts specifically targeted to getting you stronger on the bike.

I know you don't have time to read longwinded science texts, so I've kept this section as hands-on as possible. The goal is to equip you with the training advice you need to know to get faster at hill climbing. I keep the text as brief and jargon-free as possible, only mentioning a few essential terms as and when necessary.

## **Your goal with your training:**

Your goal with your bike hill training is to build ***specific cycling muscular strength***. Specific muscle strength helps increase your power-to-weight ratio and improves your overall efficiency up a climb. (Pillar 3).

To understand how bike hill training fits into your overall cycling training, we first need to identify the four specific training components of cycling fitness.

The four specific training components depend upon manipulating two important variables: the duration of the workout and the intensity of the workout.

**1. Long-Term Endurance:** This is your fundamental cycling endurance on the bike, where your muscles adapt to longer and longer distances. It's important to ride at easy to moderate intensity and do the bulk of your training here.

**2. Medium-Term Endurance:** You might see this written as “strength endurance” or “**power endurance.**” This trains you to hold a higher **cruising pace** up hills or along the flat, as in time-trialling. A great way to train medium term endurance is through working at a moderate to hard intensity and holding this harder pace up hills. It’s all about holding a high power output for a sustained period of time.

**3. Short-Term Endurance:** You might see this written as “speed endurance.” This is the ability to prolong the amount of time where a near-maximal intensity can be maintained. In a racing context, this is your **repeated acceleration** on the flat, or the acceleration you make up over the top of a hill. It can also be used to sprint from a long way out during a race and can be useful if time-trialling or riding fast over successive hills.

Training for medium- and short-term endurance is best done as interval training.

“Interval training” is breaking up a workout into intervals of high-intensity effort followed by intervals of easier efforts. The idea is you can go much harder during short intervals interspersed with recovery than on one continuous hard ride up a climb. I give examples of quality interval workouts at the end of the chapter.

**4. Pure power or speed:** Reserved mainly for racers, this is the ability to move through the full pedal motion as fast as can be controlled. In road racing, this is your typical all-out explosive sprint over a short distance. It can also be used to power up short, steep power climbs.

Training for pure power is always through very short, high-intensity interval training with long recovery. We discuss specific power workouts for “power climbs” soon.

Ideally, you need to be well trained in all four components to become a strong all-round cyclist, or “racing cyclist.”

Now that you have seen how cycling training is broken down into four specific components, next is to understand how the **body’s systems work** at increasing intensity levels to bring about these specific fitness adaptations.

Bear with me; if you can understand this next section, you'll have all the fundamental knowledge you need to train effectively for faster hill cycling.

## **The Aerobic and Anaerobic systems**

There are two fundamental systems called upon within your body when you exercise: the aerobic system and the anaerobic system. As the names suggest, the aerobic system predominantly uses oxygen to function, whereas the anaerobic system does not.

Think of your **aerobic system** as your “engine” for cycling. The bigger the aerobic engine, the more oxygen you can supply to your muscles. The bigger the engine, the faster and longer you can *potentially* go on a bike for any effort **over two minutes**.

Think of your anaerobic system as an energy boost for extra power over and above your aerobic engine when needed for short bursts of energy under two minutes.

**Both** these systems need to be well trained in order for you to see improvements in all four specific training components. However, as mentioned back in Chapter 4, **it is rare to be both good at the longer climbs and excel at the short power climbs**. You'll usually find that, no matter how well you train all four components, you'll be better at either the longer climbs or the shorter power climbs, i.e., your muscle fibers have a genetic predisposition towards aerobic metabolism or anaerobic metabolism.

It's important to understand that both the aerobic and anaerobic system function at the same time to some degree whilst cycling. There is no “switch on” or “switch off” — the systems work interchangeably **depending on the demand for energy**.

## **Cycling up a hill...**

Let's take a closer look at the **aerobic system** and how it interchanges with the *anaerobic system* when we put a cyclist under more and more stress. To see how the body functions when under progressively harder efforts, let's take an example of you cycling with a friend to the foot of a climb, and then

racing him to the top!

First, imagine you're cycling along a flat road easily, chatting away with your friend. At this easy intensity, your cycling muscles are being supplied with an abundance of oxygen from your aerobic system. Cycling at this level of intensity trains your **long-term endurance** and you feel you could cycle forever at this pace — indeed, this is the first of the specific training components we discussed at the beginning of the chapter.

Next, you see a hill approaching. You look at your friend and decide to race him to the top!

As you settle into the hill, you begin to feel a little uncomfortable, and your chat soon ceases. You get a burning sensation in your legs and feel that the hill is becoming hard work.

This uncomfortable burning you feel is the anaerobic system phasing in, with its by-product called lactic acid. Lactic acid is felt as you cycle up a climb because the anaerobic system has to **help out** the slower aerobic system with its **energy demand**. And, because the anaerobic system is helping supply extra energy *predominantly within an aerobic environment*, the by-product is a build-up of **lactic acid in the muscles**.

As you continue to cycle up the climb, you get to a point where you feel you can't go any faster. *You feel it's the fastest pace you can hold for the length of this long climb, but not so fast you have to stop.* You therefore remain at this pace the best you can.

At this maximal steady state, lactic acid is now being removed by the aerobic system **at the same rate** as it's being produced by the anaerobic system. Indeed, you've now reached what's called your “anaerobic threshold” or “Maximal Level Steady State (MLSS).” This intensity is the fastest average cruising speed or power output ***you could hold for about the duration of a long climb (more than two minutes).***

Interestingly, if we specifically train at this point, or just slightly below the anaerobic threshold or MLSS, we can “buffer” the anaerobic threshold to a higher percentage of our aerobic engine (or VO2 Max — explained below)

and the faster you'll go, uphill or on the flat!

Riding at the anaerobic threshold pace, or slightly below it, trains your **medium-term endurance** (or strength/power endurance) and is the *primary component of training you need to work on to get faster at climbing*.

### **Cycling beyond your anaerobic threshold...**

As you see the top of the hill, you push harder to race your friend. You now go **above** the anaerobic threshold, or beyond your maximal level steady state. You might similarly call this “going into the red.” This is where **the aerobic system can't remove lactic acid quick enough** from your muscles.

Lactic acid now starts to quickly accumulate to very high levels as the anaerobic system takes over to supply most of the demand for energy.

You push harder to the crest of the hill and find you have to dig deep (to “dig in” or “dig deep” is cycling jargon for giving it your all) as you push to the summit of the hill, almost to exhaustion...and, of course, you've beaten your friend. Yay!

When your body can't supply any additional oxygen to your muscles, this is you reaching your body's engine capacity, or **aerobic capacity**. It is what is commonly measured in sports laboratory settings as your **VO2 Max**, and is a good predictor of your athletic aerobic potential.

VO2 Max is the maximum volume of oxygen that can be utilized in one minute during maximal or exhaustive exercise, like racing a friend to the top of a hill. It is measured as milliliters of oxygen used in one minute per kilogram of body weight (VO2 Max/ml/kg/min).

On a maximal effort up a hill, your maximum heart rate (MHR) usually occurs just above your VO2Max. You'll find you can push that a bit further (a few seconds) even when your aerobic system can't supply any more oxygen to your muscles. You then have to stop or slow down, because lactic acid levels will force you to recover for oxygen.

Interesting to note is that if two cyclists have the same VO2 Max, if Rider A



has a higher anaerobic threshold than Rider B, then Rider A will climb faster to the top of the climb.

Training at VO2 Max, or maximum aerobic power, trains your speed endurance. This level of intensity trains your **short-term endurance** and helps you with repetitive accelerations, pushing the pace over a hill or successive hills, and sprinting that's initiated very early.

### **Measuring power output up a climb:**

If you have a power meter, you can also measure your power output up a climb to measure both your **average power** and **maximal aerobic power**, depending on the length of the effort:

- Your average power output is your average power output for the entire climb and reflects your anaerobic threshold for the duration of the climb.
- Your maximal aerobic power output is what you can reach by pushing to maximum at the top of a climb, as long as the climb is more than two minutes in duration. Your maximal aerobic power output usually coincides with your maximum heart rate.

### **Improving your power output up a climb to go faster:**

As we've seen, the primary way to improve your climbing speed is to climb at or just below your **anaerobic threshold**. Riding at threshold once or twice a week on various long climbs will give you the best results.

As I've mentioned previously, it is not essential to have any expensive power meters to improve your climbing power output! What you need are hills and lots of them each time you ride.

To measure improvements, simply start out with a stopwatch or use your speedometer. You don't even need a heart rate monitor...but you do need to be able to self-monitor how you feel.

Tip: You'll know when you're near or at your anaerobic threshold on a hill (lasting longer than two minutes) **because you can't go any faster!** *It really is as simple as that!*

For best results, you are looking for the longer climbs that last from five to 20 minutes in length. You want to ride them the best you can and settle into a good, hard-working, steady pace.

You need to ride the hills regularly in training, and preferably seek them out on every ride — even as a beginner. It is where you'll see the biggest leaps in fitness and **biking confidence**, descents included.

To help you visualise exactly what we've covered so far, please refer to the diagram below, which summarizes the aerobic system and how the body responds under increasing intensity by climbing up a hill (more than two minutes long):

An overview how the aerobic system functions under increasing exercise intensity (cycling more than 2 minutes duration):

| Specific Training Components | Aerobic System and Anaerobic System  | Perceived Exertion Scale 1 to 10            | % of maximum heart rate, or % of maximum aerobic power (watts) | Predominant fuel being used with increasing intensity |
|------------------------------|--|---|--|---|
| Recovery                     | Aerobic system easily removing lactic acid (by-product of anaerobic system), up until point of OBLA: | 1. No exertion                              | 50%  | Fat   |
| Long term endurance          |  | 2. Minimal exertion                         |  |   |
|                              |  | 3. Very easy activity                       | 60-70%   | Fat   |
| Tempo rides                  |  | 4. Easy activity                            |  |   |
| Medium term endurance        | Anaerobic threshold<br>→→→→→<br>Accumulating lactic acid until                                       | 5. Somewhat hard but easily maintained      | 70-80%   | Carbohydrate and Fat                                  |
|                              |  | 6. Quite hard, breathing deeper and quicker |  |   |
| 7. Hard                      |  | 80-90%                                      | Carbohydrate   |   |
| 8. Very hard                 |  |   |  |   |
| Short term endurance         |  | Aerobic Capacity VO2 Max                    | 9. Extremely hard  | 90-100%   |
|                              | 10. Exhaustion   |   |  |   |

## Training improvements with age: Anaerobic Threshold versus VO2 Max:

When you see improvements in VO2 Max (or maximal aerobic power), it

means you'll see a small increase in your medium-term endurance (anaerobic threshold) too, simply because *your whole engine just got bigger*.

The only drawback is that VO2 Max is mainly genetically determined, so it's hard to get big improvements, year in and year out.

*Fitness improves rapidly when you're a beginner*, but then after only a couple of years riding, improvements become harder to see the fitter you become!

In fact, your VO2 Max starts to decline after 40 years of age or so, with roughly a 10% decrease each decade. (Depending on how active you are and your training background, your personal decline can be less than this!

The good news is, contrary to popular belief, VO2 Max is by no means the most important factor in your cycling performance. If you're starting cycling over 40, you can still see rapid gains in fitness, and you can still perform in cycling to a high level well into your sixties. This is because:

1. Unlike VO2 Max, which has a genetic ceiling, **the anaerobic threshold is easily trainable and can improve year on year**. So, even if your capacity to improve your engine size is compromised, you can still train to buffer the anaerobic threshold to a higher percentage of your slowly declining VO2Max.

In other words, if you have a higher anaerobic threshold than another cyclist with a similar (or higher) VO2 Max, **you'll potentially be faster up a long climb!**

2. Contrary to popular belief, cycling performance is *by no means just about VO2Max!*

What's often overlooked is your ability to improve your cycling **"efficiency"** and gain cycling **"experience,"** both of which not only can make you fast, but can make you a winning cyclist too, no matter your VO2 Max — *or, more importantly, your age!*

You can now probably see how some Super Veteran cyclists can mix it up and beat cyclists more than half their age up climbs (and in races).

So, improving your **cycling efficiency** and **gaining road riding experience over time** can *easily overcome a lower or declining VO2 Max through aging*.

Now, this does not mean you should give up on improving your aerobic capacity! In fact, the opposite is true — you absolutely must train to improve your engine size or speed endurance **year-round** to work toward or maintain as much of your athletic potential as possible.

Refer to the workouts at the end of the chapter for ways to increase your speed endurance (VO2 Max).

### **How to get out of a “pace rut” when climbing:**

Now, sitting at one pace all the time from riding various long climbs can get you into a **pace rut**. A pace rut is when your body starts to adapt to one pace or one way of training. When this happens, performance starts to plateau. It usually happens after about 6-8 weeks of singly paced hill or mountain training.

To get out of this pace rut, you need to mix your training up to get to the next level of fitness. The key to constant fitness improvement is to keep the muscles guessing by varying your workouts from week to week:

1. If fitness is good and you feel ready, simply get out the saddle and push over the tops of the climbs. This will give your fitness a needed boost and train your short-term endurance (speed endurance) and VO2 Max.
2. Do different-paced workouts and interval training (workouts are at end of chapter)
3. Go mountain biking to break up the terrain.
4. Cycle with others, or get in a local race.

### **Hill cycling is your best form of strength training:**

A common misunderstanding is to go to the gym and start building bigger muscles in an attempt to improve hill climbing power. You might get away with this for the short anaerobic power climbs, but for any climb longer than a couple of minutes, you need to think again!

Squats are indeed an excellent functional exercise, one of the best for lower body strength. However, it fails to address the muscular **specificity** needed to cycle up *a hill longer than two minutes in duration*. Let me briefly explain, because this is important.

**Specificity** is a basic yet critical principle of fitness that says that to get good at any one activity, you have to train in that activity to become more efficient and go faster.

As we've seen, riding a hill fast requires you to ride at or near your anaerobic threshold, which brings about lactic acid (the burning you feel in your legs) as a by-product within the muscles.

At anaerobic threshold, the muscles are **highly sensitive to adapting to this training** and “buffering” lactic acid. Because of the muscles' high sensitivity to lactic acid, it's imperative to train **exactly** to how you want the muscles to perform when riding up a long hill.

This means, then, that squats or any other gym exercises, like leg extensions and calf raises, don't come close here, because it's **not** “riding a bike uphill!”

My point is, *hill climbing can't easily be trained in a gym*, so really to get good at riding a bike uphill, you have to quit the gym and get out there and climb hills, repeatedly.

**Cycling fast up short “power” climbs: training the anaerobic system. (Usually reserved for racers)**

We now turn our attention to the anaerobic system and how this system is dominant when blasting up short power climbs. You can also refer to this for “sprinting” for speed in road races, or any time you need an explosive effort **under two minutes' duration**.

For simplicity, I keep the examples here to explosive hill climbing on short power climbs, rather than sprinting at the end of a flat road race.

**Getting to grips with pure power for power climbs:**

As you have read, the anaerobic system does not use oxygen. This is what distinguishes it from the aerobic system. The anaerobic system, though, has two further energy systems: the alactic system and the lactic system.

**The alactic system** will provide you with energy for up to 10 seconds. Heart rate does not have time to catch up during the effort like a quick power surge. There is *no lactic acid build-up*; your effort is explosive and very short. The advantages of training the alactic system are reserved mainly for cycle racing, but I give the examples below for perspective:

- To “jump” into an open gap within a group of cyclists, either on a climb or on the flat.
- To “sharply accelerate” to upset riders’ rhythm on a climb.
- To “jump” the final few meters to reach the back of a breakaway group of riders.

**The lactic anaerobic system** provides you with energy from roughly 10 seconds up until about two minutes, depending on how you time the effort. This is the system we are most interested in, as it represents the general duration for short power climbs.

This is when you start out at the bottom of a power climb and want to reach your **“peak” power output** at or near the summit of the climb. We call this your **“anaerobic capacity.”** You use this system when powering up a short steep climb that lasts more than 10 seconds, but less than two minutes’ effort.

**Note and remember:** *anaerobic capacity and peak power must not be muddled with your aerobic capacity and maximum aerobic power at VO2 Max. The two are completely different maximums.*

Heart rate is still not a measure of your all-out effort, but as the duration of the power surge continues past one-and-a-half to two minutes, you either have to slow down, or stop to recover.

To help you, please see the diagram below of the anaerobic system and how it responds under stress and prolonged duration (less than two minutes’ effort):

An overview how the anaerobic systems (less than 2 minutes duration) functions depending on power climb (or sprint) duration.

| Specific training component   | Duration of sprint (seconds)  | Anaerobic systems                                    | Lactic acid & perceived exertion   | Heart rate = N/A<br>Max Watts  |
|---|---|--|--|--|
| <b>Speed type 1:</b><br><br>'Jumping' into gaps, snap accelerations on flat, up hills, change of direction...               | Less than 10 seconds  | Alactic anaerobic system (i.e.: without lactic acid) | Highly explosive but easy. No lactic acid built up.  | Up to max power output   |
| <b>Speed type 2:</b><br><br>Top end explosive speed - this trains your "anaerobic capacity" or 'maximum peak power output'. | From 10 seconds up to 1 minute, depending on how you judge effort, up to 2 minutes. | Lactic anaerobic system                              | Lactic acid to peak levels!<br><br>100% all out effort.<br><br>Perceived exertion scale 10 only. | Maximum peak power output – normally found between first 30 seconds of sprint. |

## Timing is everything:

In the case of exploding up a short, steep climb, which system is dominant depends, therefore, on how you time your climbing effort! Just like in a flat road race, *timing your sprint is key to success!*

For example, if you go sooner to power up the climb and it takes more than two minutes to ascend, the chances are you will use your aerobic capacity (speed endurance) and hit maximum heart rate as you summit the hill.

If you go hard to the top of a short power hill that takes less than two minutes to power up, then you will more likely be nearing your anaerobic capacity to beat your friend.

As you can imagine, surging up short climbs like this is highly stressful on your system, so when you train like this, you must give yourself adequate time to recover both between powerful intervals and afterwards.

Now, let's look at 10 specific hill workouts you can adopt straight away in your training to see awesome improvements in hill climbing speed.

## 10 Supercharged Hill Climbing Workouts:

The workouts below are not suitable for beginners. If you are a beginner with

hill cycling, I strongly suggest you simply ride your usual bike rides and get used to each hill as it approaches.

As a beginner, look to ride one hill per bike ride. If you can do more, that's even better. The key is to keep facing the hills as often as you can to build power, learning good technique and pacing to build hill-riding confidence.

The workouts below are for those riders with no medical issues and a few years of cycling behind them who want to take their cycling to the next level. The workouts range from hard to very hard, so please remember to take 24-48 hours off from training to fully recover.

The goal of these workouts is to build power endurance, speed endurance, and absolute power in a short period of time.

The goal is to also work on your technique. Really think about the way you are climbing. From what you've learned from this guide, analyze how you could improve. Test out techniques to see what you like or don't like. Use your watch to record your speed and time up the climbs, so you can compare workouts and see how far you've improved.

Note down how good you felt for every workout, as well as how tired you felt the next few days, on the same 1–10 scale. It is only by recording your training like this that you'll see progress, or lack thereof, and can adjust accordingly.

With climbing training, think about sharing the workouts with other riders. This way, you'll be able to have a firm reference point to how well you're executing your training on a climb. A fellow rider will push you harder, too. If you don't have another rider to help you, keep focused to task and follow through the best you can.

If cycling fitness is reasonably good, you've built up a few good months of consistent road miles, and you feel comfortable in taking things further, then it's time to mix up one or two workouts a week.

Go easy when starting these workouts, as you need to find your level. It is easy to overdo things in the beginning! Expect to lose a few workouts to sort



your routes, devise circuits and get used to the workouts. Take your time to set things up properly and these rides will be great fun to look forward to.

**Remember to warm up well before every workout.** An effective workout starts with 10-20 minutes of easy cycling, followed by the main workout. On completion, it is imperative you **cool down** by riding slowly home, spinning in an easy gear. The cool-down will kick-start your recovery, so don't skip it. Also remember to eat and hydrate well before, during and after each workout.

If, for any reason during the warm-up, you don't feel good or simply are not mentally ready for a hard ride, turn around, head home, and *go out another day*.

## **10 Supercharged workouts:**

### **1. Mountain Bike Climbing Circuits (off road):**

**Type of climb:** a long continuous climb that takes about 15-20 minutes to ascend. It should have steep sections, varied gradients. Repeat 1 to 3 times up climb. Then, once comfortable with three circuits, go faster and time yourself!

**Goal of climb:** rough terrain to build leg strength and get out of a pace rut. Pushing over stones and roots will force you out of your usual climbing road pace.

**What it trains:** your power/strength endurance at anaerobic threshold. Also trains your speed endurance when pushing to summits of climbs.

**Total workout time:** about two hours.

*Notes:* Just do one good quality ride like this once a week around your road rides, and you should see some big power improvements when back out on your hilly road rides in about a month from now.

### **2. Hill Circuit “Smash-Ups” (on road):**

**Type of circuit:** a hilly circuit of about 10 miles that includes 4-5 different hills with little to no flat riding in between. Ideally, you want the hills to run

from one to the other. Repeat circuit 1 to 3 times depending on fitness level.

**Goal of circuit:** ride the hills as hard as you can and recover on the descents.

**What it trains:** speed and power endurance. A word of warning: this training is very hard. The first few times out, expect to just cycle the circuit before being able to push the pace.

**Total workout time:** about two hours.

*Notes:* In the first few weeks, ride the circuit “seated-in-the-saddle” only, so that as you crest the hill, you are really developing leg power for all your climbing.

By month 2, you should progress to get out of the saddle and push over the tops of the hills. Shift up to a higher gear and go for the kill over these hills.

You can vary the route by either riding it in reverse to get a whole new set of hills, or ride in a figure-8...whichever you think is more fun!

### **3. On-Off Seated Hill Intervals (on road):**

**Type of climb:** long false-flat climb (2-4% gradient) that takes about 15-20 minutes to climb. Ride in seated position and accelerate to a higher speed or power output for 2 minutes, then recover to usual climbing pace for 2 minutes. Stay seated. You should get four quality accelerations in for one 15-minute ascent, including the summit. Or, do two quality accelerations for an 8-minute climb, climbed twice.

**Goal of circuit:** learn how to accelerate seated on a climb and build superior leg strength for climbing.

**What it trains:** power endurance/leg strength at anaerobic threshold. Gets you used to change of pace on a climb (pre-season before racing).

**Total workout time:** 1-2 hours.

*Notes:* The advantage of going on-and-off like this up a long climb is you'll get to go hard on different gradients while getting to know the climb extremely well. In essence, you are learning to cause devastation up hills!

Feel free to mix up the distance/time of the interval. If you chose a long mountain pass, alternate every 1 km road marking. Power improvements at anaerobic threshold are noticeable in a matter of weeks!

#### **4. Summit Killer Spin-Outs (on road):**

**Type of climb:** one short hill of 5-7% gradient, with good summit top as well as a descent that drops easily away quickly from top. Ride easily in saddle, then in the last third of the climb, get out of saddle and aim to ride fast over the summit. Then, sit back down and spin out your gear on the first part of descent!

Cadence should be at maximum on the first part of the descent. Really “spin out” the gear for a good minute before recovering fully on the rest of descent.

Only do three repeats of these at effort. Build to five over the coming weeks, and then ride home in an easy gear.

**Goal of circuit:** increases your cadence up a climb. Also teaches you how to crest a summit and disappear down the first half of a descent! Teaches you pace judgment.

**What it trains:** speed endurance (if it takes longer than two minutes total), although it could also train absolute power (if main effort is explosive and under two minutes, depending on where you initiate the effort). Focus should be on spinning out a high gear just over the hill.

**Total workout time:** about 1-1.5 hours.

*Notes:* This is excellent training for racers or fitness enthusiasts who want the edge in hill climbing. As you’ll soon read, a hill is won or lost in the last third, but the secret sauce is on pushing beyond what others expect you’ll do on a climb.

Take a day or two to recover — these trainings are tough.

#### **5. One Quality Test Climb (on road):**

**Type of climb:** relatively steep gradient; 5-10%. A tough climb that takes about 20 minutes to climb.

**Goal of climb:** climb at the highest cruising pace you can hold from bottom to top. If you go over this pace, you will know about it! This climb serves as a good test climb to measure power improvements. Simply time yourself.

**What it trains:** works to boost your anaerobic threshold and teach you pacing.

**Total workout time:** about an hour and 30 minutes total.

*Notes:* Remember to go easier at the bottom than you know you should. Go harder at the top.

Work on various techniques in and out the saddle to see which one is faster for you. Usually, seated is faster, but it depends on many factors.

This training is done best while riding or racing a friend. It will push you harder. If there is a local hill climb event, that's even better.

Test on this local climb once a month.

## **6. Acceleration Training Out-The-Saddle up a hill or long climb (on road):**

**Type of climb:** find a good hill or long climb that lasts 5 to 20 minutes, about 6-10% gradient. Ride out-the-saddle all the way to the top, as if your seat were broken! Repeat the climb if necessary.

**Goal of climb:** strengthen out the saddle climbing muscles.

**What it trains:** strengthens the saddle climbing muscles at just below or at anaerobic threshold.

Total workout time: as long as the climb(s), from 20 to 50 minutes.

*Notes:* You want to get these muscles as strong as you can because when you are tired, you will fall back on them later in a hilly race. The stronger they are through doing specific hill climbs like this, the more times you can rely on them both for alternating up a long tiring climb, or for attacking repeatedly to

get away in a race to win.

## **7. “Jump” Training, or Closing the Gap training (on road):**

**Type of climb:** a hill that takes about 10 minutes to climb, or a longer mountain climb. Various gradients. Repeat climb/workout if fit enough.

**Goal of climb:** practice “jumping” — that means accelerating explosively on the pedals for a few seconds. Doing this means clicking up to a couple of higher gears and then explosively accelerating out the saddle for up to 5-10 seconds, and then recovering back to normal seated pedalling for two minutes...then go again!

**What does this train:** trains the anaerobic component of climbing.

**Total workout time:** Three to five repeats of hard efforts, building to 10 over the coming weeks.

*Notes:* Repeat this all the way up the climb. You don’t necessarily have to keep to a set interval. A nice way to do this is to attack when you want. Even better is to ride with a friend to get a reference on how well you are jumping away. This is a good workout to boost variety in your program and have a lot of fun doing so! Test and see what you can do, how hard can you jump, for how long, etc.

## **8. Power Stomps (on road):**

**Type of climb:** Choose a hilly circuit or a long climb, either will do. Change up to a high gear, so that cadence drops to about 60 rpm. Now, really push with all your leg power to go as hard as you can for 60 seconds. Recover 2 or 3 minutes in an easier gear; repeat 5 to 10 times up a climb over the coming weeks. Don’t get out the saddle!

**Goal of climb:** to build climbing strength, absolute power, and/or give variety to your climbing.

**What it trains:** This training is excellent for power riders who want to train for absolute power for short climbs of less than two minutes’ duration, or for sprinters who want to train for more power.

**Total workout time:** about one to two hours' ride time.

*Notes:* Intensity of effort is key. You want to use all your force to get the pedals round on the hard intervals. You also need to recover fully, so take a good three minutes to recover until you feel ready to go again.

## **9. Hill Attack Training accelerations (on road):**

**Type of climb:** Take a hill or longer climb and look to attack three times on the hill. You decide where you want to attack.

**Goal of climb:** “Attack training” is literally that — attacking aggressively up a climb. To attack, get out the saddle and accelerate up the road in a higher gear, remembering not to tip yourself into the red! After the attack, sit back down and push until you've covered about five minutes of hard riding. Teaches you attacking and pacing at top end speed up a climb.

**What it trains:** anaerobic threshold, speed endurance.

**Total workout time:** one to two hours.

*Notes:* The idea is to learn pace after you've done your attack. Recover for five minutes between each attack. Make them quality: it's best always to work with someone else as a reference point. If you don't have someone to work with, use your watch. Usually, 1-2 km/hr faster is about as much as you can do when attacking and holding a higher power output for the following five minutes before settling down to an easier pace.

Get to know your speeds and times, and come back to the slope to measure your progress.

## **10. Power Climbing Intervals (on road):**

**Type of climb:** short power climb — a climb that takes less than two minutes to climb, or thereabouts. This is an all-out explosive workout, out the saddle from the bottom of the climb to the top, where you should push over the top of the climb. The top is the hardest because your aerobic system will be screaming to kick in to slow you down...work through it, then recover fully

for a good 10 minutes. Repeat three times.

**Goal of climb:** climbing more explosively, with more power and efficient technique.

What it trains: anaerobic capacity, and if the hill is long enough, aerobic capacity — just depends how you time the climb.

**Total workout time:** Power climb cycled three times, with all-out effort. Recover on descent and ride around on the flat for a while before approaching the effort again.

Tip: Try not to stop to recover in these efforts, as most races are continuous and you have to learn to climb explosively riding into a climb. You always want to look to adapt as close as you can to a race scenario, even going to the actual climb you are going to race on.

Notes: Remember to concentrate on improving your technique, as this is an aspect often neglected in short power climbs. Concentrate on what's happening at the top of the climb with your technique. This is where most power climbers start to fizzle out, but if you now know this — this is where you can gain with good training!

### **Final words:**

If you've understood this chapter, then congrats! This is the underpinning knowledge needed to take your hill cycling to the next level. As you can see, most of it is about getting out there and riding in the hills often.

The hills are, and always will be, your best training to build superior leg strength for climbing to make you the strongest cyclist you can be. You've also seen 10 leg-busting hill workouts you can incorporate starting today into your program to give your fitness and training a needed boost.

Most of all, have brilliant fun riding the hills...*you deserve every success!*

Next, we discuss The Truth About Hill Cycling and Weight Loss. If you need to lose extra kilos, then the next two chapters aim to help you...

# Chapter 7: The Truth About Cycling & Weight Loss (Part 1)

Overwhelmed with all the advice out there? Sick of trying various diets that don't work? Frustrated your weight is holding you back?

As discussed in Chapter 1, decreasing your total weight (Pillar 1) is critical to improving power-to-weight ratio for faster climbing. If you remember back to Chapter 2, we discussed all of the ways to first make your bike lighter. We now follow up with our discussion on losing weight; this time in the form of losing body weight for faster climbing.

The Truth About Hill Cycling And Weight Loss comes in two parts:

- **Part 1** is all to do with putting weight loss into perspective, and...
- **Part 2** goes into more detail about what you eat, when, and why.

Most of the information is from my point of view of having applied these strategies successfully for myself, as well as for others. I am not a nutritionist or doctor, but I have studied much and applied what has worked well and want to pass on the best of what I know to you.

If you wish to research more, then there are many lengthy books on the subject of sports nutrition. My goal is not to “write a book” in this chapter, but simply to brief you and give you a hands-on template you can use for yourself.

If you follow the next two chapters and make relevant changes over time, I can almost guarantee you too will see a **remarkable transformation** only a few months from now...

**Losing weight to climb faster:**



As you probably have experienced, any extra weight is going to slow you down going up a slope. It doesn't matter whether this slope is a small hill or a long climb — once the road goes up, power-to-weight (as we discussed in Chapter 1) comes into play. If you are carrying extra kilos, then now is the time to make a start to shift the extra weight. As we saw in Chapter 2, the biggest difference to your climbing speed is going to be through the weight you lose from now on.

What's interesting to note is that for every kilogram lost, you can gain *roughly* a one-minute improvement cycling up a 10 km climb! This is just a general rule of thumb, but shows the significance of losing just a few kilos.

However, as much as you struggle to lose “some” weight, I have to mention that quite a few riders drop far too much weight in an attempt to get faster up hills. (I'm seeing this becoming more of a problem amongst male riders than female riders...)

### **A warning in becoming too thin for hill cycling:**

If you lose too much weight (or lose weight too quickly), then your power will suffer. When your power output suffers, then you'll start to “go backwards” up every climb, ride like a snail, get sick and ill, and never reach your cycling goals.

You'd think the thinner you were, the faster you'd go. But only to an **optimum weight**, and then it's all downhill. That optimal weight versus power output varies in everyone. You need to seriously adjust if the following starts to happen:

- You get colds more often.
- You are slower around your usual rides.
- People close to you are concerned about your weight loss.
- You secretly obsess about your weight: weighing, measuring, etc., thinking, “the thinner, the faster”...

You may think that the professional climbers you see on television represent how you should be: extremely lean, with body-fat percentages around 10%. Unfortunately, you probably may not see the whole picture. Each

professional rider, especially the top riders in the Tour de France, are monitored extremely closely for any deterioration in their health as they reach their peak form.

Another tip is that pro riders do not keep their weight or body fat this low year-round! They are only this lean for a few months before having to put some weight back on to sustain their health. It is a fine line...a very fine line. Many races have been lost because a rider overstepped the mark, got too extreme with lowering their body fat percentage, and the power wasn't there when it was needed most.

So my point is, you have to be realistic in your expectations as to what you want to achieve with your fat loss, versus what you can safely achieve. **If you have any questions, please see a dietician or sports nutritionist.**

### **It's not about weight loss!**

You see, there is a critical difference between aiming to lose weight and aiming to get *leaner and stronger*.

You might not like what I'm about to share: if your entire focus has been to measure weight loss via the scale...think again! The scale only tells you how much weight is lost, but it tells you nothing about *how your **body composition** is changing!*

When your aim is to measure weight loss via the standard scales, you'll find the scales dictate your entire focus. Your only goal is to restrict calories and see the number go down from week to week. The problems with aiming just to lose weight are multiple as far as body transformation AND performing well with your cycling are concerned:

**1. You become a smaller version of who you are.** You may lose weight, but your shape remains the same. For example, if you describe your body shape as "pear-shaped," you'll just be a smaller pear than previously. In other words, if you just restrict calories to lose weight, trouble spots like the stomach area will never seem to reduce in proportion to how much you lose — and can even get worse as more weight is lost from other areas, like your upper body.

**2. You lose large amounts of lean muscle.** When you focus on losing weight, most of what is lost is lean muscle mass. You may wonder why this is a problem — after all, you are losing weight! Alas, think again. When your body needs energy, it is turning to a higher percentage of **protein** as its energy source because it can't get enough energy from the food you eat. If protein isn't supplied sufficiently via the diet, and/or calorie intake severely reduced, then *muscle mass is readily lost*. As more muscle mass is lost, metabolism slows considerably and a weight-loss plateau soon appears.

**3. You lose strength and energy levels.** Focusing just on weight loss is doomed for frustration because as we mentioned, metabolism slows as you get thinner. You then find you lack energy to do daily tasks, and even get colds more often. Energy levels decrease. And remember, any time you lose lean muscle mass, your power output (strength) will drop off. This means only one thing for your cycling hill climbing — ***slowing down*** instead of speeding up!

**It's all about getting leaner...a far better approach!**

Getting leaner is all about losing body fat around your muscles. It is also about getting muscles stronger through a **good supportive diet** and **sound training**.

The piece of the jigsaw puzzle that has probably been eluding you all this time is that the body's most efficient fat-burner is **muscle**. As we've just seen, losing weight through poor diet or severely restricted eating causes your metabolism to drop and the body *to burn fewer calories*.

However, when we use our muscles and strengthen them, we burn **more** calories! This is because muscle is metabolically active, whereas fat is not. It means that by losing body fat and replacing it with lean muscle mass, you can increase your resting (basal) metabolic rate by up to 15 percent.

In other words, you can burn up to 15% more calories while putting your feet up!

Now building stronger muscles for hill cycling does not necessarily mean we'll get big, bulky muscles! This is a huge misconception. In fact, even

though muscle weighs more than fat, it takes up far less space than fat. You become tighter and more toned and, at the same time, you become significantly lighter (through fat loss) and more powerful (through strength training) for climbing hills.

Your goal is to strengthen your cycling leg muscles, but lose a significant amount of overall body fat.

### **How to measure fat loss, weight loss, and muscle strength:**

As said, simply focusing solely on “weight loss” isn’t going to tell you much about your fat loss or strength gains. Yes, of course, you want to lose overall weight, but to do that and build lean muscle, the focus has to be on *cycling training and on your diet*. (We cover diet in Part II.)

**Measuring fat loss:** to measure fat loss, you ideally need to know your percentage of body fat as separate from bones, muscles, organs, water, and so on. There are a few ways to measure your body-fat percentage, but a way I believe is even better than skin-fold calipers (my second-best choice), especially when you are time-pressed, is to use a digital bathroom scale with bioelectrical impedance analysis.

**Bioelectrical impedance** measures the resistance of body tissues via a small, harmless electrical signal. Body-fat percentage can be calculated as the current flows more easily through the parts of the body that are composed mostly of water (such as blood, urine, and muscle) than it does through bone, fat, or air. It is possible to predict how much body fat you have by combining the bioelectric impedance measure with other factors like height, weight, gender, fitness level and age.

The impedance measure is affected by how hydrated you are and by your body temperature, and therefore requires you to measure at the same time of day with the same hydration status. If you are dehydrated, for example, you’ll overestimate the body-fat percentage.

Because of the likelihood of inaccuracy, it is best **not** to compare yourself with anyone else or with charts. The most important reading is your own, and you should compare it as consistently as you can from month to month.

## **How to measure weight loss:**

You should measure weight loss once a week, or once every two weeks. Try not to get obsessive and weigh every day. This is a mistake because weight loss is not linear in progression; there are days you weigh more or less. Remember, weight loss might be the overall goal, but you have to make sure it is in the form of **fat lost from the body, not lean muscle**.

## **Strength gains — how to measure:**

Together with your hill training, you should see speed improvements up your local climbs by about week 6-8, perhaps sooner. This is why it is imperative to record your workouts, so you can compare trainings.

As mentioned in the training chapter, you don't need a power meter to measure improvements. A cheap stopwatch will do.

You are looking for a standard climb or two that you can go back to test once a month. Time yourself up it and see if you are making progress! You should see some big speed improvements as your weight and body fat decrease. With progressive training and supportive diet, your anaerobic threshold and VO2 Max will all increase, getting you faster!

The key is in referencing as much as you can and testing as consistently as you can over time to see progress.

## **An overview of what to expect in the first few weeks, or first months:**

Expect that your overall weight might **increase** in the first few weeks you start your hill-climbing program. The biggest muscle strength gains tend to happen in the first few weeks, where you may see your quad and calf muscles get slightly bigger (hypertrophy), then stabilize in size somewhat.

Don't worry, strength can still increase with continued training, but the size of the muscle starts to stabilize, just because of the aerobic component of the training.

From here on, after a few weeks, you should see your first dip in weight loss. Noticeable fat-loss changes are usually around six weeks, so be patient and

persist with it, and you'll get the awesome results you deserve.

### **Strengthening muscles for a lean, powerful body for hill cycling:**

Building strength is your objective, as is following a sound diet to support your new body. The diet side of the equation is absolutely critical, for if all you do is eat junk food, you'll soon wind up drained through lack of nutrients. We cover this shortly. For now, we look at simple ways to build muscle strength for cycling.

### **Specificity revisited:**

Remember, our objective is to get faster at hill cycling, not to be a fitness-magazine supermodel with ripped, bulging muscles. If you want that, then this isn't the guide for you.

As mentioned in more detail in Chapter 6, to get faster at hill climbing, you primarily need to improve your medium-term endurance and *anaerobic threshold*.

To do this, it is critical to adhere to the “specificity principle of training” because as the intensity increases, so too does the need to target specific muscle fibers also increase — especially at the anaerobic threshold, as we saw in Chapter 6.

This means, then, that the best form of strength training is to get on your bike and ride in the hills. Forget anything else!

(Okay, if you want to supplement bike rides with core strength training at the gym or circuit training, then go ahead. But your cycling performance goals need to focus on the best resistance training of all: **biking in the hills**.)

### **Spot reducing areas for fat loss:**

A point to remember is that you cannot “spot reduce” a certain body area by working that single muscle in isolation. When fat loss happens, it happens across the entire body.

This is why doing cycle exercise like hill “resistance training” is so good. It

uses many muscles (and big muscle groups) in combination to get them strong for the specific task of climbing. In fitness terms, we call this “functional” exercise. Because so many muscles are being exercised in their natural movement (e.g., by riding a bike), it gets you working harder and raises your metabolism.

In contrast, isolated leg curls or extensions on an indoor leg machine at the gym just aren’t going to cut it for the cyclist who wants to get faster, stronger, and leaner for uphill cycling!

So, riding in the hills gives us the higher intensity needed to make our muscles stronger and burn more calories, not only during the workout, but also **even after the bike ride has finished!**

### **Understanding EPOC...**

Any time the anaerobic metabolism (anaerobic system) is used whilst cycling, your body needs to recover afterward via a system called EPOC (excess post-exercise oxygen consumption). This is a fancy physiological term that means that after doing a hard effort, your body increases its need for oxygen and energy. In turn, it raises your heart rate and, most importantly, **revs up your metabolism long after the workout is over.**

Research shows that EPOC can burn calories up to 48 hours after exercise — *effectively putting your fat loss on autopilot, even while you sleep!*

There are a few ways to rev up your metabolism and build muscular strength as a cyclist. The key is in **the intensity**, but it’s also critical to make sure you are working on good technique. As discussed in detail in Chapter 6 in the workouts section, hill workouts need to be varied from week to week. As you have read, they need to be made up of intervals, successive hill circuits, short power climbs, mountain biking, and long mountain climbing to continually keep your muscles guessing and, importantly, **to boost your metabolism to burn fat.**

### **Final words for Part 1:**

As you can see, the key to burning fat and building lean muscle is to **get in**

**the hills and mountains, vary your workouts and work hard.** By varying your workouts, you not only keep yourself interested, but you also keep your **muscles guessing**, which helps stave off the dreaded fitness plateau and helps burn fat while you sleep!

However, if all you did was bike, you might lose weight to a certain point naturally, but beyond that, weight loss would likely stall or plateau. To kick-start fat loss and build a super strong supportive body, you have to take a good hard look at your diet.

Next, we will look at the importance of what you eat, when, and how. We look at easy ways you can improve what you already eat to realistically get the fat loss results you truly deserve...



# Chapter 8: The Truth About Hill Cycling & Weight Loss (Part 2) — What You Eat, When, and Why

With all this said, all your training will be for nothing if you can't support and nourish your body properly with adequate food. As a cyclist who is overweight who wants to climb faster, you must eat the best you can, but in a manner that promotes fat loss.

Now, to promote fat loss, you still have to cause a calorie deficit. This is where you should watch out, because if you restrict too much, you'll find yourself in a plateau or getting too thin, instead of lean.

Successful fat loss is all about losing the fat and then ***keeping it off***. To do this, you need a realistic time perspective. A healthy time frame is about 20 weeks to lose about 22.5 lbs.

Imagine that in just four or five months, you could lose this amount of weight — easily! YES, easily based on the food you eat and your cycling training. No diets. Just small improvements to what you eat from week to week. You go only at your own pace, making healthy choices over time.

It's a mistake to try to change your eating regimen too quickly. This is why fancy diets don't work to help you lose fat. They try to change too much, too aggressively, in too short a time, and are therefore *unsustainable for the long term*.

What is much easier and healthier is to make small changes **to the food you already eat**, so that by three months or so, you've made a full transition to healthier eating habits. This is realistic, sustainable, easy to do, and most of all is the key to keeping you lean and happy for a lifetime!

**Your food calorie deficit guideline:**

For permanent results, you should aim to lose no more than one pound (**0.5 kg) of weight a week for 20 weeks**. Much health research states 2 lbs (1kg) a week as the upper limit. I reiterate: if you lose more than two pounds a week, you'll be paying for it only a few weeks down the road. Go easy; we want to promote fat loss to preserve, and even build, lean muscle and get faster at cycling!

To lose a pound a week, you have to burn 3,500 calories in one week. Now to do that you need to burn a deficit of roughly an average of 500 calories a day (7 days/3,500= 500 calories a day to lose).

One pound lost x 20 weeks gives you a weight loss of 20 lbs (roughly 9-10 kg).

Now, if we add in just **one hour of biking** at a vigorous level in the hills, *that's a minimum* of 250 calories burned. (Usually it is a lot more than that, if riding in the hills!) Remember to add in the effects of EPOC, which will burn extra calories over and above your workout, whilst you recover.

This means that, as we add in our hilly rides, *we don't have to restrict our food intake by 500 calories a day!* All we need to do is reduce the restriction to just 250 calories a day.

Incidentally, 250 calories is a bowl of cornflakes and a yogurt, or two slices of toast and jam. The big question becomes: *is it really too difficult to cut out a bowl of cornflakes before going to bed? Huh?*

Now you can see **why** exercise, like cycling in the hills (as well as setting a **realistic** food calorie deficit), is fundamental to helping us successfully lose body fat and keeping it off permanently!

Moreover, hard exercise like cycling up hills helps curb our appetite naturally, so when we've completed a good workout, we rarely feel like stuffing ourselves with doughnuts and greasy fry-ups! We might feel like a good meal later on, but we definitely become more aware of what we are eating.

Again, this shows the importance of taking up **an activity you enjoy**.

Because when you enjoy cycling and get better at it, you'll do more bike rides, which leads to positivity and a *rise in self-esteem*, which naturally leads to a leaner, healthier, happier you.

## **Eating power foods to support your cycling**

What you put inside your body is absolutely key to how it supports you. This is why your diet needs careful attention. Many people assume that if you simply eat less and ride your bike, you'll lose weight. That is indeed correct: if you eat less than your energy expenditure, you'll cause a calorie deficit and lose weight. However, as discussed in Part 1, fat loss and muscle strength should be your focus for faster hill cycling, not pure weight loss.

If fat loss is the goal, then you need to eat with metabolism in mind. You always want a *fast-running metabolism to burn the **right** calories* — calories from fat.

In other words, it's not simply about any food we happen to ingest — it's eating the **right foods**, in the **right amounts** at the **right time** that makes the single biggest difference to your fat loss and strength success as a cyclist.

## **Portion control and when to eat:**

One of the best ways to start promoting fat loss and make changes in your diet is to cut your portion sizes. I will guarantee now that you have too big a plate of food in front of you. None of the following food information will be useful if you keep eating too much of it!

Now, you can “count calories,” and I do suggest over the long term that you get to know the calorie intake of the foods you eat. However, to get started and see a massive difference, I've found the best way is to cut portion size by a third to a half and eat from a smaller plate. **You still need to know what foods to eat** (which I cover below), but the first big step is portion control.

## **Keeping cravings at bay and metabolism high**

Eat five to six times a day to keep cravings at bay. Research shows that by eating more frequently with smaller meals, you keep blood sugar levels

relatively stable throughout the day — and, more importantly, **keep your metabolism running high**. This means eating six small meals throughout the day promotes fat loss.

As the meals are smaller, you'll also find you feel lighter and more energetic, instead of being weighed down and half asleep after eating three big meals each day.

You should ideally eat the most in the morning, with a small snack mid-morning. Lunch should be smaller, with a mid-afternoon snack. The evening meal should be even smaller, although this depends on whether you've been training or not. If you've trained over lunch, then the evening meal will need to be about the same size as lunch, but not as large as your breakfast.

Go by how you feel. You will have ups and downs as you find a new balance with your food intake. Remember, you need to cause a calorie deficit, and one of the best gauges is **how you feel**, just like in bike training:

- If you feel like you want to raid the fridge at bedtime, you've eaten far too little. You are being too aggressive with restricting calories and need to eat more!
- If you feel like you are slightly hungry before bed and could eat more, like maybe a slice of toast, but are not at all starving, this is about right.

### **Crave something sweet to eat?**

You'll find as you slightly restrict calories and eat less sugary foods (which will be covered shortly), you'll start to crave something sweet in your diet. Here's two tips I've used successfully to satisfy my sweet craving but keep overall calorie intake low during the day:

- **Chocolate.** Yes, chocolate is good for you, and research shows that having two ounces, or a strip of chocolate a day — yes, a day — promotes fat loss. You want to look for over 75% cacao, as the higher the cocoa, the higher the antioxidant levels. You'll **pick less** if you treat yourself with that piece of chocolate once a day!

- **A spoonful of honey in fruit tea at bedtime.** This works well, too, and gives you a little taste of something sweet to knock the food cravings and help you sleep better.

### **What you put in your weekly shopping cart is key to your success...**

What you buy is what you usually eat! True? So, if cookies get bought for other family members, then you will likely eat them, too...be honest. Instead, don't put it in your cart in the first place. Skip the candy/sweets and fizzy drink and snacks isle!

Control your need to buy salty, fat-laden chips at the checkout counter. Hidden calories and temptation are all around. Remind yourself of your cycling goals and how you want to change. **Make a shopping list beforehand** so you are not tempted and, dare I say it, *learn to cook!*

Tip: A large latte at your favourite café stop on the way home is about 500 calories. Opt for a small coffee or tea with a little milk.

### **Cheat days are good for fat loss. Here's why:**

You want to eat as cleanly as you can most days of the week. However, it is also good to have one day a week where you decide to eat what you want, within reason. If you plan for one day a week as a "treat" day, it will help keep you satisfied and make you look forward to starting cleanly again the next week.

In addition, cheat days are also good for you because they keep your system guessing. Increasing calories briefly for a day can be good, as it releases hormones and the body speeds up metabolism in response. Just remember, though — you can't do cheat days too often. Once a week is ample.

### **Hydrate well for optimum fat loss and better energy levels:**

Did you know that most of us don't drink enough water on a daily basis? Add your weekly hilly bike rides to the mix and even though you may be consciously hydrating relatively well during these rides, your lack of hydration **between** bike rides could be letting you down.

Here's how increasing your water intake a day can significantly boost your vitality and help promote fat loss:

- You could be mistaking hunger for thirst! It's sometimes difficult to tell if you're actually hungry or your body is craving fluid. When you feel hungry between meals, then you naturally start to look for food, when in actual fact, what your body could be needing is water!
- When you drink water instead of reaching for a biscuit, then you should find your craving for food, or "hunger pangs," subside.
- Try drinking a large glass of water the next time you feel hungry between your recommended six small meals each day. It could be the missing ingredient to helping your fat loss.
- Moreover, when you get even slightly dehydrated, your metabolism slows down. When your **metabolism slows down**, your ability to burn fat is reduced.
- Your hilly bike rides should increase your metabolism and keep it running high for a day or so, helping you burn more calories. But if you are dehydrated for a day or so after your ride, then your metabolism will slow, countering efforts to burn fat and lose weight.

Health experts recommend on average **eight glasses a day of water** between meals. However, in reality, this can be easier said than done. Most of us hate drinking water, but there are some ways I've found that you can counter this and still maintain good hydration levels:

- Add a slice of lemon to your water to make it taste better.
- Drink fruit and herbal teas, black tea, or green tea.
- Vegetables and fruits contain a lot of water.
- Store some cold water in a plastic bottle in the fridge if you prefer it chilled.

### **Alcohol and Training Do NOT Mix:**

One of the biggest enemies to your fat loss and your cycling training is

**alcohol.** If you drink regularly, you are going to have to work at reducing the amount you drink a week, drinking it only on occasions or even eliminating it from your diet. I agree there is much goodness in a glass of wine, but the problem is by saying that, most people indulge too much, too often, and wonder why they can't burn fat and lose weight.

As a young athlete, I remember ingraining in my head from a veteran cyclist, "alcohol and training do not mix" — and here's the simple reason why: Everything you eat goes via the liver to be processed before entering the bloodstream. However, if you eat a meal with alcohol, the alcohol gets processed **first** before the food. As alcohol is heavy to process, any food waiting in the gut gets metabolized last, and is stored as **fat** instead!

Moreover, alcohol is highly calorific and **dehydrating** and works against your metabolism. If you get dehydrated, your metabolism slows, and so does the rate of burning fat!

And it gets worse. When dehydrated, even moderately dehydrated after a glass of wine or two, you can often crave more food...you eat more, much more, and so the fat piles on. Time for cutting back, don't you think?

## **Calories are NOT all Created Equal:**

### **An Overview of the Main Macronutrients and What to Look For**

#### **The Importance of Protein:**

One of the single most important areas of sports nutrition that's often overlooked by recreational cyclists (and endurance athletes as a whole) is not eating enough protein! If anything, you should look to increase your daily protein intake to help build muscle and help speed recovery from workouts.

Protein breaks down into amino acids in the body. Amino acids are the building blocks of muscle. Without enough protein, it can be hard to preserve, let alone build, lean muscle.

Ingesting enough protein is therefore critical to support your hill climbing efforts **and** help promote fat loss.

## Benefits of protein:

- Protein is naturally low in calories and helps suppress your hunger, so you feel full faster and for a longer period of time
- Protein can help lower the glycemic index of high glycemic-indexed foods when eaten together, helping to lower blood sugar levels.
- Protein helps raise metabolism, again helping us to burn fat.
- Protein helps us recover from hard workouts and build lean muscle.

## How much protein do cyclists need?

The Sports Dieticians of Australia state that adequate daily protein intake for endurance cyclists is between **1.2-1.8 grams of protein per kilogram of bodyweight per day**. For example, if you weigh 170 lbs, that would equate to 85 grams of protein needed daily.

Over a quarter of that amount (25 g or so) should be consumed as soon as possible after the workout **to aid recovery**.

## What to eat after a hard, hilly cycling workout?

Using the example above, you should aim to consume around 25-30 grams of protein and about 100 grams of carbohydrates immediately after your workout, preferably within the first 15 minutes. The best ratio of protein to carbs is 1 gram of protein to 4 grams of carbohydrates. (1:4)

The first 15 minutes to an hour is the time window when the muscles and the liver best absorb nutrients to aid recovery. Even though most carb-based snacks with protein will do, it's ideal to add an easily digestible, fast-acting protein like a simple **milk drink with chocolate** immediately after a workout.

## Protein at other times of the day:

You should consume small amounts of protein at each meal. Eggs are one of the best forms of complete protein and help you feel fuller for longer, especially when eaten with a carbohydrate-rich meal.



It is a mistake to think eggs are bad for you — on the contrary, they are one of the best foods for you! I highly recommended eating the whole egg for the energy and iron content, and getting maximum absorption of the iron from a source of Vitamin C, e.g., a glass of fresh orange juice or a Vitamin C supplement.

In the evening, again, you should look to consume about 25 grams of protein. You need protein in the evening to help optimize muscle recovery as you sleep. Look to consume oily fish, which can not only give you protein, but also Omega 3 and 6, which can *help reduce inflammation* from hard training and keep the immune system functioning well. Salmon and mackerel are good sources.

Other excellent sources of lean protein include:

- chicken breast, which is also good for small amounts of iron
- turkey
- yogurt
- milk
- tofu
- peanut butter — in moderation, due to high fat content

### **Red meat and cheese:**

Caution is needed with eating red meat too frequently. Although red meat is an excellent source of protein and iron, the fat found in red meat is saturated fat (the bad type for your heart), so consume in moderation.

Cheese is also full of saturated fat, and although excellent for your calcium intake, eat in moderation and substitute with a low-fat yogurt from time to time.

The take-home point here is to make sure you are getting adequate, lean sources of protein each day, which supports your cycling.

### **Carbohydrates:**

The biggest trap you can fall into is thinking that because you are a cyclist,

you can eat what you want — who can resist a heaped plate of traditional Italian pasta?

I've seen and heard it many times: When a rider complains they are eating healthy and training regularly and still not losing weight, probing further with questions reveals that the problem usually points to eating **too many carbohydrates**.

I don't blame you, though; there's a lot of great-tasting food out there, and after a long, hard, bike ride it is easy to overindulge mostly in stomach-satisfying carbohydrate foods. There is also a lot of fat in carbohydrate convenience foods. However, it's usually not the fat content that can sabotage your fat-loss intentions — it's too many carbs in your diet!

You see, what you might not know is this: carbohydrates break down into **sugar**. Sugar then gets regulated in the body by a hormone called **insulin**. Insulin makes sure that blood sugar levels don't get too high and shuttles it to where sugar is needed most for energy.

Sugar gets converted into glycogen, where it is stored for future use in the muscles and liver. Unfortunately, this store is limited. Any surplus sugar that can't get stored gets *converted and stored as fat instead* around the body!

And it gets worse! If you continue eating sugars or large carbohydrate quantities, insulin becomes progressively more ineffective, or *insensitive*, to the sugar in the blood. Can you see where I'm going with this? You've guessed it...more sugar gets stored as fat around the body! Sadly, this is what eventually leads to Type II Diabetes.

So, the upshot is you need to cut down on the amount of carbohydrates you are consuming in your diet, if you want to promote fat loss, even as an energetic cyclist.

### **Which carbs should you cut down on, and when?**

You need to cut down on starches, such as pasta, bread, and rice. You also need to cut down on scones, doughnuts, and any baked goods. I know this is not exactly what you want to hear as a cyclist, but if you want to change your

shape and get faster uphill, some things have to change.

Tip: **Bread is terrible for weight gain.** Limit it to breakfast-time only, if you can. The only other time to eat it would be directly before, during, or after a workout. I know this is tough, but it was by reducing my bread and toast intake that I saw dramatic fat loss and consequent weight-loss results.

Additionally, you want to limit all refined or highly processed sugary foods, such as pure sugar, biscuits, sugary cereals, cakes, sweets, most cereal bars, and sugary fizzy drinks.

If you have a sweet tooth, then the going might feel tough in the beginning. Rest assured that if you stick to this plan for 21 days, you'll kick the old habits, as it takes about 21 days for the body to learn a new habit. Your body gets used to the new changes after about two weeks, so hang in there!

The carbohydrates above are mostly classified as **simple carbohydrates** or **fast sugars** and rank medium to high on the **glycemic index**.

The glycemic index is a measure of how quickly blood sugar levels (i.e., levels of glucose in the blood) rise after eating a particular type of food. The effects that different foods have on blood sugar levels vary considerably. The glycemic index estimates how much each gram of available carbohydrate (total carbohydrate minus fiber) in a food raises a person's blood glucose level following consumption of the food, relative to consumption of pure glucose, which is ranked as 100.

I recommend you use the glycemic index as a useful guide to help you decide how "sugary" a food is. You want to be eating foods that are low to moderate on the glycemic index.

Although simple sugars are seen as "bad," there are times when they are definitely useful to you for training. The times you should eat fast sugars, like cereal bars, cornflakes, etc., are both during and after a workout.

As already discussed above, after a workout, to enhance recovery, you should ingest 25-30 grams of protein and about 80 g or more of fast carbs: cereal with milk, or a whey protein & carb shake, or a milk chocolate drink all work well.

Note, this post-workout “meal” is a snack, so consume in moderation. Your evening meal will be more substantial, but based around a different type of carbohydrate...

### **Slow-release complex carbohydrates are your friends:**

Instead of eating mostly fast sugars, or refined carbohydrates, you should focus the rest of your diet mainly around complex slow-release carbohydrates.

You should aim to eat more vegetables, oats/oatmeal, and legumes. You can eat as much vegetables and legumes (like beans) as you wish, as they are low in calories **and** packed full of nutrients.

Oats are extremely good for energy, fill you up for ages, and work well in combination with an egg for breakfast before a long bike ride.

Slow sugars release sugar into the bloodstream, but at a much slower rate. This is due to their longer molecular structure and fiber content, which means vegetables and such like take longer to digest, making you *feel fuller for longer*, but with *fewer calories!*

You should base your recipes/meals around a variety of vegetables, beans, lentils, and oats. Add your protein, and that is a perfect breakfast, lunch, or evening meal!

### **Fruit:**

Although many will tell you to eat more fruit, you have to watch for the fructose content, which is a fast sugar. Limit your fruit intake to twice a day at the most and vary your fruits. For example, bananas, apples, oranges, kiwis, grapes, and such like are excellent for you with the fiber they provide, but you have to eat them in moderation if fat loss is the goal. The same is true for fruit juices, although they are not as good as whole fruit, because you are taking away the fiber which helps fill you up. Limit fruit juices, and drink water or tea instead.

### **Caffeine:**

Caffeine in coffee can aid fat loss because it increases the heart rate and helps rev the metabolism. However, caution is needed, as caffeine is a stimulant and in large quantities can be fatal. Limit your coffee to one to two cups in the morning only.

Caffeine in tea and coffee (and energy drinks) can also leach valuable iron from your body (it helps transport oxygen in the blood) and induce anemia which, as I know first-hand, can be detrimental to your cycling performance. So, again, drink coffee in moderation.

### **Is fat the enemy?**

Contrary to popular belief, fat is generally good for you. It just depends on the type of fat and how much you consume of it. You can get lean on a fairly high-fat diet if your carbs are low. However, if you up the carb intake and have a high fat intake, then you are in for trouble! Remember what we said in the carb section: the main problem people have isn't how much fat they eat, *it's eating too many carbohydrates.*

The advantage of eating fats is they keep you feeling full for a long time because they *empty from the stomach the most slowly*, relative to carbs and protein.

Certain types of fats are extremely good for your health. The downside is that a fat calorie is more than double that of a carb calorie. For example, 1 gram of fat gives you 9 calories, compared to carbohydrates which equal 4 calories per gram. So, you have to **eat fat in moderation** if you want to remain lean or get leaner.

### **Good fats that promote fat loss and good health:**

Fats that are monounsaturated and polyunsaturated are good for you. These are foods like nuts (brazil nuts, almonds, hazel nuts, walnuts), olives, olive oils, avocados, fish oils, sunflower oil, walnut oil, and flaxseed. They are good for you because they help decrease your bad cholesterol (LDL) and increase your good cholesterol (HDL) to promote cardiovascular health. You'll be able to spot some good fats because they are *liquid at room temperature.*

These good fats also help you curb mid-morning or afternoon cravings and, as I said, help you *feel fuller for longer*. For example, a daily handful of mixed nuts as a snack is high in antioxidant vitamins, even though roughly 80 percent is fat. However, be mindful that *even though nuts are good for you, they are high in calories!*

Fish oils are also good for recovery in moderation. You get these naturally from the oily fish you eat, and you can also choose to supplement your diet with Omega 3 and 6 fish oil capsules if you don't eat enough oily fish in your diet.

### **Bad fats: saturated and trans fats:**

Reduce the amount of **saturated** fats you eat. Most saturated fats are solid at room temperature and, because of their structure, can clog up arteries. Examples include: butter, shortening, animal fats, patés, salami meats, etc. Animal fat found in meat is saturated fat and, for this reason, has to be consumed in moderation — so watch how much bolognaise you eat!

Trans fats are the most dangerous fats you can eat for your health. They are worse for you than saturated fats. You ideally need to eliminate trans fats from the diet, or at least eat them infrequently. I immediately junk any trans fat foods brought into the house. Examples include: all cookies, all doughnuts, french fries, commercial cinnamon buns, buns, pastry, fried pies, onion rings, and margarine.

Briefly, trans fats are fats that are vegetable fats that have been changed chemically by a process known as “hydrogenation.” Hydrogenation is when a food manufacturer adds hydrogen to the fat molecule to make its shelf life longer.

Tip: if you see the words “hydrogenated” or “partially hydrogenated” on food labels, it usually includes trans fats. Avoid!

### **Final words for Part 2:**

Congrats on getting to the end of these two chapters. If you've understood thus far, well done.

If you can follow through on making small changes each week with your food intake, you will get the body you know you deserve. It actually isn't as hard as most people make out. The hardest part is starting, but once you have traction, you'll be well on your way to see the weight drop off!

# Chapter 9: Tricks, Tactics & Mind Games to win up every climb

Mindset and tactics are everything when it comes to climbing or racing up climbs. Let me ask you this: how do you respond when a fellow cyclist passes you up a hill on a bike?

You see, it is your **response** that is key, for if you think you are “rubbish,” you’ll most likely reflect negativity in your body language right to the top of the climb, or until you switch your thinking to more positive thoughts.

How you think as you climb is how you are in the present moment, and dictates **poise** or lack of it! Many cyclists don’t really think about how they are communicating via their body language, but much of your state of mind is given away to more savvy riders, who take immediate advantage of it, eyeing you up and then passing you *effortlessly* up a climb.

## **Effortlessly?**

You see, that is what you perceive is happening. I can tell you now that the rider that is passing you effortlessly **is bluffing** because there IS no such thing as effortless climbing!

What is perceived as “effortless climbing” is in fact **efficient climbing**.

Both of you are suffering similarly, but the faster rider is simply more experienced than you with the Five Critical Pillars of Climbing Efficiency. So yes, he’s probably a bit fitter than you, perhaps even a bit lighter, and knows how to combine technique with poise to make his climbing look effortless (and you will, too, after this chapter is done)...*but the pain in the legs is the same for him* as it is for you!

In other words, the guy who is passing you **is putting everything into it and using every bit of know-how he can**, as well as consciously holding his



poise to communicate to you that everything is “effortless,” that yes, he is top dog and not to be messed with. This is the basis of Efficiency Pillar 5 and what this chapter is all about. Out of all five pillars, it is **mindset** that determines the winner from the losers on a climb.

Does this faster rider climb all the way to the top at this pace? Of course, he knows you’ll be thinking that! No, he knows he has to *conserve his energies* at all times if he wants to be competitive or last the distance. But he also knows that once he is out of *your sight*, he is out of *your* mind. He can slow down and relax somewhat once he has escaped your view around a few hairpin turns (switchbacks).

He also knows that it is rare that a rider he has passed a few bends back is going to catch him, so keeps good poise, not turning around ever to check where you are. You see, he is still playing the mind game far up the road, *not just when he passes you!*

And you? How are you thinking, now that he has disappeared? Have your shoulders and cadence dropped? Do you feel despondent? Perhaps not good enough? **Or** are you **undeterred and focused, knowing you are doing your best and your time will come**, with a feeling of burning optimism?

What I am trying to demonstrate here is that mindset is critical to your climbing success, no matter your rider level. Mindset either aids you or hinders you, and only you can decide.

However, this is where I guide you, from the absolute beginning with overcoming the fear of hills and building hill-climbing confidence, right through to racing friends successfully to the top of every climb.

### **Getting over the fear of hills as a complete beginner...**

As a beginner, the fear of a hill approaching can be overwhelming. If you’ve read thus far in the guide, then some of the fear of the unknown should be greatly reduced. Nevertheless, some fear is going to remain, even to the point of “hating” hills.

But if you love cycling, then it won’t be long before you hit another dreaded

hill. The funny thing is, the more you avoid these things, the more you tend to attract them to you. So, instead of running from hills, let's make it easy and just accept we have this fear and simply ride the darn hills anyway...

Facing the hills is only going to make cycling much more enjoyable, because you are challenging yourself! The real reward in climbing a hill is not about winning against others, but **winning the challenge against yourself!**

You'll then find you actually start to enjoy this new hill experience, opening you up to new routes, new possibilities, and new levels of fitness you never knew you had.

Congratulations — climbing confidence is born!

### **Learn to approach a hill with a positive mindset**

As we just identified, riding hills often lessens fear, but the **adrenaline** you feel never seems to go! What changes is *your interpretation* of adrenaline as you build experience. When we start out, we interpret the feeling of adrenaline to mean fear and dread of the unknown. But as we improve and build more confidence, we label adrenaline more as excitement than fear.

In the body, adrenaline is just adrenaline, but the way you label it and make meaning of it, either positively or negatively, is critical to your climbing enjoyment and racing success.

It means, then, that **a hill can be won or lost before you even climb it!** At the very basic level as a beginner, if you approach a hill negatively, you won't climb well at best and the whole experience will feel a miserable struggle.

If you approach a hill positive that you'll enjoy the personal challenge and accept the struggle as normal, then you'll get more from the climb and ride much faster.

And this is the same mental foundation you use when racing up a hill. The adrenaline never truly goes away, so it is down to how you choose to interpret it. If you approach a hill with negative dread, then there is almost no

way you are going to be leading or even attacking on a climb — **you become defensive in mindset and defensive as a racer.**

To ride at your best or win, you have to know you can get to the top in good shape, or get to the top and be in a position and mindset to win. You know you can climb **with confidence** and feel *in control of the climb*. The adrenaline you feel is interpreted as huge excitement to execute...well before the climb starts!

### **How to build climbing confidence from small climbs to Alpine passes:**

When starting out climbing your first few hills, they can seem ginormous monstrosities of effort and pain. If you were to rate these hills on how intimidated you felt, especially when riding with friends, you might score an 8 or 9 out of 10, with 10 being a really unpleasant experience.

Tip: keep seeking out longer and longer climbs. Indeed, you might feel intimidated on each climb as you step out of your comfort zone. However, once each longer climb is completed, you should return to shorter climbs. How do these climbs now compare in difficulty to the longer ones?

You should find you rate the shorter climbs about a 3-4 in difficulty, simply because you've now had newer, bigger climbing experiences. See how your confidence shifts? What seemed an 8-9 hill-climbing difficulty to begin with is now only a 3-4!

It is also worth pointing out that with improved mental confidence, there is usually a *corresponding physical fitness* improvement, too! This is how you gain confidence as a climber and progressively get faster.

However, remember to always go at your pace and never feel pressured into climbing a hill or mountain you are not happy with, or a climb that is well beyond your ability level.

### **Your first Alpine pass...**

When going to the mountains for the first time, start the big climbs halfway up. This is still about 10-15 miles of uphill cycling! Then, when your fitness

is good enough and confidence has been built, only then attempt the whole climb in full.

Twenty to thirty miles or so of uphill cycling, plus the effects of altitude, is a long, tough day in the saddle for most of us! Climbing any mountain pass is a wonderful personal achievement and a big milestone to reach on your journey as a cyclist! Remember, therefore, to reward yourself for your efforts.

After your trip to the mountains, go cycle your local hills back home. How do you feel on these “little” climbs now you’ve cycled in the mountains?

### **Climbing multiple passes...**

I can tell you it takes a few seasons to go from cycling your first mountain pass to *climbing them in succession*. Once you can climb two big passes in one day, you are probably at the point you could take part in a mountainous sportive, mountainous charity ride, or race. Really, this is down to your fitness preparation, your confidence, and making your mind up **you can do it**, more than anything else.

And again, once you’ve cycled your first-ever mountainous event, go back and ride the first mountain climb you ever did. How do you feel now about the difficulty of that first climb? I bet your confidence is sky-high and any single mountain feels like a 4 in mental effort. This is when cycling climbing confidence is at its best!

Tip: In fact, a secret pro riders don’t often tell you is that right after your toughest mountainous event or mountain training holiday, if you recover adequately, you should **get phenomenal personal bests back down at sea level**.

If you race, jump into a local time trial. You should see massive leaps in your times just because the flat/undulating terrain is so much easier psychologically and physically than climbing up huge mountain passes back to back!

So as you can see, there is a progression to building climbing confidence. Take it one step at a time, and always compare back to previous rides you’ve

done. Note down your hill experiences and how you felt from 1-10, so that in the future, you can see how you've improved.

### **Feeling dreadful — is it my brake blocks, or the road, or what?**

At some points when you climb, especially if the hill is long, you will experience bad patches. Bad patches are a normal part of climbing long mountain climbs and there isn't too much you can do about them.

The best advice I can give is to cycle through the bad patch. It shouldn't last for the entire ride and you will come through it. We all get them, and sometimes they are simply inexplicable. However, below are a couple of examples of the most popular reasons for a bad patch and what you can do about them:

Some mental bad patches can be due to the road widening on a climb. A wide main road will at times make you feel slower, and the *cycling feel tougher*, than a narrow winding road of the same gradient. This is a classic case of getting disillusioned with the road you are on. All I can say is pedal onwards. It is not your brake blocks or lack of fitness...just a change in the width of the road and your perception of it.

On long climbs, remember to eat and drink well. Bad patches can be due to a physical issue, such as a **lowering of sugar levels**. Your declining mood or bad patch can be the first sign you need sugar, so eat regularly. You'll be amazed how easy it is to forget to eat and drink on your first few long climbs, what with all the new distractions! Use a bleep timer to remind yourself to eat and drink.

Usually it's hard to eat anything when climbing a mountain pass, but you must eat for sustained energy. The best solution is to choose small, bite-sized foods that are moist and don't require lots of chewing. Ideal foods for quick energy are: dextrose tablets, jelly babies, dried fruits, mini fruit gels, and other gels. Foods to avoid while climbing are dry cereal bars or sandwiches — it is best to stop halfway, or save these larger, drier foods for the summit.

### **Climbing alone versus racing...**

Climbing alone, or climbing with others for recreational purposes, is completely different than **racing** up a climb. Climbing for recreation is all about you and the climb. The goal is usually to keep well within your limits and climb at your own rhythm and pace to get to the top.

When racing up a climb, the game completely changes. For one thing, a “nice efficient rhythm” usually goes out the window, because you are all of a sudden forced to keep up with the change of pace on a climb. As you may or may not know, as soon as someone else sets a slower or harder pace, everything gets much harder. Yes, even a slower pace can cause some riders to feel uncomfortable because it’s not the pace they want to ride at up a climb.

One of the hallmarks of being able to race well up climbs is *having the ability to change pace often on a climb*. In fact, for road racing, it is imperative, because the top climbers know that to drop most of the field and whittle it down to a smaller group, or to just themselves, they must change or push up the pace of a climb — continually.

Tip: Most beginner racers, when hit with the change of pace for the first few times on a climb, get dropped. Know that this is normal. Instead of saying you can’t accelerate, or you find it hard to change pace (remember everyone is finding it hard), my best advice is to get training and **race often**.

Speed endurance training, together with jump training once a week for 6-8 weeks, along with your racing on the weekend, should see good improvements in your ability to change pace. For training workouts, see Chapter 6 — specifically workouts 7 (Jumping into Gaps) and 9 (Attacking up climbs).

For the rest of this chapter, we will look at mindset, tricks, and tactics as applied to race scenarios, either a race with one other up a hill on the way back from work, or a serious hilly road race.

**Know thy climbs — do your homework if you want to race well!**

The first time you climb any hill or mountain is usually the slowest and always seems the hardest. This means that if you ever decide to race someone to the top of a climb, the rider that knows the climb is going to have a distinct

advantage over a rider who is climbing blind.

In hilly events or races where the mountains are the deciding factor, it is absolutely critical to get to know the climbs and descents well. This is why top Tour contenders train (and race) repeatedly in the mountains they will race. Without knowing and immersing oneself wholeheartedly in event-specific hill preparation, it would be hard for the top 10 Tour riders to compete, as the race is usually won or lost in the mountains.

And the same is true for you racing a hill with a friend. The trick is to **get to know the climb as best you can**. In fact, you should make it your mission to get to know well all your local climbs (and descents) where you live.

Tip: you want to know why local riders can climb so fast? *They know the climbs and descents like the backs of their hands!*

If a climb is new to you, you should first look to simply ride the climb. The second time up, you want to look closely at the gradients and see where you could recover a little.

Remember, to climb faster, you must always look to **conserve energies** where possible — as hard as that is to do on a climb. Flatter sections on hairpin bends can be good for a little recovery if riding for recreation. (Although watch out if racing... more experienced riders know that weaker riders will nap on hairpins, and will accelerate away as you start to slow down!)

### **What does the last quarter of the climb look like?**

Tip: the last quarter of the climb is usually where a race is won or lost. If anything, ride this section over and over until you know every bump in the road. The more familiar you are with a climb, the more advantage you'll have when the chips are down and you are holding out to get to the top first, with your legs screaming!

Check where the road flattens, descends, or gets much steeper. These factors can be decisive in a race to the top, whether with a friend or as a seasoned pro out to win the Tour de France!

Finally, it goes without saying that **the descents are equally important**. If you don't know a descent, you can lose a huge amount of time, and even lose an entire race. Because you are cycling at speed, you must learn the road, the turns and, again, where you can find **safe** advantages against your competition!

### **Understanding body language:**

As you read in the intro to this chapter, bluffing and poise is everything, whether racing a friend or passing riders on a climb with a view to being first. You have to also be good at reading other riders' body language and knowing when you should pass or not, or if road racing, when to attack. Again, all this comes with hill-riding experience, so take your time to put each of these tricks and tactics into practice:

### **Getting passed by a faster rider**

If you get passed by a rider on a climb, there isn't much usually you can do, other than try to jump on his wheel. In most cases, jumping onto a wheel won't help much unless you are nearing the summit. If you were not cycling that fast in the beginning, then chances are speeding up to stay with him is a lot harder to do.

In this scenario, the best you can do is learn from the rider who is passing you. Why do you think he is faster than you? Most times, a faster rider will be riding with a higher cadence than you, with a steady, smooth technique. This is a more experienced rider and something you must work on over time to develop.

Is he continually turning around to check where you are? Experienced climbers don't check behind themselves after every bend. If he keeps checking, then this is a signal he is conscious of your presence. Any time a rider is conscious of riders they just passed, they are to some degree worried. This is communicating that the rider ahead perhaps isn't as strong as you think! He is either tired or pushing too hard, and needs to check where you are to throttle back. He desperately wants you out of sight, because as we learned at the beginning of this chapter, out of sight is out of mind!



Tip: The psychology behind “out of sight, out of mind” comes from the fact that when a rider ahead disappears around a few bends up a hill, you mentally accept the rider in front is away. At this moment of acceptance, your chasing instinct slows and you settle disappointedly for second-best. Momentum drops considerably, *just as the rider in front speeds up* in response to widen the gap further.

In cycling, we call this “elastic-snapping”! Once the elastic snaps mentally, and the rider in front is out of sight, the rider behind, in many cases, lets him go and settles into a pace for second place.

Nevertheless, you can use this knowledge of elastic-snapping to your advantage. Even if the rider is indeed slowly riding away from you, you want to delay getting out of his sight as far as you can.

If you can, use the road to your advantage. If the road flattens on hairpins, really use this to speed up and foreshorten the gap. Try not to let him out of your sight and he’ll remain **uncomfortable about you** all the way to the top, even if he gets there first.

In some scenarios, you can even catch a tiring rider who initially passed you, and *pass him* if the hill is long enough.

The key point here is *not to get despondent* when a rider passes you. Keep a positive mindset and *keep open to the possibility that he may have gone too fast, too soon on a climb*.

Other times, a rider in front will be so concerned about you catching him that he will stop to “fiddle with his bike” (excuse) while he lets you slip by and get ahead of him. As you’ll find, there are many “amazing” mental scenarios like this!

Mindset. It is huge in cycling hill climbing.

### **Catching and passing riders on a climb:**

The golden rule with climbing alone is you should always be riding within your limits. Try if you can to keep some energy in reserve. Sometimes,

seeing a few riders up the road can give you extra motivation to push a little harder and catch them. Once behind them, it is then your decision what you do.

Usually, if you are feeling good, then it is best to continue on your good rhythm and pass by them. Be polite, say hello, and then continue on. If you are competitive, this is the first test to see if they respond to your passing. Most riders will try to respond. You don't need to look back to check — just listen for the gears changing and some heavy breathing!

Tip: if you ever need to look back to see if someone is on your wheel, glance under your arm, not over your shoulder!

As you pass a rider, keep a solid, positive body language. Positive body language means keeping a steady, relaxed upper body, with no floundering about changing gears or getting affected by turning around at riders behind you.

Another tip here is if you are following a rider in front of you and **the head of that rider goes down at any time**, this can be a sign that the rider in front is tired.

As you pass, *go a little faster* than you ordinarily would. Remember what the rider did in the introduction to this chapter? He made everything look like it was effortless — just to intimidate you from attempting to compete. So speed up a little as you pass by, say hello, and keep a steady poise and continue on without looking back. If you really need to check, glance down on a switchback hairpin. If you don't see the riders below, then you know you're away and can take your foot off the gas pedal.

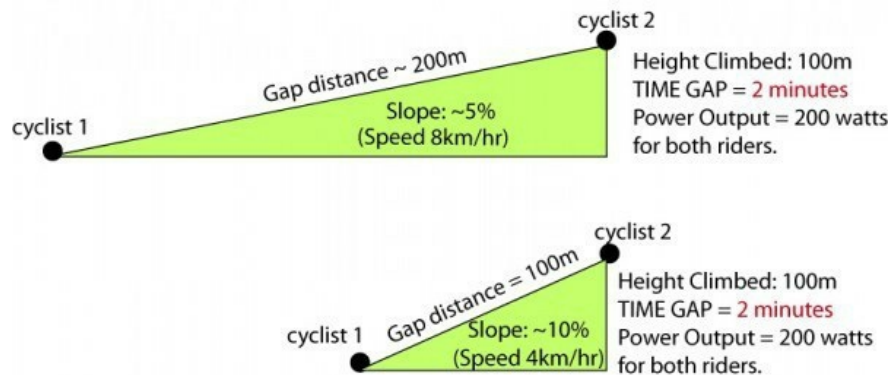
**Understand the secret Slope-Gap Formula when racing a hill with friends and use it to your advantage:**

When you ride away and maintain your pace, it is very hard for riders behind to catch you, even if they are still in view or not far behind.

As a general rule of thumb: if you maintain a constant power output and the road doubles in gradient, *you halve your speed*. You therefore **halve the**

**distance between** you and riders behind, as you are forced to ride slower — even though they are not any closer to you in **time**.

Here is a *rough, visualisation* of the Slope-Gap Formula as applied to two cyclists with same power output, climbing a 5% climb, and then climbing with the same power output, although at a slower speed, up a 10% climb:



A mistake is to switch to a negative mindset because you think **riders behind are catching up to you**. Let's take an example: the slope steepens to 10%, the climb becomes tough, and you are forced out the saddle. All of this adds to your belief that you are starting to struggle. You turn back to check the riders behind, and indeed the gap has halved. You begin to “cycle scared” and even slow down because you think it's *game over*.

Remember what we said about getting affected by others around you? You cannot control them, but you can control your mind and your climb. In these situations you must keep poised and **concentrate on your own climb at all times**.

Tip: if you are finding it tough, then **most riders** are finding it just as tough. Never give up on a climb because it is suddenly feeling very tough...continue on. Remember, there is no such thing as effortless climbing, just efficient climbing. To climb efficiently means focusing on your own climb in every way possible at all times.

The reality is, you are climbing extremely well! You are maintaining your power output and maintaining the gap between you and the climbers behind.

This is why, in professional races, riders get time gap checks to know **realistically** where they are on a climb relative to others.

You might not have the luxury of having someone to check time gaps. However, this shouldn't matter too much. If you keep *positive and focused on your own climb*, no matter how tough, you'll be doing all you can — doing your best to move forward — and that is what counts in the end.

### **Using the Slope-Gap Formula to tactical advantage in races:**

If you've done your homework well and know the climbs for your next race, you'll have hopefully taken note of the slopes: where it flattens off, where it gets steep.

Now, you use the Slope-Gap Formula to your advantage.

Here's a trick that can win you a race. As you cycle up the steep part of the climb, everyone including yourself is finding it extremely tough. This is indeed the hardest part of the climb, and not the usual place you'd think to launch an attack, as you're only halfway up and there's a long way to go.

You attack halfway up, or three-quarters of the way up, the steepest part of the climb. Riders think you are insane, attacking that hard at this tough point in the climb. You go hard because you know that, around the next two bends, the road flattens off for the next kilometer.

Riders behind start to respond, but as they follow behind trying to close the gap, you are already on the flatter section, recovering a little from the attack as you gain a good distance.

What do we know about the Slope-Gap Formula? As the road flattens off, so your speed increases, *so the distance increases*. As riders take that final bend *on this steep section*, they see you've completely gone! Riders who haven't done their homework will not realize that the road actually flattens off not long after. They think, at this point, that you must be a phenomenal climber...and what do we remember about "out of sight, out of mind?" Yep, you've completely wrong-footed them, even though the gap isn't that big in reality.

### *The elastic snaps...*

You push on hard for another bend, check under your arm and see they've sat up. You settle back to a sensible speed to win the climb to the summit.

All the riders behind meet up with you at the top. All they ask is, "Wow, that was fast — what training do you do exactly? Do you use a power meter?"

Inside, you should be laughing, because you know it is all about knowing the climb *and how to race*, more than your training, and very little to do with a power meter!

Yes, of course, you have to be fit, but fitness isn't everything. This is why in road racing, it isn't always the strongest rider on paper who wins...it's the most tactically and technically astute one that does. As we know, this boils down to improving your race experience, as well as your overall climbing efficiency.

### **Learn to accelerate the brutal way on a climb...**

When riders jump on your wheel and start testing you, you need to learn to put devastating accelerations into your climbing. Here's the trick I used to absolutely kill off anyone behind me on my wheel:

Ideally, you shouldn't attack from the front, whether just with one friend or in a race. If you are a strong rider on the front and you have someone, or a few riders, glued to your wheel, shift your weight over the front of the saddle. This actually can, for short periods of time, give you more power to the pedals. Now, subtly accelerate away.

Don't make the acceleration obvious, as in a sudden acceleration out the saddle, but simply "ride away from them" in the saddle through a power surge for about 20 meters. Then, recover back to your normal pace. As you come back to your normal pace, it gives the riders behind a bit of "feel good" confidence that you might be slowing down...which you are. So they attempt again to try to cycle up to your wheel.

Just as you sense they are getting near, you put in another power surge and

slowly ride away from them! Do this repeatedly on the climb in various places, preferably when you know they are working hard (that's usually any time you hear gears crunching or louder breathing; you know they are getting out the saddle, or needing to change pace to catch up) and I can tell you without a doubt, most riders behind will drop off your wheel like flies.

What you have to know here is that most riders can't accelerate on a climb, or at least they have never tried it. Any subtle acceleration usually wreaks havoc with **their minds because they think for a few moments there is something wrong with their brake blocks**, when it is you who is speeding up.

Eventually, the elastic snaps again, this time due to "rider attrition" causing cyclists behind to accept they can't keep up, or are second-best. They give up competing, and you simply ride away from them for good, with no turning back to check where they are — *you don't need to*.

All you need to do if this is new to you is practice this, and you'll soon be able to do it, too. The workout specifically for this is Chapter 6's workout 3 (On-Off Seated Hill Intervals).

You see, you just need to know what to do...you with me?

### **Bit n Bit wheel teasing up a climb:**

Sometimes, on a hill, it is good tactics to let a rider who is on your wheel simply come through and ride on the front. Or you may find that some riders just have to be on the front to prove a leadership point. That's okay, but you want to get to the top of the hill first.

What you do is ride behind his back wheel and, every now and again, edge up to his side with your wheel, as if you are coming past. Pretend you just don't have the fitness to pass him. **You'll find the natural instinct is for riders on the front to push harder on the pedals to keep you behind!**

Let him win this little power battle. If he's the type that has to be in front, he will do everything to defend his position. Repeat the move, and let him win again. He now thinks he's the stronger of the two of you.

Good.

The surprise comes when you hit the last part of the climb. This final time, come past and accelerate hard. Go for the summit, crest it, and disappear down the descent!

In most cases, he can't keep up because you've worked him so hard up the climb, plus he's devastated mentally because he thought he was the stronger rider. Fun again!

The specific workout for this is Chapter 6's workout 4 (Summit Killer Spin-Outs).

### **Racing: Understanding attrition in hilly road races**

A hilly road race is usually won on the basis of employing attrition to wear down riders over successive hills repeatedly. If you can ride a hill and push the pace on the hills — not necessarily attack, but force the peloton to work hard — you'll find that after time, quite a few riders will drop off the back. The goal here is to wear down the field enough to split the field into a smaller group to compete against near the end. Hilly road races are best for this attrition tactic.

Ideally, you need a team to do this, because if you do this yourself long enough, you'll use way too much energy and won't have enough in reserve for the most decisive point in the race — the last quarter.

So, once your team has worked successfully to split the field down to fewer competitors, or even broken it down to a small group, your goal is to attack on the climb and go for the win. We'll discuss attacking shortly.

### **How to climb with the best when you are not a climber?**

Placing well before the start of a hill is key to getting over it with the tail end of the best riders. Not all of us are natural climbers, so instead of giving up and saying, "I am not a climber," you need to instead **box clever**. Here are a few tricks you can do to maximize keeping in touch with the lead group:

If you are not good at climbing, but know you're fit, then it is imperative to

keep as conservative as you can before you reach the hill. I know it is hard work (remember, it is hard for everyone), but you don't want to waste more energy than necessary because you need every bit to use against the climbers as a sprint finish at the end of the event (presuming you are a sprinter).

The best thing to do is to make sure you place well at the foot of a climb. Now, I don't mean go out in front and start pushing the pace to get ahead. Contrary to popular belief, if you do that, you'll find the lead climbers come bombing past you to set their pace on the hill, whilst you go backwards. Place so you are about four or five riders back *and hold on as far as you can*.

You will slip back as the first riders push the pace hard over the top of the climb. Hold your position as far as you can going over the top of the climb, and use your weight (if you are a bigger rider) to help you catch up the breakaway over the top of the climb. Usually, you'll catch up to the riders in front, whose only goal has been to split the field and, if they can, break away.

As you catch up to riders on a descent over the top of a climb, you will feel you are faster than the riders ahead. Indeed, if these are climbers, they may not be able to descend as fast as you do. You'll be thinking you could roar past them and launch an attack. However, **attacking on a descent rarely works**. You'll most likely just be pulling the peloton strung out behind you, *up to the breakaway* of lead riders, which is a huge mistake and *a lot of wasted energy*.

Conserve your energies by drafting riders, and **let others** waste energy catching up the breakaway. Use your energy to keep up on the hills, as the race will most likely be won or lost there, and if you do get in the final break of the day because you placed cleverly on the climb...again, keep conservative (bluff if necessary) and then unleash everything you have left for the sprint at the end.

This is a strategy to win a hilly race as a non-hill climber! Easier said than done...but always be open to the possibilities.

Remember, too, that the more you race, the more you learn, and the more chances you give yourself to make your first win.



## Attacking on climbs

Attacking successfully comes from many failed attempts! There is only one way to learn attacking and that's to get in the game of road racing and learn to do it yourself. Reading can only take you so far. Attacking is scary to begin with, but like everything else, the more you do of it, the quicker you learn what to do and how to do it well.

As you've just seen, there is a difference between pushing the pace up a climb (usually as a team effort) to cause attrition *and attacking to get away* on a climb. You have to know in your mind what you personally are trying to achieve.

Many riders may look like they are attacking to get away in the first half of the event, but they are taking turns as a team and trying to test and tire the field on the hills, rather than 100% attacking to get away.

Some riders will try to get away, but going too early will most likely lead to defeat.

The riders who are out to win deploy attacks to get away usually (in most cases) in the last quarter or last circuit of the road race. A mistake is to muddle the boundaries and be a **jack-of-all-trades**, covering or initiating every attrition attack on the hills just because you feel strong and excited early on!

Remember, if your personal goal is to win, then being conservative is critical — the less work you do, the more chance you have to win near the end.

So, the time comes to launch an attack to get away on the climb on the penultimate lap. You need to place well, high up with the lead riders, but still keep conservative. Let one or two competitors launch their attacks first. I say this because, again, if you can go with competitors and break with a lead rider, rather than launching the attack yourself, you'll save overall energy for the end of the race.

Now, if these attacks are unsuccessful, it is your time to produce a **counterattack**.

To get away on a climb, the best way I've found to get away from stronger riders successfully is to attack **straight after** they've failed their attack. Usually, the decisive winning attacks happen on the last quarter of the climb, but watch for surprises at the foot of the climb at this late stage in the race... especially if there are slope differences. (re: Slope-Gap Formula tactics)

Attacking on a climb is massively tiring, and you only have so many grand attacks in your legs. This is why it is so important to limit spending your energies early on fruitless, wishy-washy, peloton-towing, uncommitted moves due to overexcitement...

Time for you to explode your first attack of the race and show you're out to win. Never launch from the front, because everyone can see you. Launch from behind weaker or napping riders, like the rider who has just failed his or her attack, and come past into view at full speed when they need recovery the most. **Timing is everything.**

Expect a few riders join you. Look to work with the riders to share energy to get away from the main bunch for good. Remember what we said about not "cycling scared" and turning around to check where other riders are. Focus ahead and **keep a strong poise**, just like you've done in practice! It's then a case of battling it out in the final home stretch for the win!

### **Final words:**

In this chapter, we looked at the critical importance of mindset and tactics when applied to riding up a climb, whether for personal achievement or riding to race. The underpinning key to all your climbing, and indeed your cycling, is *how well you cope under pressure when the going gets tough*. There is no better test than climbing hills regularly to help you get to know your physical limits and how to respond mentally. Keep training, and if applicable, get racing often in hilly events, too. Test yourself and fail fast, so you can quickly learn all there is to know to win in the hills.

Next, we discuss some common niggles, or aches and pains often associated with frequent hill climbing. Don't skip this chapter or you could be in for a nasty injury...to avoid this, read on.

# Chapter 10: Common Hill Climbing Aches & Pains and how to avoid them

If you are going to ride the hills often, you need to be aware of cycling niggles that could turn into nasty injuries. Hill injuries are most common during the first few outdoor rides you do after winter, and when you hit your first few mountain rides in the summer. Don't we all enjoy a great epic ride in the hills from time to time? Read on!

At some point, you'll under prepare yourself for a bike ride. Overdoing it and then getting a "niggle" is all part and parcel of learning your limitations on a bike. However, getting an injury is a sure sign you've pushed past the niggle stage and started to ignore your body's warning signs. Whenever you get a niggle or an annoying ache or pain, you must throttle back on the training. Carrying on regardless is a recipe for disaster.

Let's look at some common hill and mountain cycling niggles to halt them before they turn into a nasty injury with time off the bike to recover:

**1. Back of the Knee Niggle:** This common pain is usually caused by riding too many hills, too quickly, too soon in a training program. You've jumped into riding in the hills or mountains with little "progressivity" to more intense riding.

You may also be riding with your saddle too high. This means you are putting too much strain on the ligaments at the back of the knee. If the saddle is too high, then your levers (your legs) are outstretched more, which puts more strain at the knee in relation to your force to the pedals. Again, check your bike position to eliminate this.

One of the best remedies is to rest off the bike for a few days, then slowly build back to riding in the hills.

Warning: if the niggle gets worse, it will most likely turn into tendonitis.

Once you get back-of-the-knee tendonitis, you'll be in quite some pain and will be forced to rest at least 10 days off the bike. So really the message is... go easy on those first few bike rides of the season!

**2. Lower backache:** Again, this is a common niggle that is so uncomfortable, it can wreck a good bike ride. There are many reasons for lower backache. I mention a few below:

Weak, underdeveloped core muscles are usually the culprits of a lower backache. You'd think a weak back is your actual problem, but in most cases, it is not your back; it's your core. For example, as soon as you apply more force to the pedals, like when climbing a hill, you experience backache. The longer the climb, the worse and more persistent the aching tends to get.

To temporarily alleviate the aching whilst climbing a hill, simply get out the saddle and stretch your back by leaning your hips forward for a moment or two. Repeat if the aching starts building up again.

For some cyclists, the aching disappears the more hills you ride over the weeks. Your body soon adapts, and the aching is eradicated or minimalized. However, if this is NOT the case and the backache is constantly present on every ride, then you need to check the following:

**a. Your bike is set up correctly.** Reread Chapter 2 for finding bike comfort and positioning for hill climbing. I repeat: getting the right position on your bike is the basis for faster hill or mountain climbing.

**b. Technique:** Are you pushing too big a gear? If you think your backache is due to pushing too big a gear too soon in the hills, reread Chapter 3.

**c. If a and b have been satisfied, but the ache is becoming debilitating,** then you need to see a physiotherapist. This is a sign that you have muscle imbalances you might not be able to find an answer to, and need a program of professional help to see you right.

In the long term, you ideally need to work each winter on strengthening your core torso muscles through appropriate abdominal training. A point I make to riders is that instead of lifting endless weights in a gym to get bigger and

stronger, focus on where the biggest gains can be made for your cycling: *strengthen your core!*

When I say “core,” I don’t mean aiming for “six-pack abs.” The six-pack comes about when you lose enough body fat around your abdominal muscles. So showing off your six-pack abs does not necessarily mean you have a strong core!

Your core is the belt of muscles that support your hips, spine, and lower back (your torso). These are the muscles that need specific training to help eradicate or lessen your backache.

**3. Cramp:** Suffering cramp on long hilly bike rides can be debilitating! And if it hits hard enough, as you may have already experienced, it can be the end of a good bike ride!

Once you get cramp, there’s little you can do other than get off your bike and stretch the muscle in question, holding the stretch between 10 to 20 seconds. By stretching the muscle, you can sometimes release the gripping muscle contraction and loosen the cramp. This doesn’t mean it won’t come back again, but it can certainly help the pain.

Now, this isn’t to say getting off your bike and stretching is always the answer. You may find stretching while cycling along helps to loosen a cramp you know is about to hit you. Sometimes, though, getting off the bike makes things much worse, as you risk your other cycling muscles seizing up altogether — just because you’ve stopped!

So, all in all, the solution really is to look for ways to prevent cramp from happening in the first place.

The cause of cramp can in some cases be completely unknown, but in most cases, it can be attributed to a combination of factors built up over a long bike ride. The good news is you can control these factors to a certain degree, helping you as far as possible to prevent cramp happening again.

**Here are some useful tips (a – g) to help avoid cramp on long rides:**

**a. Keep well hydrated.** Make sure you are drinking regularly throughout any long bike ride. A major cause of cramp is dehydration, usually due to a lack of the mineral sodium (salt). What's key is that you don't just drink plain water on bike rides; learn to drink an isotonic solution, instead.

For more on what to drink on long rides, please read this article, [How to Keep Hydrated during a Sportive](#) or Charity ride (long distance, road cycle event).

**b. Up your potassium intake.** Sometimes, a lack of this essential mineral can cause muscles to cramp. Eat bananas en route and during training, as these are full of potassium! I like to aim to eat one banana a day. Think about adding one to your morning breakfast, or as a mid-afternoon snack.

**c. Keep your legs warm.** Getting cold and damp, especially on the upper parts of your thighs during a long descent, can cause severe cramp. Cold can set in if you've just gone out in shorts, even if you feel relatively warm or are "holding out okay" on the descent. Your muscles are probably stone cold, and that's when cramp can hit hard when you start pedalling again.

**d. Prepare for your events well.** Sheer effort and pushing yourself far beyond your physical capacities, even if it's only once, can contribute towards debilitating cramp near the end of a hilly sportive. You really want to avoid this at all costs, so prepare your fitness months in advance of taking part in, say, a 100 miler.

Think about how hilly your course is going to be. The hills put much more demand on your muscles than cycling on the flat, so they need to be ready for the challenge ahead. Note also whether the course has steep hills, long hills, or shorter hills, and then train those muscles accordingly. For example, if your course has very steep hills, you need to train specific muscles for getting "out the saddle" late in the ride or you'll be too exhausted to lift yourself out the saddle, causing strain on already tired muscles and possible cramp.

**e. Warm up well.** Lack of warming up your body and muscles prior to hitting the hills can cause muscle cramp and injury. Always, always, ALWAYS make sure you do a 20-30 minute easy ride at the very minimum, so your core body and cycling muscles are warm before setting off.

Prior to an event, you should warm up 20 minutes prior to your start. But if this is a long ride you've got planned, it sometimes makes sense to warm up the first 20 minutes of the ride — so NO blasting away in the first mile of your bike rides, or you risk being stopped in your tracks with either cramp, a nasty muscle strain or tear, or at worst, a cardiac injury!

**f. Wear snug clothing around muscles.** Tight clothing around muscles like your thighs or calves can cause cramping if enough blood can't get to the working muscles. Yes cycling clothing should feel snug, but never so tight it stops circulation when cycling along.

Bear in mind that when cycling hills, your blood volume expands, which means your muscles “pump up” more. This is usually when you'll notice you've got a problem with your gear — rarely in the bike shop!

**g. Choose shoes that have enough wiggle room.** Look for shoes that have a degree of “wiggle room” — if they are too tight, or narrow at the toes, you can get nasty foot cramp when climbing — ouch! When trying on new shoes, make sure you wear your usual cycle socks. Take a winter sock along as well, if it's a slightly different thickness. No doubt you want the same cycle shoes to be comfy in winter as well as summer, so bear the sock thickness in mind here!

As mentioned above, sometimes cramp happens for no apparent reason. If this is the case and it's starting to happen regularly, sometimes just popping down to the GP office and getting a full blood test can help to detect anything out of balance.

In most cases, though, cramp shouldn't be a common occurrence. But you'll want to do your very best to avoid it happening again. Simply run through these seven causes and you might hit on the very solution you've been looking for.

**4. Kneecap pain, or Patella pain:** This pain is common if you are continually pushing big gears. The niggle is felt on the front of the knee, behind the patella bone. It usually happens to new riders who haven't learned to ride with a high enough cadence.

Front knee pain also happens if cyclists have a saddle position that is too low. Too much strain is put on the front part of the knee, as force is applied to the

pedals.

The solution, once again, is to check your saddle height, as cycling like this is highly inefficient. You also want to learn to cycle with a higher cadence. Higher cadence cycling will lessen knee strains.

**5. Head injury:** It goes without saying that you should wear a helmet on every single ride. In the mountains, that's even truer. Falling rocks are a common danger in the mountains, and avoiding wearing your helmet because it is hot could lead to serious head injury.

Accidents often happen on the way up a mountain or a hill, especially if the views are good. Cars pull in to check the view. It is when you are engrossed in sweat and effort with your "nose on the handlebars" that accidents happen. Cycling into the back of a pulled-in camper van could be nasty. The solution is to ride with your helmet on, with the straps done up securely at all times. Keep your head up, regardless of your effort or the heat of the day.

**6. Heat injury:** Cycling up hills is a big effort, and when we exert ourselves, we sweat. Some of us sweat more than others, but sweating is good — it means our body is attempting to cool us down. To maintain the cooling, we need to drink and drink often on a climb, more so on a hot day. Hydration is therefore critical to your performance. According to much research, drop 2% of your body weight and you lose roughly 20% of your power output!

By this point, if you've not kept up with your hydration, you'll start to feel thirsty, which is a symptom too late. If you continue on, becoming more dehydrated, then you can suffer heatstroke. Heatstroke is when the body fails to sweat and your core body temperature starts to rise.

As your core temperature rises, your breathing becomes faster and the effort level becomes much harder. Soon enough, you start to feel faint and dizzy and have to stop cycling. If you push on, you could collapse. Heatstroke can be fatal, so as soon as you feel hot and uncomfortable, you must stop climbing and find shade.

Try to hydrate, and put a cool cloth on the back of your neck. Sit still and wait for your hydration levels to kick you back into action. Leave it until too late and medical attention will be needed. The solution is obviously to avoid



getting too dehydrated and make sure you can get water on your climbs.

Remember, in the mountains, you need to research your trip well in advance and make sure you know exactly where you can fill up! Sometimes, the chalet you see marked at the top of the climb does not have fresh running water, so phone in advance. If in doubt, never press on regardless! Turning around and heading back down to the nearest village is better than being found in a sorry state!

**7. Cold injury:** Air becomes colder the higher you climb. This means it's colder at the top of a mountain summit than it is when you're starting out. Many of you probably know this, but what some of you may not realise is just how much colder.

Tip: For every 100 meters above sea level of climbing you ascend, it gets colder by roughly 1°C (degrees Celsius).

So, for example, if it's a warm 30°C in the valley when you start out, and you climb from 300 m to 3000 m altitude, then the temperature at the summit will be roughly 0°C — that's freezing! It could even be snowing!

Now, as you cycle uphill, you sweat to some extent. Arguably, you could make it to the summit and feel pretty warm and not have any problems. However, once you start descending the mountain, the combination of your sweat and the wind-chill quickly cool your body. Consequently, you can get extremely cold. For this reason, it's imperative that you remember to take your windproof jacket with you on all hilly and mountain rides.

For higher passes (from 1600m), you should also take gloves, overshoes, and a fleece, just in case you encounter glacial conditions in the height of summer. The weather in the mountains can change in minutes, so it's best to be prepared for all eventualities every time you ride.

**8. Tiredness:** Climbing hills and mountains is some of the toughest training you can do on a bike. For this reason, you must respect recovery in your weekly training. It is only by recovering adequately between workouts, that we are able to get the body stronger.

**“Overtraining”** is the state in which the body fails to adapt to ongoing

exercise over a period of time. In other words, overtraining is accumulative tiredness. It is therefore very important to recognize when you're tired and frequently build rest into your fitness program to avoid the longer-term effects of accumulative tiredness.

### **Symptoms of overtraining:**

Fortunately, your body will alert you with numerous warning signs to let you know it's tired. Remember, it's normal to feel particularly tired after a long ride in the hills. With a day or two of rest, this tiredness should resolve. Ignoring rest over an extended period of time though, can put you at risk of overtraining. In other words, it's the accumulative tiredness you have to watch out for.

The following are warning signs of accumulative tiredness:

- *Deep tiredness that doesn't vanish after a few days' rest.*
- *Insomnia or restlessness.*
- *Heavy legs, even after a few days' rest.*
- *Lethargy and lack of concentration in mental tasks.*
- *Loss of appetite.*
- *Indecisive mood; you don't know what you want.*
- *Easily irritable, or at least more than usual!*
- *Run-down and shattered feeling.*
- *Increase in anxiety for things you don't usually feel anxious about.*
- *Depression.*
- *Sudden weight loss.*
- *Frequent illness, cough, colds, and cold sores.*

### **How much rest do I need?**

As a rule of thumb when you're starting out, it's best to have one rest day for every hilly ride you do. You should also remember that the harder the climbs, the more rest you'll need.

For example, if you've done a very hard mountain event or ride, then it's best to take up to two or even three days rest before riding again, perhaps more.

*Listen to your body and go by feel. In fitness, there's a useful saying: **"If in doubt, leave it out!"** By this, I mean, if you're in doubt whether you're recovered, drop the hill workout. After all, it's always better to be 10% under-trained than 10% over-trained.*

**Final words:**

In this chapter, we've discussed some common aches and pains associated with hill climbing. Make sure if you ever get a 'niggle' or slight ache, to question it before riding on. Never press on regardless. If you are in any doubt about a pain, or any discomfort for that matter, remember to go see your doctor or local physiotherapist as soon as you can to put your mind at rest.

# Summary...

You've made it to the end of the guide. *Congratulations!*

There was a lot to take in, I know! You now have enough knowledge from this guide to be the best climber you can be. In fact, you have enough knowledge from this guide to take you as far as you want with your cycling. If you can climb well, you'll usually race well, too — races are usually won or lost in the hills.

## **Quick summary:**

The key to climbing faster is in improving your power-to-weight ratio by improving your overall efficiency.

Keep referring to the Five Critical Pillars of Climbing Efficiency, and remember to keep trying to zero-in on good flow-feel. When you feel good, or “on top of the gears,” you'll climb efficiently and *it will look effortless to others*.

There is also the critical aspect of mindset. If you want to be good in the hills, it is imperative to keep a positive mind and confident poise, no matter how your legs feel. Remember, it is *about keeping mental control*, rather than having the climb take mental control over you.

If you've taken most of these points on board, you should see remarkable improvements in your cycling in only a few weeks. You should also notice some new mental shifts in your perspective towards biking the hills.

Above all, know that the point of climbing a hill is all about the *personal journey we go through to overcome our challenges...* The personal rewards are huge, as is the **fun** you can have simply riding a bike to new heights!

I hope you gotten much from this guide. If you did, please share it with friends. If you have any questions or want some help with any aspect of hill

cycling, you can also contact me via my blog contact email address.

I look forward to hearing from you!

Ciao from the mountains!

**Rebecca Ramsay**

[www.easycycling.com](http://www.easycycling.com)

P.S.: do please leave me an honest review on Amazon – would be most appreciated...!

# References and Further Reading

## **References and Further Reading:**

References for this material, and books I highly recommend for further reading:

- *The Cyclist's Training Bible*, Joe Friel
- *Sports Science & Exercise*, William McArdle, Frank Katch, Victor Katch
- *Sports and Exercise Nutrition*, William McArdle, Frank Katch, Victor Katch
- *Training and Racing with a Power Meter*, Hunter Allen & Andrew Coggan
- *Serious Cycling*, Edmund R. Burke, PhD.
- *Breathe Strong, Perform Better*, Alison McConnell