

# MOUNTAIN BIKE

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## **“MOUNTAIN BIKE” : BASIC RIDING ADJUSTMENTS AND TECHNIQUES**

The bikes are increasingly performing, the excursions increase and the weights decrease, the set-ups vary.

It is true that MTB can also be used on the road, but the diversity of the two worlds road and “off-road” has never been so clear and categorical.

### ***basic driving techniques,***

**to** drive the vehicle in all off-road situations. It is the essence that still keeps all bikers together, even unconsciously, which still makes the splits connected to each other, for example in cross-countries, freeriders, downhillers etc. Because it is true that somebody goes faster uphill and slower downhill and vice versa, somebody else tries to do both well but, beyond this, what matters is to have a good basic technique to ride the increasingly beautiful MTB.

Starting from the assumption that ‘training and experience everyone does them by itself, that the more you go out the more you train, the technique instead can be learnt much more quickly with the advice of someone more experienced than us and this can make the practice of sport **more fun, satisfying and safe.**



## THE FUNDAMENTAL ADJUSTMENTS OF THE BICYCLE.

The following explanations refer to the off-road use of the bike, with specific reference to the "Cross-Country excursion" and, therefore, with the use of a "Front" type MTB (cushioned only at the front). However, even if with the necessary exceptions, they can be applied in a broad sense whenever you go off-road and even with suspension bikes.

### THE ADJUSTMENT OF THE SADDLE.

The saddle's one is the fundamental regulation that applies to all bikers, professionals, amateurs or hikers. Everyone knows that to make the most of the power of the legs they must adjust the saddle optimally. A method that we can define as unscientific but very practical and usually satisfying is the following: we get on the bike and adjust the saddle so as to touch the pedal with the heel with the leg completely extended at the point furthest from the saddle (photo 1). To find the point of maximum extension it is better to pedal backwards and you will also notice that, at this point, the crank is parallel to the column-saddle tube. This means that then normally resting the foot in the pedal (parallel to the ground) will form an angle of about 20 ° behind the knee. This time the leg will be slightly bent (photo2).

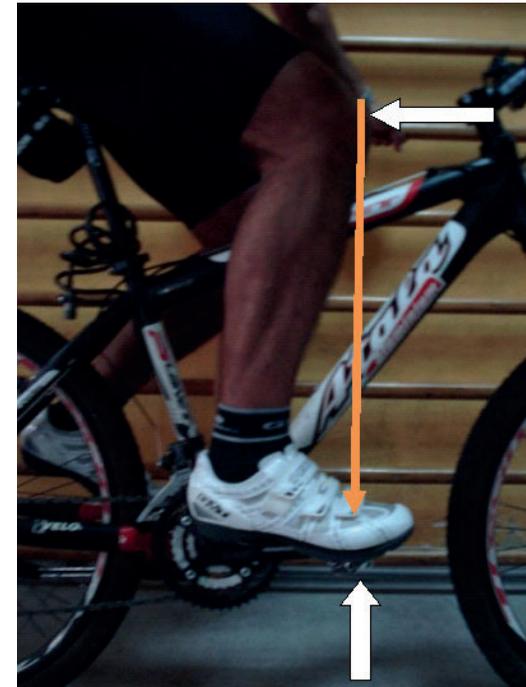
Finally, let's talk about the retreat of the saddle with respect to the center of the seatpost.



Picture 1 - Leg stretched out and heel in the pedal. Picture 2 - Leg slightly bent and sole of the foot (metatarsal) in the pedal



While pedaling, the pedal describes a perfectly circular movement around the bottom bracket, but we cannot say the same about the ankle which indeed describes an elliptical movement. The ideal push that we can give on the pedal, if we imagine a clock in the circle described by the foot during pedaling, goes from 11 am to 7 am. It is easy to understand how the retreat of the saddle affects the shape of the ellipse and therefore the efficiency of pedaling. That said, to find the ideal retreat, we must have the tip of the knee on the vertical with the pedal axis (the one that is in the pushing position) and with the cranks parallel to the ground (photo3). If the knee does not fall on the vertical, the saddle must be moved forward or backward until this condition is realized. Also in this case there may be exceptions of a strictly subjective nature, but it is necessary not to exaggerate with the displacements compared to the above rule: the advice is not to exceed 5-8 mm of retraction of the saddle.



retreat: knee tip on the pedal axis.

Photo 3 saddle



## DOWNHILL THE SADDLE FUNCTIONS AS A RUDDER

Downhill the saddle becomes a sort of rudder that is controlled with the inside of the thighs: the lower it is, the better you ride when the slope is very pronounced. Even when cornering, a low saddle greatly improves stability, control and freedom of movement.

## THE ADJUSTMENT OF THE BRAKE LEVERS AND SHIFT CONTROLS ON THE HANDLEBAR.

The ergonomically perfect position of the brake levers and the changederaillieur controls is the one that provides a downward inclination (photo 4) so that the back of the hand is in line with the arm (photo 5). In this way, the wrist does not undergo any stress in case of uncomfortable terrain and no risk of sprains or, even worse, fractures. It is therefore necessary to avoid positioning the levers parallel to the ground as it often happens.



Photos 4

Photos 5

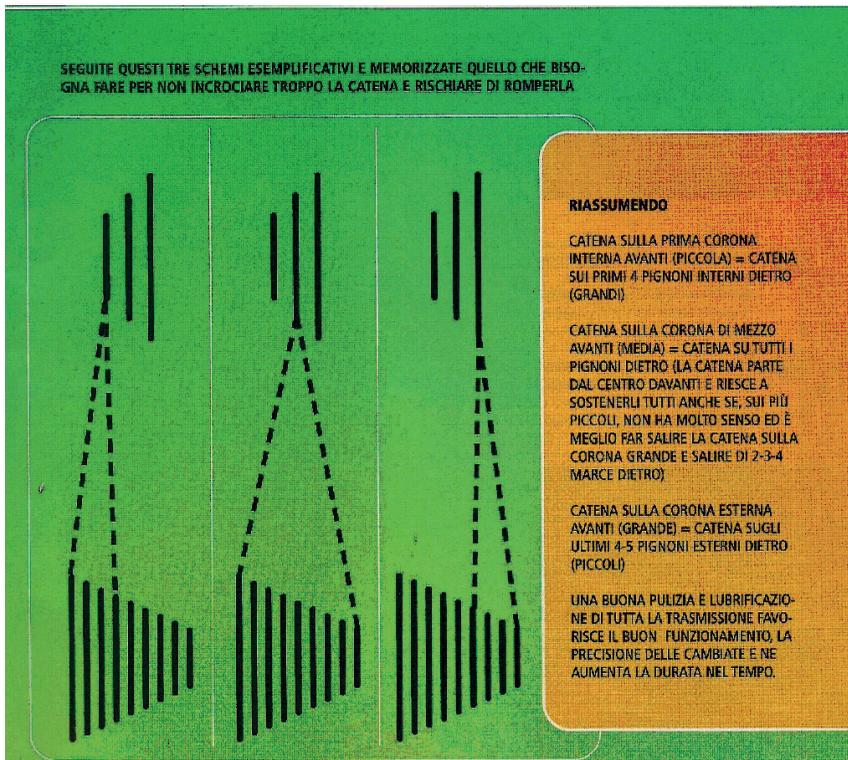


## THE USE OF THE GEARBOX

- **SHIFTS ARE MADE THROUGH THE ACTION OF THE DERAILLEUR AND THE REAR GEARBOX.**
- **THE DERAILLEUR ACTS ON THE CHAINRINGS (FORWARD), THE GEARBOX ON THE CASSETTE (REAR).**
- **CHAINRINGS ARE USUALLY THREE (ALTHOUGH THE TWO-CROWN SYSTEM IS SPREADING).**
- **THE SPROCKET CASSETTE HAS NOW BECOME TEN GEARS.**
- **THE DERAILLEUR AND GEARBOX CONTROLS ARE LOCATED ON THE LEFT AND RIGHT RESPECTIVELY.**
- **THE COMMANDS ARE OF TWO TYPES: TWO-FINGER (PUSH-PULL) AND ROTARY.**

It is very important to practice getting the chain up and down on the chainrings and on the cassette sprockets. Remember that the changes must be made with sensitivity, never under stress but anticipating the climbs. You can also climb behind multiple ratios at the same time, while you go up or down only a crown forward. With practice it will become an automatism. It will not be necessary to look at the cursor or dangerously lower our gaze on the gears to understand what ratio we are using, but we will learn to “feel” the changes. A fundamental thing is not to cross the chain too much between crowns and sprockets, that is, not to subject the transmission to unnecessary stress that leads to faster wear of the chain links and gear teeth with the consequent possibility of breaking the chain itself.





The scheme refers to a 3x9 system (3 chainrings forward, 9 sprockets behind), but as it is easy to guess it also fits very well with the new 3x10 system.

**THE COMPLETE BIKER IS TRAINED, STRONG UPHILL AND DOWNHILL, HE ADAPTS TO ALL TERRAIN CONDITIONS, HAS TECHNICAL AND STYLISH DRIVING.**

### THE USE OF BRAKES.

With the brakes you “drive”. The advice is to use the brakes as much as possible at the same time and in a gradual, modulated way. For example, la bici, ma esagerare non è consigliato. E’ opportuno quindi bilanciare con sensibilità la forza frenante avanti-dietro, With the brakes you “drive”. The



advice is to use the brakes as much as possible at the same time and in a gradual, modulated way. It is not recommended to exaggerate. You should balance with sensitivity the forward-backward braking force, with fingers on both levers. (photo 6). This is to slide wheels without blocking them to not lose grip and control. Making a good use of brakes is a sign of education, as those who block back wheel, drifting, destroy paths, consume brakes and tyres they deter people around (hikers and not)



Picture 6 - Fingers always on both brake levers



## THE MOVEMENTS OF THE BODY.

They are another fundamental thing: forward, backward, lateral to recover balance in the curves, in the “underpass”. A biker stationary on the bike is not only unsightly but also unsafe and ineffective. Instead, it is necessary to be soft, sinuous, fluid in movements according to what is called the concept of “Active Driving”.



Photo 7 slalom in the trees.



Picture 8 Underpass between the fronds: torso bent, arms close to the body, head Lowered. Only the eyes are raised.



## THE CLIMB.

Even with a light ratio it is important not to go out of revs with the pedals but always look for the “round” and constant pedaling to better manage the energies. The forward inclination of the torso and the traction of the handlebars with the arms are proportional to the inclination of the ground (photo9). The torso and head remain stationary so as not to disperse energy and no lateral skidding when you get up out of the saddle (photo 10): so **you will be composed and elegant.**



Photos 9



Photos 10



## THE STEEP CLIMB.

When the slope increases, weight balance becomes critical to maintaining traction. In cases of steep climb, therefore, you advance towards the tip of the saddle, the support point is reduced to a minimum and even sometimes you get out of the saddle (photo 11). The arms pull the handlebars considerably and the torso is completely bent forward. You have to be sensitive in the balance and feel the “grip” of the wheels because if you are too far forward the rear wheel slides and vice versa the front wheelies. The tips of the feet are tilted downwards to optimize the thrust on the pedals, the elbows bent and closed towards the body.



Picture 11 – Uphill position

## THE DESCENT.

Let's remember that the real shock absorbers are the arms and legs: Let's remember that the real shock absorbers are arms and legs: therefore, to drive well downhill you need to be soft and fluid. The ideal position is to stand with knees flexed, weight back, torso forward and elbows bent out (photo 12). The handlebar must be held wide and braking must be gradual and modulated.



Photo 12 – Downhill position

## THE STEEP DESCENT.

When the descent becomes steep the weight of the body moves behind the saddle, being able to reach up to completely extend the arms and legs (photo 13). Even more so the sensitivity in balancing braking, up to sliding the wheels at very low speed, is fundamental for better grip on the ground and mastery of the vehicle



Picture 13 – Steep downhill position



The use of a helmet is the essential act to get on a MTB; The foundation of the foundations. The indefectible rule par excellence. However, it is important that the helmet is well worn because it achieves the purpose of truly effective protection. Here in the picture a well-worn helmet (fig.14) and one worn badly (fig.15).



Fig.14 Correct position

Fig.15 Position too high on the forehead

## THE BASIC EQUIPMENT.

One could say: “everything is useful, nothing is indispensable”. In our sport perhaps this statement is a stretch. Rather, we say that **technical clothing is worth the money spent**, as the added value of the safety it brings should never be questioned. Not to mention the pleasant feeling of comfort and ease that you feel cycling in the woods. That said, glasses should never be missing, **lightweight, very resistant to impacts and with good protective lenses (photo 16)**; as well as half-finger gloves (photo 17) or long depending on the season, which in addition to repairing the hands from abrasions, allow a more comfortable and safe grip on the handlebars. This will be followed by overalls, short or long but with a specific pad for a comfortable seat in the saddle, an undershirt, and a short-sleeved or long shirt with back pockets, very useful for a thousand reasons. Finally, a rain cape and a good winter jacket. The fundamental characteristic of technical clothing is that the materials used are very light, thin, breathable and waterproof at the same time, as well as resistant, with a truly cutting-edge fabric technology.



Photo16 - Glasses



Photo 17 - Gloves

## N.O.R.B.A.

### Decalogue of international behavior.

Mountain biking has been a widespread practice in the United States for years, so much so that the NORBA (National off road bicycle association) was founded. This association has begun to take charge of all the problems related to the impact of mountain biking on the environment and the consequent relations with the authorities and public opinion. Hence the need to draw up a code of conduct to be taken as a general reference, to be followed during excursions in order to contribute to a positive image and dissemination of this practice.

1. Give way to non-motorized hikers: people will judge mountain biking by your behavior.
2. Slow down and use caution when approaching and overtaking other hikers, making sure they notice your presence.
3. Always check the speed and face the curves anticipating that you can meet someone.
4. Stay on the paths already traced so as not to cause damage to vegetation and limit soil erosion by avoiding cutting for soft soils.
5. Do not scare animals, whether domestic or wild, give them time to move from your way.



6. Do not leave litter . Bring your own with you and, if possible, collect those abandoned by others.
7. Respect public and private property including signs, leaving the gates as they were found. If possible, ask the owners for permission to enter their land: “no entry”, often means only “please ask permission”.
8. Always be self-sufficient. Destination and average speed will be determined according to personal ability, equipment, terrain, existing and expected weather conditions.
9. Do not travel alone in isolated areas and if you have to cover long distances. Communicate the destination and the travel plan before leaving.
10. Respect the philosophy of the hiking cycle aimed at the minimum impact with nature. Just take pictures and leave light footprints taking away only good memories.

### FINAL CONSIDERATIONS

Let’s remember that the mountain belongs to everyone and our bike is without an engine and should be free to go up and down wherever it pleases. We are not guests of anyone but nature and respect for others must always be mutual. After all, mountain biking, before being a sport, is an irresistible passion that involves agelessness and conditioning, taking us where we want **and making us appreciate the idea of living in a better world, in every respect.**

#### Post-workout recovery

*Within an hour by the end of the activity, the body is particularly predisposed to the assimilation of valuable nutrients for recovery.*



## The Diet in mountain biking

What should I eat before a mountain bike ride? And during? What are the best ‘snacks’ to take with you? Adopting an adequate diet before, during and after a workout or a competition is essential for the health of the organism; it allows you to recover quickly, reduces the risk of injury, ensures more energy and optimal hydration complements the fluids lost during sports. In addition, it helps to reduce fat mass and increase muscle mass.



### **Cycling and mountain biking are endurance sports.**

Cycling and mountain biking are endurance **sports characterized by high energy and water expenditure.** These sports activities are mainly «aerobic», in which the energy substances used are mainly sugars and fats. During the training period and during the races, however, there are frequent moments of «anaerobic» type, or explosive, such as repeated or continuous sprints. In these phases of peak energy, sugars and creatine guarantee the best performance. Proteins also play an important role, particularly in terms of muscle and immune system efficiency.

*On average a cyclist consumes around 400-600 Kcal / h with a maximum consumption, during intense efforts, which can reach 1000 Kcal / h. After some calculations, during a 2-3 hour outing a cyclist can get to consume even 1500-2000 Kcal. It is therefore clear that during a prolonged training session the bikers need to replenish the energy and water-salt supplies.*

So let’s see what we need to eat to ensure our body all the necessary nutrients.



## Pre-workout nutrition.

The meal before an outing that lasts more than 2 hours must be complete, that is, it must include carbohydrates, proteins, «good» fats, vitamins and mineral salts. An example of a complete meal (at least 2 hours before physical exertion!):

- **CARBOHYDRATES:** 100 grams of cereals (pasta or brown rice, spelled ...)
- **PROTEIN:** 150/200 gr of fish fillet or white meat
- **VITAMINS AND SALTS:** cooked vegetables (cooking makes them more digestible)
- **«GOOD» FATS:** 30-40 gr of dried fruit (walnuts, almonds...)

For long and intense workouts, carbohydrates and fats play a fundamental role from an energy point of view. In addition, the unsaturated fatty acids (Omega 6 and Omega 3) contained in dried fruit are able to modulate inflammation in response to exercise stress, helping to improve recovery. Proteins, essential for the maintenance and growth of muscle mass, play a fundamental plastic role for the cyclist. In particularly prolonged efforts, they contribute to energy requirements by turning into sugars and maintain the efficiency of the immune system.



## Snacks and hydration during physical exertion.

As I mentioned earlier, during an output of 2-3 hours you can get to consume even 1500-2000 Kcal. In addition, in this season you get to lose even more than a liter of fluids per hour through sweating. It is therefore clear that if energy and liquid stocks were not replenished after about two hours, there would be a substantial drop in performance!

What to eat during the effort? Remember that you must anticipate hunger, and that whatever you eat must be digested. Therefore:

- eat 1-2 times an hour in small quantities,
- introduce easily digestible food with high energy density. Here are some examples:



Good hydration is the first condition to express maximum competitiveness



- an energy bar (40g),
- dry biscuits (50g),
- 30-40 gr of chocolate,

Solid foods take longer to digest, so if there is an energy need, liquid foods are preferable to be consumed 20-30 minutes before need, such as near a final sprint:

- specific Sport Gel with maltodextrins and branched amino acids.

As for hydration, it is advisable to drink every 15-20 minutes in small sips (about 250 ml) in order to replenish about 500-750 ml of liquids every hour. I recommend, at least one water bottle (500-750ml) must contain a saline supplement!



## Post-workout recovery

Within an hour of the end of the activity, the body is particularly predisposed to the assimilation of valuable nutrients for recovery. The cyclist's postworkout diet aims to restore hydrosaline stores, recover and repair the protein structures of the muscles from damage caused by sustained effort, promote the restoration of muscle glycogen. Restore hydrosaline stocks: immediately after finishing the exit and until after the shower, drink abundantly to allow you to bring the state of hydration back to a physiological level. Fresh fruit, or smoothies, or extracts, are excellent for quickly recovering vitamins and minerals. Restore muscle glycogen: to recharge glycogen you will need the usual complex carbohydrates such as pasta, bread or crackers, accompanied by simple sugars, such as a 100% fruit juice. Remember that it takes about 20 hours to restore glycogen stores in the muscles and the first two hours after the race are the most important for the intake of nutrients that brings them back to standard levels. Repair muscle damage: the vigorous activity over time has damaged part of the muscle fibers and the excess free radicals generated to produce so much energy, it may have caused tissue damage and slowed muscle recovery. The repair of the muscle also takes place thanks to the free amino acids that are immediately assimilated at the muscle level, regenerating the damage quickly; in particular branched chain amino acids and glutamine (present in meat, fish, eggs and cheeses). To counteract the negative action of free radicals, abundant doses of antioxidants should be taken from fruits and vegetables, immediately after the race or at the first meal.





**Sergio Zappone**

P.E. Teacher

Mountain biking represents freedom, pleasure, fitness.

It broadens your mind

For this reason I ride a bike at least twice a week



**Eleonora Pensabene**

P.E. Teacher

Mountain biking is an activity that involves psychophysical wellbeing. personally I go by bike any time I am under pressure to relieve the tension

