The Sublime Seatpost

Part 2: Adjust me

By Sheldon Brown

Seatposts, Part 1 (November/December 2000 issue) dealt with the hardware aspects of seatposts. This second and final installment in our series deals with the biomechanical issues of seatpost/saddle adjustment. The seatpost permits three different saddle adjustments: height, tilt and fore/aft position.

How High?

There are lots of formulas for determining saddle height, most based on multiplying leg length by some fudge factor. The numerical exercise to three decimal places gives the illusion of scientific rigor, but, in my opinion, these systems are an oversimplification of a problem that involves not only leg length, but also foot length, crank length, what part of the foot fits on the pedal, shoe sole thickness, type of pedal system and pedaling style.

PHOTO BY GREG SIPLE

It takes experimentation and patience to get your seat adjusted "just so" for the best possible riding position.

You cannot judge the saddle height to any accuracy by just sitting on it, or riding around the block. As you get close to the correct position, the clues get more and more subtle.

Most people start with the saddle too low. This is a habit left over from childhood, because growing children almost always have their saddles too low to pedal efficiently. First, they have it low for security while they are learning to balance; then, even once they have mastered balancing, their growth tends to keep them ahead of their saddle adjustment.

If you always ride with your saddle too low, you get used to it, and don't realize that there is a problem ... but there is! Riding with the saddle too low is like walking with your knees bent, Groucho Marx style. If you walked that way all the time, you'd also get used to that, but you'd think that half a mile was a long walk. The way the human leg is made, it is strongest when it is nearly straight.

I like to think that William Blake summed it up nicely 200 years ago when he said:

You never know what is enough
until you know what is too much.

I suggest gradually raising your saddle, perhaps half an inch (1 cm) at a time. Each time you raise it, ride the bike. If it doesn't feel noticeably worse to ride, ride it for at least a couple of miles. If the saddle was too low before, your bike will feel lighter and faster with the new riding position. If raising the saddle improved things, raise it again, and ride it some more. Keep doing this until you reach the point where the saddle is finally too high, then lower it just a bit.

When the saddle is too high, you'll have to rock your hips to pedal, and you'll probably feel as if you need to stretch your legs to reach the bottom part of the pedal. Another indication that the saddle may be too high is if you find yourself moving forward so that you are sitting on the narrow front part of the saddle. (This symptom can also result from having the saddle nosed down, or having an excessive reach to the handlebars.)

It also makes a bit of difference what sort of pedals/shoes you use. If you ride with ordinary shoes, virtually all of your pedaling power is generated by the downstroke, so a good leg extension is essential to let you apply maximum power in this direction.

If you use cleated cycling shoes, however, you can also generate a fair amount of your power by pulling the pedal backward near the bottom of the stroke. This action also uses the large muscles in the back of the leg, and can be quite efficient. If you make use of this pedaling style, you'll want a slightly lower saddle position than for direct "piston-style" pedaling with street shoes. Aslightly lower saddle position is also conducive to pedaling a rapid cadence.

Tilt Adjustment

The angle of the saddle should be pretty close to horizontal. Some men prefer the front to be slightly higher than the rear; some women prefer the front slightly lower than the rear, but extreme angles should be avoided. If the saddle is nosed up too far, it is likely to increase pressure on the soft tissues, and cause all sorts of problems.

If the saddle is tilted down in front, the rider will tend to slide forward onto the narrower part of the saddle. Women who are riding on saddles that were designed for men frequently tilt their saddles down. This will relieve some of the discomfort from the saddle itself, but creates new problems: The downward slope of the saddle causes the rider to tend to slide forward, and this can only be counteracted by pressure on the hands. Thus, poorly angled saddles often are the cause of wrist, shoulder and neck problems, due to carrying too much of the rider's weight on the hands.

Front-back position

Ideally, this adjustment should be made to set the saddle at the correct distance behind the bottom bracket, so that you are pedaling at an efficient angle. The conventional wisdom is that, when the pedal cranks are horizontal, your kneecap should be directly above, or a bit behind, the pedal spindle. For a touring cyclist, moving back a bit more is often helpful.

It is generally a bad idea to tinker with saddle position to adjust the reach to the handlebars; it is better to adjust this by replacing the handlebar stem with one with a different reach, or select a bicycle with a different length top tube.

It is common for cyclists who experience hand or wrist soreness to try to cure it by moving the saddle forward, but this is often counterproductive. Try standing with your heels against a wall, then see how far you can lean your upper body forward. You'll find you can hardly lean it at all without holding on to something, because you are moving your center of gravity to a point in front of your feet. If you then step away from the wall, you'll be able to lean forward with no problem, because as you lean your upper body forward, your tush moves back to maintain your balance.

The same effect happens on a bicycle. If you are pedaling with some force, most of your weight will be carried by your legs - but only if your rear end is far enough back to keep your body weight centered over your feet.

All three of these adjustments interact with one another, and you shouldn't expect to get your position perfectly "dialed in" all at once. Experiment over a period of weeks with small tweaks to different aspects of your position. Whenever you make a small change, if the result is not obviously worse, ride at least a few miles to evaluate the different position. Don't be in a hurry. ●

Adventure Cycling member and Adventure Cyclist columnist Sheldon Brown has his own website, loaded with cycling info, together with Harris Cyclery in West Newton, Massachusetts, at sheldonbrown.com/harrisch